

Anaesthesia Practitioner Curriculum Framework – June 2005

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June 2005

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The development of this document

This document outlines the curriculum framework for the training of anaesthesia practitioners (APs). The development of anaesthesia practitioners in England is a core component of the New Ways of Working in Anaesthesia (NWWA) programme and, over the next three years, these new practitioners will be part of anaesthesia teams in the UK in those NHS Trusts that are collaborating in this development.

The education preparation of these new practitioners is clearly of major importance and the presentation of this curriculum is the result of two years' collaborative working between:

- The Royal College of Anaesthetists
- Association of Anaesthetists Great Britain and Ireland
- Association for Perioperative Practice
- British Anaesthetic and Recovery Nurse Association
- Association of Operating Department Practitioners
- Group of Anaesthetists in Training
- The Royal College of Anaesthetists Patient Liaison Group
- Clinical leads from the programme sites
- Phase 1 trainee anaesthesia practitioners.

The detail of the curriculum itself is the result of close collaboration between the Royal College of Anaesthetists, NHSU and the University of Birmingham, and builds on early work conducted by Dr David Greaves for the Royal College, and overseas nurse anaesthetist curricula. A wider Stakeholder Board has been able to comment and influence each stage of development of the curriculum and is supportive of its implementation for the first cohort of trainee anaesthesia practitioners.

The anaesthesia practitioner role is to be a nationally transferable role and is seeking regulation as a protected title to ensure the safety of patients. In order to achieve regulation a well defined body of knowledge is required, which is detailed in the national curriculum, as are the standards to which these practitioners must adhere. This document outlines the educational standards required for the role and forms the basis of the curriculum framework.

Foreword

I am delighted to present to you the curriculum framework for the training of anaesthesia practitioners. This document has been developed for the New Ways of Working in Anaesthesia (NWWA) programme as part of the NHS Modernisation Agency's Changing Workforce Programme (CWP). The curriculum has been produced by a partnership between the Royal College of Anaesthetists, NHSU and the University of Birmingham, and I would like to acknowledge the contributions of each of these parties and the wider Stakeholder Board in driving forward the development of this new practitioner role. It will be a further two to three years before anaesthetic teams in England can benefit from the skills of these practitioners, but this curriculum represents a major milestone in achieving an expanded anaesthesia team.

The anaesthesia practitioner role is new to the healthcare system in England and it is credit to the Royal College of Anaesthetists and other professionals who are part of anaesthesia teams that they have been willing to embrace this concept and to take forward this collaborative project.

The curriculum framework as presented in this document will allow the NHS to commission anaesthesia practitioner training against the set of national standards and competences. In sites across England a number of NHS Trusts have agreed to be part of this first wave of training. Although there is still work to be done in implementing the programme and ensuring standards, I have every confidence that based on this document NHS Trusts will have available a new skilled and knowledgeable additional member of the anaesthesia team.

I hope that NHS Trusts, education commissioners and universities will work in partnership to facilitate the implementation of this curriculum to enable the introduction of this new role.



Neil McKellar
Chair of New Ways of Working in Anaesthesia Stakeholder Board
Director, Workforce Development
Shropshire and Staffordshire Strategic Health Authority

Introduction

This curriculum framework is a component part of the New Ways of Working in Anaesthesia (NWWA) programme to develop anaesthesia practitioners in the UK health system. In this context the anaesthesia practitioner is a non-medical practitioner working as part of the anaesthesia team. The parameters for the role are defined in the role description and in the Royal College of Anaesthetists' statements on supervision and working practices.

The programme is open to current health professionals and those wishing to train in healthcare work for the first time. It is 27 months long and, in common with all clinical trainings, the largest component is the clinical work, which is under the supervision of an anaesthetist. The clinical training is complemented by academic study of those disciplines relevant to the practice and understanding of the role.

The qualification offered at the end of the programme will be at postgraduate level.

The implementation of this curriculum requires partnership working between NHS Trusts, universities, the Royal College of Anaesthetists and education commissioners.

It is acknowledged that all curricula are dynamic documents that require updating in relation to the experiences of implementation, new technologies, new areas of knowledge and new working practices. This curriculum will benefit greatly from the experiences of the first cohorts entering training in 2005, and there will be ongoing evaluation and updating as experience of training these practitioners increases. We will be pleased to receive comments on this document from both trainers and trainees.

Each of the sections builds on the first section, entitled Curriculum Framework, and holds supporting information to allow the education of anaesthesia practitioners to be commissioned. The more detailed Core Syllabus, Module Learning Outcomes and Clinical Competences outline the role that the anaesthesia practitioner will be trained to undertake once qualified, and the teaching input that will need to be delivered in order to achieve that level of competence and qualification.

Additional teaching and learner support materials will be available late 2005.

Section One: Curriculum Framework

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Introduction

This section describes the curriculum framework for the anaesthesia practitioner national learning programme. It is intended to guide the education and development of the anaesthesia practitioner through all of the teaching and learning activities in the work based and other learning environments. Assessment, which is integral to all teaching and learning activities, forms part of this framework.

Teachers in all settings should use this framework to plan the education of the practitioner and to maximise learning opportunities in all environments.

This curriculum was developed on behalf of the NHS Modernisation Agency in collaboration with the Royal College of Anaesthetists (RCoA), NHSU and University of Birmingham.

The Changing Workforce Programme (CWP), part of the NHS Modernisation Agency, established a national programme of work in 2003 focusing on roles within anaesthesia, in the context of new ways of working. This programme builds on a joint evaluation of non-medical staff in the delivery of anaesthesia services in Sweden, Holland and the USA, undertaken by the CWP, Department of Health and RCoA.

The anaesthesia practitioner will work as part of the anaesthetic team. This new role is seen to be important in pioneering the shift of work, traditionally done only by doctors, to new, non-medically trained grades of staff. It also addresses the current workforce planning problems in anaesthesia.

In detail this curriculum is intended to:

- a) develop a practitioner role that enables the anaesthesia team to have more staff working differently
- b) enable one medical anaesthetist to run two lists and release anaesthetists for other medical roles and teaching and training
- c) maintain patient safety and have transparency to the public
- d) maintain the quality of care and outcomes
- e) develop appropriate continuing education and training
- f) involve non-medical roles working as part of a team with medically qualified anaesthetic staff and in a supervised capacity i.e. by providing more widely technical skills currently unique to medically qualified anaesthetists.

The audience for this section

This section is intended for:

- Those wishing to become anaesthesia practitioners
- Those wishing to offer an educational programme leading to qualification
- Patients and the lay public, providing the standards required for the education and development of anaesthesia practitioners
- Regulatory bodies

- Educators in other professions as an explicit statement of the framework for the education of anaesthesia practitioners
- Those wishing to employ anaesthesia practitioners.

Entry requirements

Applicants should be able to show that they have carefully considered the commitment involved in a career in anaesthesia. They must demonstrate to the selection panel that they have good communication skills and the ability to work well within a team.

Candidates will come from diverse backgrounds and this has been reflected in the entry requirements in order to enable equitable access. To facilitate equitable access it is anticipated that an admissions advisor will advise applicants appropriately.

Entry to the national learning programme will be open to applicants from one of two different routes:

1) Registered healthcare practitioners

e.g. nurses, operating department practitioners (ODPs) with one or both of the following:

- a) At least three years, full-time, post-qualification work experience in a relevant area and evidence of recent (within three years) and successful academic activity
- b) A first degree in a health-related subject.

2) New entrants to healthcare (graduates or graduate equivalent)

- With a biomedical science, or biological science background
- Preferably with a second class Honours degree or better, or other evidence of recent and successful academic activity
- With a demonstrable commitment to a career in healthcare.

All applications will be individually assessed.

Course structure

The course is at postgraduate diploma level and lasts for 24 months. Successful completion of the course will be followed by three months of pre-registration work experience and then registration. Work is under way to establish an interim voluntary register for anaesthesia practitioners.

The course is made up of 12, two-month modules of teaching. Each module lasts for approximately 35 days to allow for holidays etc.

Each module is broken down as follows:

Directed self study	70 hours
Small group teaching	14 hours
Clinical skills teaching	21 hours
Workplace experience	140 hours

These are times averaged across all 12 modules. Depending on prior knowledge and experience some flexibility is allowed between time spent on theory and skills learning within a module.

Directed self study

This will comprise a combination of bespoke material delivered through e-lectures and interactive computer-aided tutorials with links to existing high quality online and written material where appropriate. Extensive use of problem-based learning techniques will be used in this component of the curriculum.

The trainee will need to have access to a computer with appropriate software and Internet access. (See Appendix 4)

This study will be supported by a module handbook, which will contain essential information points and suggestions for further reading.

Small group teaching

There will be seven two-hour tutorials in each module delivered locally by consultant anaesthetists, senior anaesthetic trainees and other senior staff from related disciplines. The module handbook contains learning objectives for each tutorial as well as additional information. Some tutorials will use problem-based learning methods for the illustration of case management.

Clinical skills teaching

Clinical skills teaching is broken down into three components: communication skills, practical procedural skills and clinical examination skills. A series of clinical skills workbooks will support the curriculum. Where possible this teaching will be delivered through existing clinical skills facilities or through simulator-based training. The curriculum is, however, designed so that these skills can be taught and learnt using readily available low fidelity simulators.

Workplace experience

The majority of the practitioners' training time will be spent in the operating room observing anaesthetic and surgical practice, undertaking clinical procedures under supervision, using anaesthetic and monitoring equipment and discussing case management with experienced senior staff.

It is anticipated that learning opportunities will be sought in other clinical learning environments, which will support the achievement of the learning outcomes of the programme.

A series of guided discussion notes are available in the module handbooks for trainees and tutors, to ensure that appropriate areas are covered during this time.

Record of In-training Experience (RITE)

The trainee will keep a detailed diary of workplace experience as a record of in-training experience. This will take the form of a structured weekly diary recording the following for each case observed:

- Patient demographics and ASA grade (American Society of Anesthesiologists scale of risk)
- Operation details including duration
- Anaesthetic technique, drugs used
- Airway used
- Ventilation used
- Monitoring used
- Recovery
- Untoward events.

A series of workplace tasks mapped to learning outcomes will be included for each module, and successful completion of these will be recorded in the diary.

In addition the diary contains a record of topics covered in in-theatre teaching and a record of areas not fully understood so facilitating reflective practice.

The diary can be held as a paper or electronic system but the paper version will be transcribed onto a computer database at regular intervals so allowing:

- Secure backup of data collected
- Analysis of procedures seen and practised
- Record of successful task completion
- Comparison with peers' data and identification of areas needing further attention
- Analysis of experience for use by local tutor
- Analysis of experience by local delivery group and curriculum design team.

Assessment Strategy and Learner Support

Module Entry Questionnaire

Each module starts with a short questionnaire to ascertain prior knowledge and experience; from this the trainee will be given a guide as to how much time they should spend on the theory and practical components of the module.

Formative Assessments

Each e-lecture and e-learning tutorial contains a selection of formative quizzes with immediate feedback and revision suggestions.

Summative Assessments

The main summative assessments occur at eight and 24 months and are structured as follows:

- 1) 8 Month Assessment: MCQ (multiple choice questions), PBL (problem-based learning), Clinical Skills Workbook completion, RITE Diary, Tutor Assessment (Attitudes & Behaviour)
- 2) 24 Month Assessment: MCQ, PBL, Clinical Skills Workbook completion, RITE Diary, Tutor Assessment (Attitudes & Behaviour), OSCE (objective structured clinical examination) at Royal College of Anaesthetists

The individual components will be assessed as follows:

MCQ: Students will have to achieve the pass mark to continue.

Clinical Skills: Students will be assessed against a detailed set of criteria demonstrating an acceptable theoretical knowledge of the procedure as well as the ability to perform the procedure in an acceptable fashion. **Pass/Fail**

RITE: To pass the RITE component of the assessment students will have to achieve the following:

- a) Exposure to an adequate number and variety of cases
- b) Successful completion of RITE tasks for each module. **Pass/Fail**

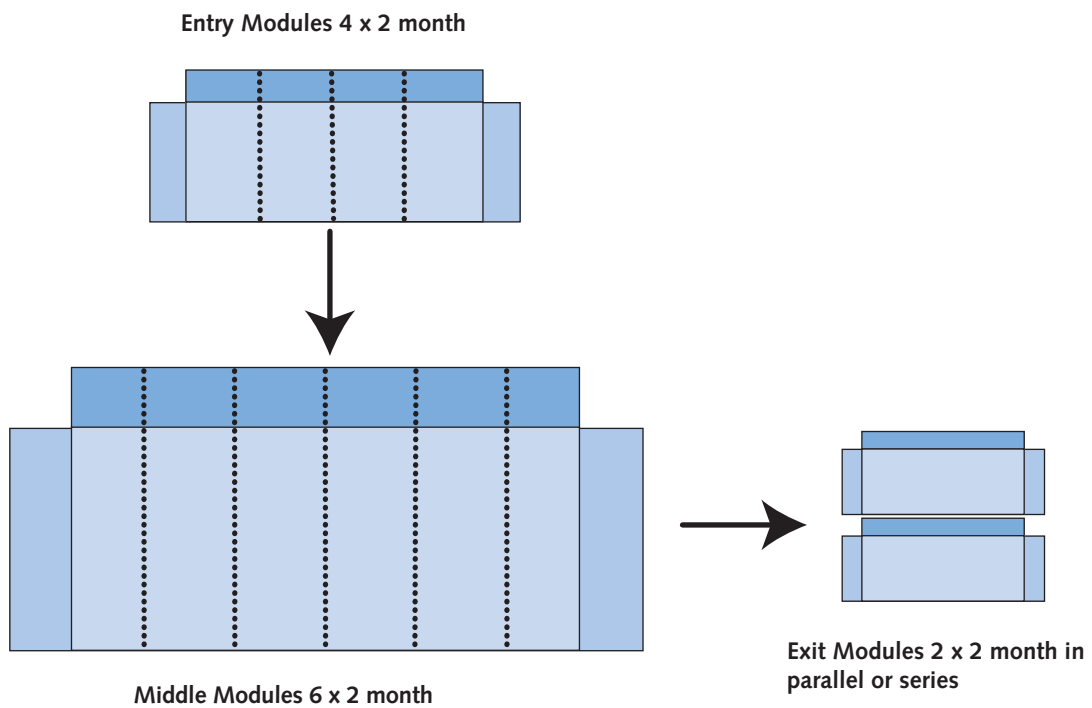
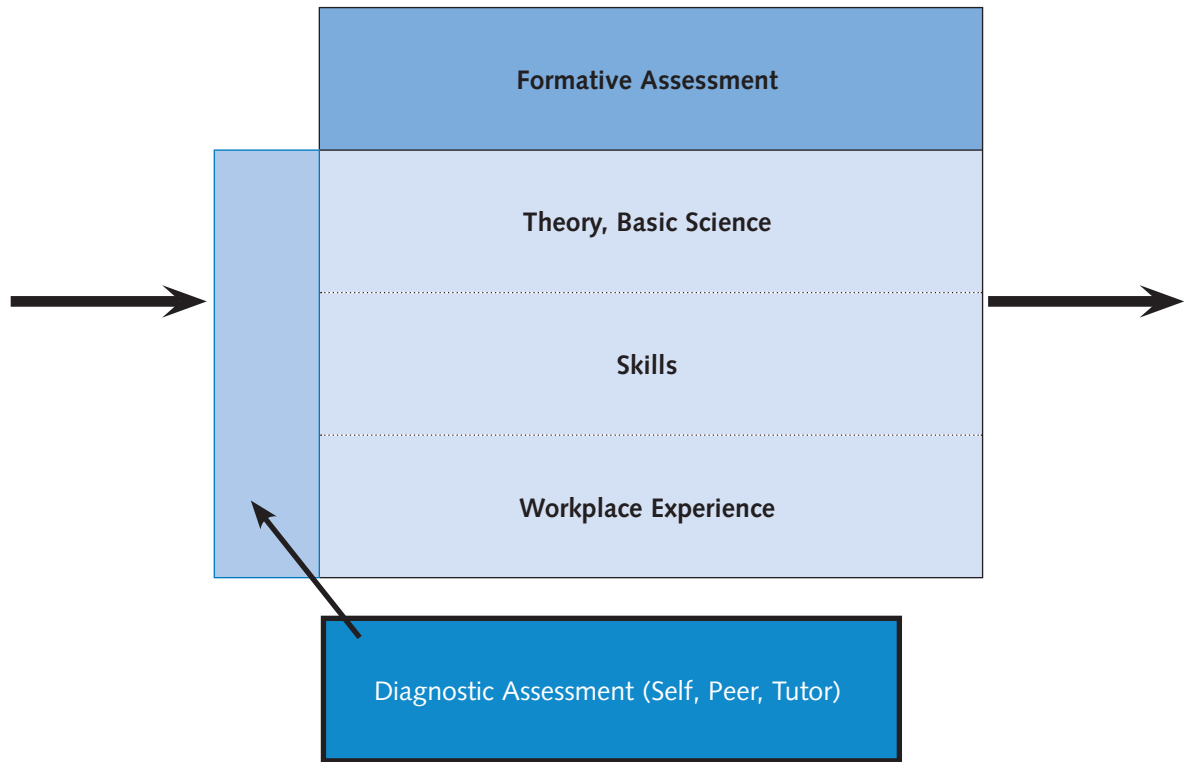
Tutor Assessment: In exceptional circumstances a tutor may consider it inappropriate for a student to continue because of unacceptable attitudes or behaviour. Tutor comments will be fed back to students from this component of the assessment.

All components of the assessment have to be passed to progress; cross-competency compensation is not permitted.

Appendix 1

Module structure

Each of the 12 modules is constructed in the same way as illustrated below.



Appendix 2

Detailed module structure

Module 1: Introduction to clinical practice (1)

Formative Assessment: MCQ (EMS [extended matching sets]), PBL, Personal Assessment form Learning Outcomes: A Core Competences: 1, 2, 3, 12, 14	
Module planning questionnaire	Theory: Hospital and Operating Theatre layout and functions The People in an Operating Theatre Basic Equipment & Safety The Patient, The Law, Ethics Personal Safety, Manual Handling
	Skills: Communications 1 Drawing up drugs Disposal of sharps Gloves, Manual Handling
	Workplace: Introduction to Operating department Meeting patients Observation of Anaesthesia & Surgery (1) Introduction to Anaesthesia

Module 2: Introduction to clinical practice (2)

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: A, B, C</p> <p>Core Competences: 1, 2, 3, 12, 14</p>	
<p>Module planning questionnaire</p>	<p>Theory:</p> <ul style="list-style-type: none"> Basic Physiology & Pathology Basic Anatomy & Pathology Introduction to Surgery Common Medical Conditions Introduction to Drugs
	<p>Skills:</p> <ul style="list-style-type: none"> Basic Clinical Examination Interpretation of simple investigations
	<p>Workplace:</p> <ul style="list-style-type: none"> Introduction to Surgery, Meeting other staff Inter-professional working Observation of Anaesthesia & Surgery (2)

Module 3: Introduction to anaesthesia

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: B</p> <p>Core Competences: 1, 2, 3, 4</p>	
<p>Module planning questionnaire</p>	<p>Theory:</p> <ul style="list-style-type: none"> Brief History General Anaesthesia principles Local & Regional principles Introduction to Anaesthetic Drugs & Pharmacology Induction, maintenance & recovery Anaesthetic records, ASA grading
	<p>Skills:</p> <ul style="list-style-type: none"> IV cannulation & setting up a drip Airway basics, Airway assessment, Cricoid pressure External Cardiac Massage (To BLS standards) IV injection of drugs
	<p>Workplace:</p> <ul style="list-style-type: none"> Induction of Anaesthesia Holding an airway Guedel, LMA, ETT insertion RSI

Module 4: Physics in anaesthesia

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: F</p> <p>Core Competences: 2, 4</p>	
<p>Module planning questionnaire</p>	<p>Theory:</p> <ul style="list-style-type: none"> Clinical Measurement Medical Devices Units of measurement Physics of Gases and Vapours, Pressure and Flow Electricity and electrical safety Statistics
	<p>Skills:</p> <ul style="list-style-type: none"> Peak Flow measurement Damped Waveforms Electrical Safety
	<p>Workplace:</p> <ul style="list-style-type: none"> Electrical Safety in practice

Module 5: The anaesthesia machine and monitoring

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: F</p> <p>Core Competences: 2, 3, 5</p>	
<p>Module planning questionnaire</p>	<p>Theory:</p> <ul style="list-style-type: none"> Brief History General principles Anaesthetic gases, Oxygen Vaporisers in practice Breathing systems & Mechanical ventilation ECG, NIBP, SPO2, Capnography, Ventilatory Volumes, NMB, Temp, Depth of Anaesthesia
	<p>Skills:</p> <ul style="list-style-type: none"> Checking anaesthetic machine Basic monitoring set up IPPV set up Suction
	<p>Workplace:</p> <ul style="list-style-type: none"> Maintenance and reversal of Anaesthesia Monitoring Oral suction

Module 6: The heart and circulation

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: C, D, E</p> <p>Core Competences: 1, 2, 13</p>	
<p>Module planning questionnaire</p>	<p>Theory:</p> <p>Anatomy of Heart & Circulation (+ pregnancy)</p> <p>Cardiovascular Physiology</p> <p>The ECG, CVP, PCWP, CO</p> <p>Cardiovascular Pharmacology</p> <p>Arrhythmias, low cardiac output, heart failure</p>
	<p>Skills:</p> <p>12 lead ECG</p> <p>Common Heart Sounds</p> <p>Advanced cardiovascular monitoring</p>
	<p>Workplace:</p> <p>Management of Hypotension & Hypertension</p> <p>Management of common arrhythmias</p> <p>Invasive Monitoring</p>

Module 7: The airways and lungs

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: C, D, E</p> <p>Core Competences: 1, 3, 5</p>	
<p>Module planning questionnaire</p>	<p>Theory:</p> <ul style="list-style-type: none"> Anatomy of Airway & Lungs Respiratory Physiology Spirometry, Blood gases Respiratory Pharmacology Asthma, COPD, Pneumonia
	<p>Skills:</p> <ul style="list-style-type: none"> Chest examination Common Breath Sounds Management of the difficult airway Nebulisers
	<p>Workplace:</p> <ul style="list-style-type: none"> Management of bronchospasm Disconnection, The displaced tube Blood gas monitoring Visit CCU: Advanced IPPV, CPAP etc.

Module 8: The kidneys, liver, endocrine system and blood

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: C, D, E</p> <p>Core Competences: 1, 2, 4</p>	
<p>Module planning questionnaire</p>	<p>Theory:</p> <ul style="list-style-type: none"> Anatomy of the Kidneys, Liver and Endocrine organs Physiology of Kidneys, Liver and Endocrine organs Physiology of Blood and Clotting, DVT prophylaxis Renal Failure, Liver Failure Pregnancy, Diabetes and management Diuretics, anticoagulants
	<p>Skills:</p> <ul style="list-style-type: none"> Interpretation of common Blood Tests Management of diabetes Checking blood Management of blood loss and coagulopathies
	<p>Workplace:</p> <ul style="list-style-type: none"> Routine fluid management Use of Blood & Blood Products (FFP, platelets etc.) Finding results Management of Oliguria

Module 9: The brain and the nervous system

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: C, D, E</p> <p>Core Competences: 1, 4, 5, 7</p>	
<p>Module planning questionnaire</p>	<p>Theory:</p> <p>Anatomy of the Brain, CNS, PNS, SNS etc. Physiology of Brain, CNS, CSF, NMJ, Pain Pharmacology of General Anaesthesia Pharmacology of local and regional anaesthesia Pharmacology of Neuromuscular Blockade Pain management and Pharmacology</p>
	<p>Skills:</p> <p>Depth of Anaesthesia Monitoring (PRST etc.) NMB monitoring PCA Management of Regional/Local blocks</p>
	<p>Workplace:</p> <p>Regional Anaesthesia & Local blocks Combined GA & Regional Sedation</p>

Module 10: Clinical history and examination

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: A, D</p> <p>Core Competences: 1, 6, 10, 11</p>	
<p>Module planning questionnaire</p>	<p>Theory:</p> <ul style="list-style-type: none"> Coexisting diseases Familial diseases The Law on Consent
	<p>Skills:</p> <ul style="list-style-type: none"> Communications 2 Taking a history Clinical Examination Finding and interpreting results Assessing the airway Explaining procedures
	<p>Workplace:</p> <ul style="list-style-type: none"> Pre-op Visits and ASA classification Post-op Visits Pre-op optimisation Post-op pain & fluid management

Module 11: Management of life-threatening emergencies

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: E</p> <p>Core Competences: 4, 5, 6, 8, 9, 13</p>	
<p>Module planning questionnaire</p>	<p>Theory: Basics of emergency management</p>
	<p>Skills:</p> <ul style="list-style-type: none"> Resuscitation to ILS standard as a minimum Anaphylaxis Unable to Ventilate, Unable to Intubate Regurgitation Laryngospasm, Bronchospasm Blood Loss Trauma Admission to HDU/CCU
	<p>Workplace: Increased responsibility cases</p>

Module 12: Advanced practice

<p>Formative Assessment: MCQ (EMS), PBL, Personal Assessment form</p> <p>Learning Outcomes: G, H</p> <p>Core Competences: 1, 4, 5, 14</p>		
<p>Module planning questionnaire</p>	<p>Theory: Audit, EBM, Professional Bodies, The NHS, Complaints</p>	<p>Summative MCQ, OSCE and RITE</p>
	<p>Skills:</p> <ul style="list-style-type: none"> Communications 3 Total case management Coping with difficult patients Coping with difficult colleagues Teaching others Personal reflection 	
	<p>Workplace: Increased responsibility cases</p>	

Appendix 3

Programme learning outcomes

The learning outcomes for this programme are designed to encompass the knowledge, skills and attitude that practitioners must achieve to become anaesthesia practitioners.

On completion of this programme the student/learner must:

- A. Be able to elicit a full history from the patient which identifies potential problems, before, during and post anaesthesia and to communicate this information to all members of the team.
- B. Demonstrate a good working knowledge of anaesthetic pharmacology and be able to articulate in theory and practice the physiological action of these drugs and their interaction with prescribed drugs that patients may be taking.
- C. Demonstrate a clear knowledge of the physiological changes which occur in all of the systems of the body during and after anaesthesia and be able to use the information to assess the patient's wellbeing during and post anaesthesia.
- D. Be able to use their knowledge of physiology to identify the needs of a patient who may be an anaesthetic risk due to a pre-existing medical condition.
- E. Have achieved a clear working knowledge of anatomy of the respiratory, cardiovascular system and the spinal cord and brain in order to induce anaesthesia and undertake emergency resuscitative procedures.
- F. Be able to demonstrate a clear working knowledge of the physics relevant to anaesthesia and to use that knowledge to monitor and measure patients' wellbeing during and after anaesthesia.
- G. Have developed the skills to reflect in and on their practice and to use the outcomes of the reflection for personal development and development, innovation and change in practice.
- H. Have developed the ability to support the learning of colleagues entering practice.

Appendix 4

Educational facilities

The curriculum will be delivered by a consortium of one or more NHS Trusts with a higher education partner.

Each consortium will need to provide the following facilities:

- 1) Registration as a postgraduate student with the higher education partner.
- 2) Access to personal study facilities.
- 3) Access to appropriate library facilities.
- 4) A nominated consultant anaesthetist to act as course tutor. This individual will liaise with the Royal College of Anaesthetists and will be required to attend a one-day educational workshop.
- 5) One or more anaesthetic tutors to deliver the weekly tutorials.
- 6) Access to operating rooms undertaking a wide spectrum of operations on adult patients under general anaesthesia. As a minimum these should include:
 - a) General Surgery
 - b) Orthopaedic Surgery
 - c) Gynaecological Surgery
 - d) ENT Surgery
 - e) Urology.
- 7) Access to an Adult Critical Care Unit to observe invasive monitoring techniques and the basics of adult critical care in practice.
- 8) Access to clinical skills training facilities. Ideally these will be delivered by a dedicated clinical skills training facility but as a minimum the equipment listed in the detailed clinical skills section of each module will be available.
- 9) The curriculum contains a substantial amount of material designed to be delivered by modern e-learning methods. In order to access this with maximum functionality, access to a personal computer with the following specifications will be required:
 - i) Internet access at ADSL broadband rate or higher
 - ii) Internet Browser (e.g. Internet Explorer 5 and above, Netscape Navigator 4.7 and above, Mozilla or Firefox.)
 - iii) Macromedia Flash Player 7.0 or higher
 - iv) Sound card
 - v) Headphones if in public area
 - vi) Access to printing facilities, unless the printed version of the curriculum has already been supplied.
- 10) Access to appropriate pastoral care facilities, occupational health etc.

Appendix 5

Course evaluation

The course will be evaluated as follows:

1) Learner Feedback

At the end of each module students will be encouraged to provide a detailed and structured feedback on the components of the module as well as the environment in which learning has taken place. This feedback will be distributed to the local education providers as well as the curriculum development and maintenance group at the University of Birmingham.

It is proposed to make use of discussion boards for student-student queries and feedback as well as student-tutor queries and feedback. This system is now routinely incorporated into e-learning management systems.

2) Tutor Feedback

A similar feedback process will be used for the course tutors who will have access to their own discussion boards as well.

3) Annual Review

The course will be extensively reviewed on an annual basis at a meeting of representatives from the students, tutors, Royal College of Anaesthetists and curriculum development team.

Section Two: Core Syllabus

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The content of this section is not a definitive list and should be read in conjunction with the clinical competences.

1. Anatomy and Related Physiology

1.1 General Physiology

- Understand the principle of homeostasis in the organisation of the human body and control of internal environment
- Understand how the details of physiology vary with age
- Understand the structure and function of cell membranes, their characteristics and the role of receptors
- Understand the principles of cellular metabolism and the function of enzymes
- Understand the constituents of the body: carbohydrates, proteins and fats
- Know the significance of metabolic pathways, energy production and enzymes, metabolic rate
- Know about the hormonal control of metabolism: regulation of plasma glucose, response to trauma.

1.2 Cardiovascular System

1.2.1 Anatomy

- Anatomy of the heart and the circulatory system
- The gross anatomy of the great vessels – including the surface anatomy of the central veins
- Structure of the antecubital fossa
- Structure of the large veins of the leg and femoral triangle arteries of arm and leg
- Structure of the blood supply to the heart
- Structure of the conducting system of the heart. Blood and nerve supply.

1.2.2 Physiology

- Can describe the structure of the blood supply to the heart and understand its significance in the aetiology and features of ischaemic heart disease
- Able to describe the basic principles of the fetal and maternal-fetal circulation
- Understand the impact of anaesthesia on normal cardiovascular physiology
- Understand the electrical conduction in the heart
- Understand the electrocardiogram
- Can describe the sympathetic and parasympathetic nerve supply to the heart

- Can describe the control of cardiac function by neurological and humeral mechanisms
- Understand the normal processes for control of cardiac output including the Starling relationship
- Understand the pathophysiology of heart failure
- Understand the relationship between cardiac output, blood pressure and peripheral resistance
- Understand the control of blood pressure and heart rate
- Can describe the cardiac cycle and relate it to the ECG and to the pressure and volume relationships in the chambers of the heart and great vessels
- Know the significance of osmolarity: osmolality, the partition of fluids across membranes and the function of the lymphatic system
- Understand the functions of capillary dynamics and the formation of interstitial fluid.

1.3 Respiratory System

1.3.1 Anatomy

- Anatomy of the upper airway and trachea
- The landmarks for tracheostomy, cricothyrotomy
- Anatomy of the lungs and pleura structure/function relationships
- Structure of the pulmonary and the bronchial arteries
- Structure of the lungs' lobes and the microstructure.

1.3.2 Physiology

- Describe the innervation of the bronchi and the significance of sympathetic and parasympathetic stimulation
- Describe the functional importance of the innervation of the larynx
- Describe the structure, function and innervation of the diaphragm and other muscles of respiration
- Explain the structure of the thoracic inlet and first rib and know its importance when cannulating the great veins
- Understand how oxygen and carbon dioxide move into and out of the blood
- Functions of haemoglobin in oxygen carriage and acid-base equilibrium
- Understand capillary/alveolar fluid dynamics and the formation of pulmonary oedema
- Understand how the body's pH is controlled
- Understand the interpretation of acid-base status
- Understand the interpretation of arterial pO_2 and pCO_2
- Understand the control of breathing

- Understand the mechanics of breathing
- Know about pulmonary ventilation: volumes, flows, dead space
- Understand the effects of hypoxia
- Understand the effects of hypercarbia.

1.4 The Renal System

1.4.1 Anatomy

- Anatomy of the structure of the kidney including the blood supply, the microscopic structure and the arrangement of the tubular system.

1.4.2 Physiology

- Understand water and electrolyte distribution in the body
- Understand the effect of anaesthesia and operation on renal function
- Understand the function of the kidney
- Understand water and electrolyte distribution in the body
- Understand the effects of fluid replacement
- Understand the effect of fluid and electrolyte depletion
- Can calculate a patient's normal fluid and electrolyte needs.

1.5 Haemostasis

- Describe the effects of major blood loss
- Understand blood clotting mechanisms
- Understand the consequences and risks of anaemia.

1.6 Hepatic Anatomy and Physiology

- Understand the anatomy and micro-anatomy of the liver
- Understand the function of the liver.

1.7 Central Nervous System

1.7.1 Anatomy

- The gross anatomy and functions of the autonomic nervous system
- The micro-anatomy of skeletal, cardiac and smooth muscle
- The process of muscle contraction

- The gross anatomy and surface anatomy of the spinal cord and meninges
- The gross anatomy of the brain and its subdivisions
- The gross anatomy of the spinal cord, structure of spinal cord, major ascending and descending pathways
- The spinal meninges, subarachnoid and extradural space, contents of extradural space
- The anatomy and surface anatomy of: brachial plexus, nerves of arm and intercostal nerves
- Nerves of abdominal wall, leg and foot.

1.7.2 Physiology

- Functions of the cranial nerves
- Know the structure of the eye and orbit in relation to the performance of local anaesthesia for eye surgery
- Understand membrane potentials
- Understand how the nerve action potential is generated and propagated – the synapse
- Motor function: spinal and peripheral
- Senses: receptors, nociception, special senses
- Pain: afferent nociceptive pathways, dorsal horn, peripheral and central mechanisms, neuromodulatory systems, supraspinal mechanisms, visceral pain, neuropathic pain, influence of therapy on nociceptive mechanisms
- Understand the micro-anatomy of skeletal, cardiac and smooth muscle
- Understand the process of muscle contraction
- Able to describe a reflex action and describe the course of the nerves that mediate it
- Understand how CSF (cerebrospinal fluid) is formed, its circulation and its pressure
- Understand the concept of spinal nerves, dermatomes.

1.8 Endocrine Physiology and Hormonal Control of Metabolism

- Body temperature and its regulation
- Mechanisms of hormonal control: feedback mechanisms, effect on membrane and intracellular receptors
- Hypothalamic and pituitary function
- Adrenocortical hormones
- Adrenal medulla: adrenaline (epinephrine) and noradrenaline (norepinephrine)
- Pancreas: insulin, glucagon and exocrine function
- Thyroid and parathyroid hormones and calcium homeostasis.

1.8.1 Pregnancy

- Physiological changes associated with normal pregnancy
- Materno-fetal, fetal and neonatal circulation
- Functions of the placenta: placental transfer.

1.9 Physiology of the Immune System and Responses to Infection

- Protective mechanisms of the body
- The cellular basis of immunity and allergy
- The mechanism, symptoms and signs of acute allergic reactions.

1.10 Physics

- Understand some of the causes of error in the measurement of physiological variables
- Be familiar with common SI units: fundamental and derived units
- Be familiar with other systems of units where relevant to anaesthesia (e.g. mmHg, bar, atmospheres)
- Understand the physics of gases and vapours
- The gas laws; triple point; critical temperature and pressure
- Density and viscosity of gases
- Laminar and turbulent flow; Poiseuille's equation, the Bernoulli principle
- Vapour pressure: saturated vapour pressure
- Measurement of volume and flow in gases and liquids
- Understand the principles of pressure transducers including resonance and damping, frequency response
- Measurement and units of pressure
- Direct and indirect methods of blood pressure measurement
- Understand the principle underlining common measuring instruments used in anaesthesia for gas and vapour concentrations (oxygen, carbon dioxide, nitrous oxide, and volatile anaesthetic agents)
- Understand the instruments for simple tests of pulmonary function e.g. peak flow measurement, spirometry – know the normal values of these in adults
- Understand the principle underlining pulse oximetry
- Able to explain the normal pulse oximeter trace and recognise possible causes of inaccuracy
- Able to explain the normal capnograph trace and recognise the forms of common abnormal traces.

2. Pharmacology

2.1 General Pharmacology

- Understand the mechanism and action of drugs used
- Understand the principles of the dynamics of drug-receptor interaction
- Understand the principle that drugs may behave as agonists, antagonists, partial agonists, inverse agonists
- Understand how the availability of drugs is influenced by protein binding
- Understand how the availability of drugs is influenced by the ionisation of drugs
- Understand how the laws of diffusion influence the availability of drugs at their site of action
- Understand how the availability of drugs is influenced by solubility and partition coefficients
- Know how ion channels are involved in controlling the movement of molecules across cell membranes
- Understand the administration of drugs by the IV route and understand the uptake and elimination of IV drugs
- Understand the uptake, distribution and elimination of drugs administered through the lungs
- Understand the role of the kidney in drug elimination
- Understand the role of the liver in drug elimination
- Understand the choice of available agents for pre-medication.

2.2 Anaesthetic Pharmacology

- Understand the pharmacology and physiology of reversing competitive muscle relaxants
- Understand the factors that influence the duration of action of individual muscle relaxants
- Understand the elimination characteristics of anaesthetics
- Understand the circumstances that influence the rate of elimination of individual intravenous anaesthetic agents.

2.3 Systemic Pharmacology

- Know the indications, contraindications, complications and important interactions of the common medications encountered during anaesthesia:
 - IV induction agents
 - Gases and vapours
 - Muscle relaxants
 - Anticholinesterases

- Anticholine agents
- Sympathomimetics
- Antiemetic agents
- Local anaesthetic agents
- Agents for premedication.
- Know the significance to the anaesthetist of drugs commonly taken by patients presenting for anaesthesia:
 - Drugs acting on the heart and cardiovascular system (including inotropes, vasodilators, vasoconstrictors, antiarrhythmics, diuretics)
 - Drugs acting on the respiratory system (including respiratory stimulants and bronchodilators)
 - Antihypertensives
 - Anticonvulsants
 - Antidiabetic agents
 - Diuretics
 - Antibiotics
 - Corticosteroids and other hormone preparations
 - Antacids. Drugs influencing gastric secretion and motility
 - Antihistamines
 - Antidepressants
 - Anticoagulants.

3. The other core elements which will develop and shape this programme are:

- Clinical history taking and examination
- Communication skills
- Ethical issues as related to practice
- Principles of statistics
- Medicine and Surgery in relation to anaesthesia
- Legislation and policies underpinning and influencing practice
- Principles of pre and postoperative care
- Principles of teaching, learning and assessment
- Principles of clinical audit
- Principles of developing, acquiring and using evidence for practice
- Principles of reflection in and on practice
- Team working
- The changing NHS and the healthcare policies which impact on practice.

Section Three: Module Learning Outcomes

Introduction

This section contains **general** learning outcomes for each of the twelve modules in the Anaesthesia Practitioner programme. The learning outcomes should be the focal point for both tutors and learners involved in this programme, used to guide learning and prepare for assessment. They have been developed alongside the overall programme outcomes presented in the Curriculum Framework and Core Syllabus sections.

Each module will be delivered with an associated handbook, containing the outcomes presented here, together with more detailed and specific descriptors of expected learning behaviour. An example of this is shown below.

General outcome:

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

- *The layout and basic function of the typical anaesthetic room and operating theatre*

Specific outcomes:

- *The layout and basic function of the typical anaesthetic room and operating theatre*
 - *Describe the basic function of the anaesthetic machine*
 - *Describe the location and function of relevant equipment, particularly that required in an emergency*
 - *Demonstrate how the operating table controls are manipulated, in order to make, break, lock and unlock it*

Communication is implicit in all modules, but will be explicit in the specific learning outcomes for modules 1 – 3, 10 and 12. It will also be included as part of the reflective learning in the RITE (Record of In-training Experience) diary.

Module 1: Introduction to clinical practice (1)

This is the first introductory module which is wide in scope and which approaches a range of **common** issues at a basic level. All of these will be re-visited as the course proceeds: the objective of this and the next module is to provide an overview of clinical practice.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. The layout and basic function of the typical anaesthetic room and operating theatre
2. Good practice that ensures personal safety at work
3. The importance of clear and timely communication with patients and staff
4. The principles of patient care, before, during and after surgical procedures
5. The basic equipment used in anaesthesia
6. The importance of oxygenation and the basic management of the upper airway
7. The basic ethical and legal issues surrounding surgery and anaesthesia and the importance of anaesthetic records
8. The range of surgical procedures undertaken and their impact on the conduct of anaesthesia.

Module 2: Introduction to clinical practice (2)

This is the second introductory module that introduces the student to basic anatomy, physiology and pathology. It describes the classes of drugs used in anaesthesia, emphasises the importance of underlying medical conditions and builds on the theme of safe practice begun in Module 1. As in Module 1, the style is broad rather than deep, and all the subjects will be returned to in later parts of the course.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. The physical layout of the body, the positions and pathways of the major organ systems and their core functions
2. Common pathological conditions that are treated surgically
3. Common medical conditions found in surgical patients and the implications of these for anaesthesia
4. The basic examination of patients, monitoring of their physiological status and interpretation of simple investigations
5. The major classes of drugs encountered in anaesthetic practice, the routes they are administered and the concept of balanced anaesthesia
6. The principles of preventing cross-infection
7. Different types of surgery and the way in which they require anaesthesia to be conducted
8. The principles, and importance, of good inter-professional working.

Module 3: Introduction to anaesthesia

This module develops the practical and theoretical aspects of anaesthesia and peri-operative care. It develops further the factors needed for the safe practice of, and recovery from, anaesthesia.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. The discovery and historical development of anaesthesia
2. The methods of establishing anaesthesia and recording its progress on an anaesthetic chart
3. The theoretical and practical aspects of the administration of IV anaesthetics, inhalation anaesthetics, analgesics and relaxants
4. Assessment of the airway
5. Induction of anaesthesia, including rapid sequence induction
6. Maintenance and termination of anaesthesia
7. Caring for a patient in the recovery room
8. Caring for a post-operative patient on the ward
9. Resuscitation to BLS (basic life support) standard.

Module 4: Physics in anaesthesia

The objectives of this module are to understand why certain physiological parameters must be observed and how the equipment works that makes these measurements. The importance of measuring units and their application to drug administration will also be explored.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. The physiological trespass of anaesthesia and the causes of anaesthetic accidents
2. The properties of materials (solids, liquids and gases) with specific application to gases and vapours
3. Units of measurement in common use and the preparation of diluted drugs
4. The basic principles of electricity and its application to diathermy, defibrillation and electrical safety
5. Flow and pressure transducers: waveforms, damping and resonance
6. The measurement and analysis of certain physiological variables
7. The principles underlying common measuring equipment used in anaesthesia.

Module 5: The anaesthesia machine and monitoring

This module builds on the foundations of safe practice set out in Module 3 and develops them further in light of the increased knowledge of physics from Module 4. It also introduces the anaesthesia machine in more detail and looks at critical incidents and minimal monitoring.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. Why the anaesthesia process necessitates clinical monitoring
2. The physiological and biochemical variables that require monitoring
3. The purpose and function of the anaesthetic machine
4. Gas pipelines, cylinders and suction
5. Vaporisers, capnographs and pulse oximeters
6. Minimal monitoring, oximetry, capnography, NIBP (non-invasive blood pressure) and the ECG (echo-cardiogram)
7. Breathing systems and ventilators
8. Monitoring neuromuscular block
9. Invasive versus non-invasive monitoring.

Module 6: The heart and circulation

This is the main module that addresses the knowledge of the cardiovascular system, required to underpin safe practice and to detect abnormalities. It also looks at cardiovascular pharmacology, pacemakers and the circulation in pregnancy.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. The anatomy of the heart and major blood vessels
2. The peripheral circulation and receptors
3. The generation and control of the heartbeat
4. The ECG and the cardiac cycle
5. Heart failure, heart block, arrhythmias and pacemakers
6. The generation and maintenance of the blood pressure
7. The pulmonary circulation and venous pressure
8. Drugs that work on the cardiovascular system
9. The cardiovascular system during pregnancy – maternal and foetal
10. Common heart sounds and advanced cardiovascular monitoring.

Module 7: The airways and lungs

This is the main module that addresses the knowledge of the respiratory system, required to underpin safe practice and to detect failures of oxygenation. It also looks at pulmonary pharmacology, relevant clinical investigations and common diseases of the respiratory system.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. The anatomy, functions and examination of the upper airway
2. The anatomy, functions and examination of the major bronchi and lungs
3. Gas exchange, emboli, shunts, hypoxia, the normal and abnormal capnograph
4. Problems with pulmonary function
5. Interpretation of clinical investigations relevant to the respiratory system
6. Pulmonary pharmacology and the administration of drugs via the airways.

Module 8: The kidneys, liver, endocrine system and blood

This is the main module that addresses the relevance of the kidneys, liver and endocrine system. It also reviews the uptake and excretion of drugs, the management of diabetes, the control of body temperature and haemostasis.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. The anatomy and functions of the kidneys, including the consequences of renal failure
2. Oliguria and the action of diuretics
3. The anatomy and functions of the liver, including the consequences of liver failure
4. The uptake, management and excretion of drugs
5. The anatomy and functions of the thyroid and parathyroid glands
6. The anatomy and functions of the adrenal and pituitary glands: the stress response
7. The anatomy and functions of the pancreas and the management of diabetes
8. The control of temperature and the effects of anaesthesia and surgery
9. Blood clotting, anticoagulants and DVT (deep vein thrombosis) prophylaxis
10. Checking blood and interpreting common blood tests.

Module 9: The brain and the nervous system

This is the main module that addresses the knowledge of the nervous system and neuromuscular junction. It addresses the effects of anaesthesia on both, and reviews the pharmacological mechanisms that result in anaesthesia and relaxation. It also considers pain pathways, analgesics and the provision of an acute pain service.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. Anatomy of the central nervous system: major ascending and descending pathways
2. Blood flow to the brain and spinal cord: formation and circulation of CSF (cerebrospinal fluid)
3. Anatomy of the peripheral nervous system
4. Pain pathways and reflexes
5. Synapses and the neuromuscular junction
6. Pharmacology and mechanisms of neuromuscular blockade
7. Pharmacology and mechanisms of general anaesthesia
8. Uptake and distribution of general anaesthetics: depth of anaesthesia and sedation
9. The acute pain service and administration of analgesics
10. Classes of analgesic, their pharmacology and uses
11. The principles of local anaesthetic action and managing patients with regional and axial blocks.

Module 10: Clinical history and examination

This module formally brings together all the experience that has been acquired from previous modules and in the workplace. It is presented in this way to graft more advanced practice onto the basic building blocks of clinical history and examination, so as to develop the potential for individual case management.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. Good communication with patients and staff
2. Consent for adult patients
3. Pre-operative assessment, taking a history and the ASA grading system
4. The impact of common co-existing and familial diseases
5. Examination of the airway, respiratory and cardiovascular systems
6. The interpretation of abnormal findings in the history, examination and investigations
7. The pre-operative optimisation of patients
8. Post-operative fluid management and blood transfusion
9. Post-operative pain relief, nausea and vomiting.

Module 11: Management of life-threatening emergencies

Similarly to Module 10, this module formally brings together all the experience that has been acquired from previous modules and in the workplace as it relates to the management of emergencies.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. The practice of resuscitation to ILS (intermediate life support) standard (as a minimum)
2. Can't intubate, can't ventilate: emergency airways
3. Bronchospasm, laryngospasm
4. Prevention of aspiration, management of regurgitation
5. Anaphylaxis and adverse drug reactions
6. Major blood loss and shock
7. Management of intra-operative death.

Module 12: Advanced practice

This module complements the clinical and basic sciences aspects of the course by introducing the trainee to human personality and behavioural problems that are encountered from time to time. It is not intended to be comprehensive, nor is it adequate as a preparation for dealing with some of the problems it considers. It is, however, intended to give an appreciation of situations that occur occasionally that can be particularly challenging. In addition to human factors, there is also an introduction to audit, the law on controlled drugs and the presentation of data.

During this module, trainees should develop the appropriate level of knowledge, skills and attitudes in relation to the following:

1. Communication problems
2. Managing difficult patients
3. Managing difficult colleagues
4. Handling and investigating a complaint
5. Audit, critical incident reporting
6. Managing controlled drugs
7. Integrated case management
8. The presentation and simple analysis of data.

Section Four: Clinical Competences

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Introduction

This is the framework of competences that the Royal College of Anaesthetists (RCoA) will use for the clinical teaching of anaesthesia practitioners.

Many people and specialist groups have contributed to the writing of this section from the original source of the RCoA training document for SHOs. The input from all sources was reviewed and developed by a working party within the RCoA.

Occasionally Council or the Anaesthesia Practitioner Committee will have to take decisions that may affect the immediate interpretation or application of specific topics in this section.

This section is a training guide that describes the extent of the practical training required for qualification as an anaesthesia practitioner. It is not a job description for the clinical work of such practitioners. Qualified practitioners may use only a limited range of these competences in their work, or their competences may be further extended in some areas by local training initiatives – after they qualify.

General exclusions

This curriculum framework is designed on a specific set of competences as set out in the role description agreed by the NWWA Stakeholder Board and RCoA. Currently the following general exclusions are included in the training:

- The AP will work under the direct supervision of a suitably qualified anaesthetist. This may be a consultant; an NCCG, who has been recognised for this role by management, or a senior SpR. Anaesthetists may supervise two APs simultaneously.
- The AP will be under direct supervision (the supervisor will be present in the operating theatre) for induction of general anaesthesia and during emergence from general anaesthesia
- The AP will not anaesthetise children under 15 but may work as assistant to an anaesthetist who is anaesthetising children
- The AP will not engage in obstetric anaesthesia
- The AP will not administer regional blocks
- The AP cannot prescribe drugs.

1	Preoperative preparation and planning
1.1	<p>Knowledge</p> <p><i>AP will consistently demonstrate in the course of work (or in the simulator) that they understand the issues that affect the preparation of patients for anaesthesia and surgery. They will be able to explain what has influenced the decisions they make in preparing patients for anaesthesia and surgery. They will know and understand any relevant guidelines.</i></p>
1.1.1	The AP shows an understanding of the principles underlying the preparation of the patient for surgery. This is demonstrated in the conduct of anaesthesia in that the AP:
1.1.1.1	Knows the ASA classification and other scoring systems such as Glasgow Coma Scale (GCS)
1.1.1.2	Explains the implications for anaesthesia of common operations
1.1.1.3	Explains the implications for anaesthesia of common medical conditions (ischaemic heart disease, hypertension, diabetes, asthma, rheumatoid arthritis etc.)
1.1.1.4	Explains the anaesthetic implications of current drug therapy and whether it should be continued, modified stopped or changed perioperatively
1.1.1.5	Explains the implications, for anaesthesia, of trauma, intestinal obstruction and acute abdominal emergencies
1.1.1.6	Explains the problem of genetic diseases in anaesthesia e.g. suxamethonium apnoea and malignant hyperpyrexia
1.1.1.7	Explains the importance of the patient's anaesthetic history
1.1.1.8	Explains the importance of family history of surgery and anaesthesia
1.1.1.9	Explains why it is important to restrict food and fluid by mouth and knows the correct periods of starvation for patients – including exceptions in emergencies
1.1.1.10	Explains the dangers of repeat anaesthesia
1.1.1.11	Describes relevant protocols and guidelines (local and national) relating to the preparation of patients for anaesthesia and surgery
1.1.2	The AP shows understanding of the factors that influence how to take a history and make a physical examination. The AP:
1.1.2.1	Explains the assessment of the patient's cognitive state (their ability to understand and cooperate)
1.1.2.2	Shows how to take a history from a patient in accordance with the principles they have been taught
1.1.2.3	Explains the principles of assessing potential difficulties in airway management
1.1.2.4	Explains the importance of accurately documenting the pre-operative assessment
1.1.3	Demonstrates understanding of the use of data in planning anaesthesia by explaining the use of the following test results:
1.1.3.1	<p>Clinical</p> <ul style="list-style-type: none"> • Systolic, diastolic and mean arterial pressure • Respiratory function tests • Electrocardiographs • Exercise tests • Central venous pressure measurement • Interpreting fluid balance and other charts

1.1.3.2	<p>Radiological</p> <ul style="list-style-type: none"> • Chest radiographs • Films showing long bone, skull, vertebral and rib fractures • CAT and MRI scans of head demonstrating fractures/haemorrhage • Neck and thoracic inlet films • Abdominal radiographs
1.1.3.3	<p>Laboratory</p> <p>Knows the values of the normal range.</p> <ul style="list-style-type: none"> • Haematology (including coagulation and sickle tests) • Urea and electrolytes, creatinine • pH and blood gases • Liver function tests • Thyroid function
1.1.4	Demonstrates understanding of the factors affecting the preparation of patients for surgery by:
1.1.4.1	Explaining why it is important for patients to stop smoking before surgery
1.1.4.2	Explaining how to correct preoperative dehydration
1.1.4.3	Explaining the use of antacid, and prokinetic premedication
1.1.4.4	Explaining the causes of delayed gastric emptying
1.1.4.5	Explaining the need for and identifying the methods of perioperative antithrombotic treatment
1.1.4.6	Explaining the factors involved in determining the patient's post-operative analgesic needs
1.1.4.7	Explaining the factors that influence the decision as to whether ICU or HDU care will be required post-operatively
1.1.4.8	Explaining the pathophysiology and clinical features of adverse drug reactions, including anaphylaxis
1.1.5	Shows an understanding of the principles of managing anxiety by:
1.1.5.1	Explaining the use of premedicant drugs
1.1.5.2	Explaining the advantages and disadvantages of individual premedicants
1.1.5.3	Explaining the effect of reassurance and explanation on patients' preoperative anxiety
1.1.6	Understands the issues of consent for anaesthesia and operation by:
1.1.6.1	Explaining the importance of consent and the issues surrounding it
1.1.6.2	Knowing that the AP cannot take consent
1.1.6.3	Explaining who can give consent for anaesthesia and operation
1.1.6.4	Explaining the patient's right to refuse surgery
1.1.7	Understands surgical operations
1.1.7.1	Explains what the surgery involves
1.1.7.2	Explains the position the patient will be placed in
1.1.7.3	Lists any particular features of the surgery that influence the planning of anaesthesia

1.2	<p>Skills</p> <p><i>APs will demonstrate, in the course of work (or in the simulator), the practice required to prepare patients for anaesthesia and surgery. They will be able to explain what has influenced the decisions they make. They will use local guidelines and protocols.</i></p>
1.2.1	The AP shows good practice in history taking. The AP:
1.2.1.1	<ul style="list-style-type: none"> • Talks to patients in a professional manner • Talks to patients at a level that is appropriate to their understanding • Listens to patients • Makes comprehensible explanations to patients • Respects the patient's autonomy • Focuses on the issues important to anaesthesia and surgery
1.2.2	The AP elicits all relevant information relating to forthcoming anaesthesia. They will modify their questioning in response to significant findings and will identify reliably which patients will need to be seen by an anaesthetist in order to correctly complete their preoperative preparation. The AP:
1.2.2.1	<p>Elicits history</p> <ul style="list-style-type: none"> • Confirms correct patient, operation and 'side' • Respiratory status and symptoms (especially asthma, upper respiratory tract infections and COPD) • Cardiovascular status and symptoms (especially IHD, arrhythmias and hypertension) • Neurological status and symptoms (especially epilepsy, CVAs, conscious level and mental state) • Gastro-intestinal problems (especially reflux, obstruction, potentially delayed gastric emptying) • Arthropathies and other musculo-skeletal problems (especially rheumatoid arthritis) • Renal conditions • Hepatic conditions (especially jaundice, cirrhosis) • Endocrine conditions (especially diabetes, thyroid disease, steroid therapy) • Skin conditions • Obstetric conditions • Obtains an anaesthetic history: personal and familial • Medication: current and past • Allergies and previous drug reactions • Previous anaesthetic exposure and surgery • Previous airway/intubation difficulties • Congenital disorders affecting anaesthesia • Hereditary disorders affecting anaesthesia • Haemoglobinopathies • Coagulopathies • Nutritional abnormalities (especially obesity) • Social problems • Identification of groups at high risk of infection
1.2.2.2	Seeks assistance from anaesthetist in all cases when he/she is unsure of history

1.2.3	<p>The AP elicits all relevant physical finding relating to forthcoming anaesthesia. They will modify their examination in response to significant findings and will identify reliably which patients will need to be seen by an anaesthetist in order to correctly complete their preoperative preparation.</p> <p>Where protocols exist for dealing with patients with abnormal findings they will follow the protocol. The AP:</p>
1.2.3.1	<p>Makes proper physical examination of:</p> <ul style="list-style-type: none"> • Cardiovascular system (IHD, hypertension, LVF) Pulse-rate and rhythm, volume, blood pressure, cardiac size, apex beat, venous pressure in great veins, auscultation of heart, state of hydration • Respiratory system (asthma, COPD) Respiratory rate, pattern, morphology of chest, percussion, auscultation • Nutritional state (obesity, cachexia) • Neurological system (GCS: any acute or residual effects of CVA) • Abdomen and GI tract • Anaemia • Jaundice • Sequelae of diabetes and steroids • Musculo-skeletal problems (including relevance to positioning, neck stability, regional blockade) • Teeth/airway/cervical spine/intubation assessment • Vascular access
1.2.3.2	Seeks assistance from anaesthetist in all cases when he/she is unsure of physical findings
1.2.3.3	Ensures that the necessary resources (radiographs, laboratory results etc.) are available for safe patient care
1.2.3.4	Discovers all relevant physical findings
1.2.3.5	Performs physical examination of the patient in a logical manner
1.2.4	Where the issues are within their remit the AP should making satisfactory explanations to patients. Where appropriate they must involve their supervising anaesthetist. The AP demonstrates communication by:
1.2.4.1	<p>Cooperating with anaesthetist to ensure that the patient receives an explanation of pain management including possible complications and side effects:</p> <ul style="list-style-type: none"> • Oral/sublingual/rectal/IM/IV/nasal/transdermal drugs • Epidural/regional techniques/local blocks • Inhalational analgesia • Patient controlled analgesia • Subcutaneous
1.2.4.2	Cooperating with anaesthetist to inform the patient of preoperative medication choices
1.2.4.3	Cooperating with anaesthetist to give an explanation of postoperative expectations and care
1.2.4.4	<p>In cooperation with anaesthetist explaining (as appropriate) problems/complications to patients/relatives concerning:</p> <ul style="list-style-type: none"> • Difficult intubation and dentition • Sore throat • Nausea and vomiting • Thrombophlebitis • Post-spinal headache • Suxamethonium apnoea and pains • Adverse drug reactions including anaphylaxis • Malignant hyperpyrexia

1.2.5	Correctly interprets data in connection with planning anaesthesia. Takes appropriate action when finding data is outside the expected range.
1.2.5.1	Clinical: Recognises the normal and seeks help in interpreting abnormal: <ul style="list-style-type: none"> • Systolic, diastolic and mean arterial pressure • Respiratory function tests • Electrocardiographs • Exercise tests • Central venous pressure measurement • Interpreting fluid balance and other charts
1.2.5.2	Radiological Interpretation of radiographs is not expected of the AP. They will always seek assistance in interpretation if a radiologist's report is not available. Seeks help in interpreting <ul style="list-style-type: none"> • Chest radiographs – identifies normal chest radiograph • Films showing long bone, skull, vertebral and rib fractures • CAT and MRI scans of head demonstrating fractures/haemorrhage • Neck and thoracic inlet films • Abdominal radiographs
1.2.5.3	Laboratory: Recognises the normal and seeks help in interpreting abnormal: <ul style="list-style-type: none"> • Haematology (including coagulation and sickle tests) • Urea and electrolytes • pH and blood gases • Liver function tests • Thyroid function
1.2.5.4	Seeks assistance from anaesthetist in all cases when he/she is unsure how to interpret investigations
1.2.6	Manages preoperative anxiety by:
1.2.6.1	Assessing level of patient's anxiety
1.2.6.2	Reassuring the patient and allaying anxiety
1.2.6.3	In cooperation with the anaesthetist prescribing any premedication that is included in the anaesthetic plan
1.2.7	Identifies factors that affect the management and outcome from anaesthesia and surgery
1.2.7.1	Aspects of the history
1.2.7.2	Aspects of the physical examination
1.2.7.3	Aspects of the investigations
1.2.7.4	Explains the implications and severity of findings
1.2.7.5	Identifies patients as suitable or unsuitable for ambulant or day stay care
1.2.7.6	Identifies correctly patients requiring particular supervision of management during the postoperative period
1.2.8	Discusses with the anaesthetic supervisor the patients preparedness for surgery
1.2.8.1	Explains the factors they have taken into account in arriving at their conclusion
1.2.8.2	Correctly identifies the patient as fit and correctly prepared for surgery
1.2.8.3	Correctly identifies the patient as unfit for surgery and requiring further preparation

1.2.8.4	Liases with other staff to organise additional investigation or treatment prior to surgery
1.2.9	Formulates a provisional anaesthetic plan
1.2.9.1	<p>Incorporates the information derived from preoperative evaluation into formulating a provisional anaesthetic plan:</p> <ul style="list-style-type: none"> • RSI • Premedication • Induction • Airway management • Maintenance • Reflux • Intubation difficulty • Possible allergies • SV or controlled • Any extra care such as prophylactic antibiotics or anti-thrombotics • Need for blood group or cross match
1.2.9.2	Identifies their need for assistance during anaesthesia
2	Anaesthesia, HDU and ICU equipment: monitoring and safety
2.1	<p>Knowledge</p> <p><i>The AP will understand the operation of anaesthetic equipment and where such knowledge is important in the use of equipment they will also understand the underlying principles. They will understand the care and maintenance of such equipment.</i></p>
2.1.1	Shows understanding of their responsibilities relating to the management of drugs in the theatre environment
2.1.1.1	Explains the legal basis of prescribing
2.1.1.2	Explains that the AP is not permitted to prescribe medication
2.1.1.3	Explains the procedures for receiving, controlling and dispensing drugs in theatre
2.1.2	Shows understanding of how anaesthetic equipment functions by:
2.1.2.1	Describing the physical principles underlying the function of the anaesthetic machine, pressure regulators, flowmeters, vaporisers, breathing systems
2.1.2.2	Describing the principles and chemistry and complications of the absorption of carbon dioxide
2.1.2.3	Describing the principles of lung ventilators, disconnection monitors
2.1.2.4	Describing the storage of oxygen, nitrous oxide, carbon dioxide, compressed air
2.1.2.5	Explaining the pipeline and suction systems, gas cylinders
2.1.2.6	Explaining the characteristics of Guedel airways, tracheal tubes, tracheostomy tubes, emergency airways, laryngeal masks, fixed and variable performance oxygen therapy equipment, self-inflating bags.
2.1.2.7	Explaining the function and use of fluid resuscitation equipment and transfusion devices
2.1.2.8	Explaining the characteristics of intravenous cannulae, spinal and epidural needles
2.1.3	Shows understanding of the use of invasive pressure monitoring equipment
2.1.3.1	Discusses the principles of invasive pressure monitoring including sources of inaccuracy
2.1.3.2	Explains the pressure waveforms obtained in central venous and arterial pressure monitoring
2.1.4	Shows understands how to use equipment by:
2.1.4.1	Describing the minimum monitoring requirements

2.1.4.2	Describing the basis for pre-use checks of anaesthetic machine, breathing systems and monitoring apparatus
2.1.4.3	Explaining the content of an anaesthetic record
2.1.4.4	Explaining the environmental control of the operating theatre including temperature, humidity, air changes and scavenging systems for waste anaesthetic gases and vapours
2.1.4.5	Describing the sterilisation and cleaning of equipment
2.1.5	Demonstrates understanding of monitoring by describing the principles, sources of inaccuracy and complications of:
2.1.5.1	<ul style="list-style-type: none"> • Non invasive BP measurement by oscillometry etc. • ECG monitoring • Capnography • Pulse oximetry • Oxygen and anaesthetic gas monitoring • Temperature monitoring • BIS monitoring • Invasive BP measurement
2.1.6	Shows understanding of theatre safety by:
2.1.6.1	Explaining how to ensure electrical safety
2.1.6.2	Explaining the COSHH regulations and their relevance to anaesthetic practice
2.2	Skills <i>The AP will demonstrate, in the course of work (or in the simulator), correct, appropriate, safe use of anaesthetic equipment</i>
2.2.1	Demonstrates correct procedures in the handling of drugs by:
2.2.1.1	Receiving and storing drugs for subsequent use
2.2.1.2	Preparing, labelling and administering drugs to patients to meet anaesthetic needs
2.2.1.3	Keeping proper records of drug use
2.2.1.4	Preparing and administering drugs to patients as prescribed or directed by a clinician
2.2.2	Demonstrates correct use of equipment by:
2.2.2.1	Correct checking of equipment and correct use of the following equipment: <ul style="list-style-type: none"> • Anaesthetic machine • Gas pipelines • Cylinders • Breathing systems • Setting up/checking/monitoring lung ventilators • Suction apparatus
2.2.2.2	Demonstrating a correct preliminary check of the anaesthetic machine
2.2.2.3	Recognising machine, breathing system and equipment errors, misassembly and disconnections
2.2.2.4	Correctly setting up alarm limits for routine monitoring equipment
2.2.2.5	Correctly checking the difficult intubation kit
2.2.2.6	Showing familiarity with the defibrillator's operation and selecting settings correctly
2.2.2.7	Explaining the precautions necessary for safe use of the defibrillator
2.2.2.8	Demonstrates using arterial and venous invasive monitoring equipment
2.2.2.9	Setting up and calibrating catheter assembly

3	Induction of general anaesthesia
3.1	<p>Knowledge</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator), that they understand the issues that influence the conduct of induction of anaesthesia. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i></p>
3.1.1	The AP understands their responsibility to seek direct supervision for the induction of anaesthesia
3.1.1.1	Understands the need to explain to patients that any plan for anaesthesia that they describe is provisional, and may be modified following discussion with their supervisor
3.1.2	The APs understanding of how to prepare for anaesthesia is demonstrated by:
3.1.2.1	Explaining how to check a patient prior to premedication, and on arrival in the anaesthetic room/theatre
3.1.2.2	Explaining how to cooperate with the anaesthetist to develop a comprehensive anaesthetic plan
3.1.2.3	Explaining the advantages and disadvantages of intravenous and inhalational induction of anaesthesia and understands when each is appropriate
3.1.3	Understands the factors that determine airway management as shown by:
3.1.3.1	Explaining the factors that influence the choice between controlled ventilation and spontaneous breathing
3.1.3.2	Correct decisions to undertake endotracheal intubation
3.1.3.3	Correct choice of ET tube type (oral, nasal, armoured etc.), diameter and length
3.1.3.4	Explaining the stages in managing expected difficult intubation
3.1.3.5	Explaining the stages in managing unexpected difficult intubation and failed intubation
3.1.3.6	Describing how to confirm correct placement of the endotracheal tube and how to detect oesophageal and endobronchial intubation
3.1.3.7	Explaining the complications that can develop because the ET tube is misplaced
3.1.3.8	Explaining the factors influencing the choice of oral airways, facemasks and laryngeal mask airway and the factors influencing the decision to use this equipment
3.1.3.9	Describing the anatomy of the upper airway in relation to airway management
3.1.3.10	The AP lists the indications for nasal intubation rather than oral
3.1.3.11	The AP lists the complications specific to nasal intubation
3.1.3.12	Lists the available methods to manage the patient who is predicted to be difficult to intubate
3.1.4	Understands the issues surrounding the management of rapid sequence induction and:
3.1.4.1	Identifies situations leading to delayed gastric emptying
3.1.4.2	Explains the causes of regurgitation and vomiting during induction, and the measures for prevention and immediate management of pulmonary aspiration
3.1.4.3	Explains the reasons for using pre-oxygenation
3.1.4.4	Explains the use of cricoid pressure
3.1.4.5	Explains the problems of induction of anaesthesia in special circumstances (head injury, full stomach, upper airway obstruction, shock)

3.1.5	The AP demonstrates understanding of the use of anaesthetic agents for induction of anaesthesia by:
3.1.5.1	Explaining the pharmacology and dosages of induction agents, relaxants, analgesics, and inhalational agents
3.1.5.2	Explaining the side effects of the drugs used and their interactions
3.1.5.3	Explaining how induction agent dose is changed in the case of patients who are hypovolaemic, dehydrated or have a reduced cardiac output
3.1.6	The AP understands the management of complications at induction and demonstrates this by:
3.1.6.1	Showing how to monitor during the induction of anaesthesia and listing the criteria for the minimum safe monitoring of anaesthesia
3.1.6.2	Explaining the cardiovascular and respiratory changes during and after induction of general anaesthesia and identifying appropriate decisions regarding their management
3.1.6.3	Explaining how to recognise and manage anaphylactic and anaphylactoid reactions including follow up and patient information
3.1.6.4	Explaining the management of accidental intra-arterial injection of harmful substances (e.g. antibiotics, thiopentone)
3.1.6.5	Explaining the management of asthma, COPD, hypertension, IHD, rheumatoid arthritis in relation to anaesthesia
3.1.6.6	Explaining the special problems of the obese patient
3.1.7	Shows AP understanding of invasive pressure monitoring by:
3.1.7.1	Describing the anatomy of the heart and great veins and explaining where the catheter is placed
3.1.7.2	Describing the interpretation of central venous pressure waveforms and pressures
3.1.7.3	Describes the anatomy of the radial artery and the complications of its cannulation.
3.2	<p>Skills – all these skills relating to induction of anaesthesia will only be undertaken under the direct supervision of an anaesthetist</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator), good practice in the conduct of induction of anaesthesia. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear underlying understanding of the theory.</i></p>
3.2.1	The AP demonstrates their responsibility to seek direct supervision for the induction of anaesthesia
3.2.1.1	Explains to patients that any plan for anaesthesia that they describe is provisional, and may be modified following discussion with their supervisor
3.2.1.2	Always ensures the presence of their supervisor at induction and emergence from anaesthesia
3.2.2	The AP plans anaesthesia
3.2.2.1	Agrees the anaesthetic management, drug, fluid prescription and postoperative care of every patient with the anaesthetist
3.2.3	The AP correctly prepares for anaesthesia by:
3.2.3.1	Correctly checking the patient in the anaesthetic room
3.2.3.2	Preparing, labelling and administering drugs to patients to meet anaesthetic needs
3.2.3.3	Preparing and administering drugs to patients as prescribed or directed by a clinician
3.2.3.4	Preparing for and effecting intravenous cannulation

3.2.3.5	Using local anaesthesia prior to cannulation when appropriate
3.2.3.6	Preparing intravenous infusion equipment
3.2.3.7	Obtaining vascular access smoothly, using an appropriately sized cannula and choosing an appropriate vein – following proper assessment of the suitability of sites
3.2.4	Performs induction by:
3.2.4.1	Demonstrating the correct technique of intravenous injection
3.2.4.2	Conducting IV induction of anaesthesia in patients with elective and urgent conditions under direct supervision of anaesthetist
3.2.4.3	Conducting inhalational induction of anaesthesia in patients with elective and urgent conditions under direct supervision of anaesthetist
3.2.4.4	Managing the cardiovascular and respiratory changes during and after induction of general anaesthesia and making appropriate decisions regarding their management cooperating with anaesthetist when necessary
3.2.5	Correctly manages the airway:
3.2.5.1	Optimises the patient's position for airway management
3.2.5.2	Conducts airway management with mask and oral/nasal airways
3.2.5.3	Correctly introduces laryngeal mask airway and checks correct placement
3.2.5.4	Makes appropriate choice and passage of oral and nasal endotracheal tubes
3.2.5.5	Performs laryngoscopy skilfully and without trauma correctly identifying the structures of the pharynx and larynx
3.2.5.6	Performs endotracheal intubation in cases where placement is uncomplicated
3.2.5.7	Demonstrates the anatomical features relevant to intubation
3.2.5.8	Uses gum elastic bougie and stilette under the direction of anaesthetist
3.2.5.9	Identifies correct/incorrect placement of tube (oesophagus/main bronchus)
3.2.5.10	Interprets the capnograph trace and recognises common abnormalities
3.2.5.11	Can execute the failed intubation drill under supervision of the anaesthetist
3.2.6	The AP performs nasal intubation
3.2.6.1	The AP performs an assessment of the suitability of the nostrils for nasal intubation
3.2.6.2	The AP chooses the correct type, size and length of tube for nasal intubation
3.2.6.3	The AP correctly introduces the nasal tube through the nose
3.2.6.4	The AP introduces the nasal tube through the larynx using Magil's forceps if necessary
3.2.6.5	The AP manages the shared airway when relevant
3.2.7	The AP correctly performs rapid sequence induction by:
3.2.7.1	In presence of anaesthetist conducts rapid sequence induction with: <ul style="list-style-type: none"> • Makes appropriate choice of agents and doses • Makes check of equipment • Uses pre-oxygenation • Employs cricoid pressure
3.2.8	The AP demonstrates good practice in monitoring and record keeping by:
3.2.8.1	Showing correct use of routine monitoring equipment, including application of ECG electrodes
3.2.8.2	Obtaining and recording baseline values

3.2.8.3	Correctly collecting data from monitors
3.2.8.4	Making regular observation of the patient
3.2.8.5	Promptly registering significant change in the patient's condition as reflected by changes in monitored parameters
3.2.8.6	Keeping a legible, contemporaneous record of anaesthesia
3.2.9	Invasive pressure monitoring
3.2.9.1	Assists the anaesthetist in establishing invasive pressure monitoring
3.2.10	Nasogastric tube
3.2.10.1	Chooses appropriate size of nasogastric tube
3.2.10.2	Inserts nasogastric tube
4	Intraoperative care (including sedation)
4.1	<p>Knowledge</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator), necessary understanding of the principles of maintaining anaesthesia. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i></p>
4.1.1	The AP shows knowledge of good practice in monitoring by:
4.1.1.1	Always using required minimum monitoring standards
4.1.1.2	Explaining what additional monitoring is required for sick patients (e.g. CVP, urine flow)
4.1.1.3	Explaining the content of their anaesthetic record
4.1.2	The AP knows the factors that influence proper, safe maintenance of anaesthesia, as demonstrated by:
4.1.2.1	Explaining the principles of care of the unconscious patient
4.1.2.2	Explaining the techniques of maintenance of general anaesthesia, involving both spontaneous and controlled ventilation
4.1.2.3	Listing the normal parameters for respiratory pressures and volumes using artificial ventilation
4.1.2.4	Explaining the factors influencing the choice of spontaneous and controlled ventilation and methods of monitoring them
4.1.2.5	Describing how to choose ventilator settings
4.1.2.6	Explaining the technique of sedation for non-painful procedures and in conjunction with regional anaesthesia
4.1.2.7	Identifying the features of common surgical operations (duration, common intra-operative complications, blood loss etc.)
4.1.2.8	<p>Demonstrating and explaining correct intraoperative positioning on theatre table showing appropriate:</p> <ul style="list-style-type: none"> • Knowledge of pressure points • Knowledge of how to avoid nerve injury • Knowledge of respiratory and cardiovascular complications of supine and prone positions • Knowledge of the problems of positions such as lithotomy or lateral

4.1.3	Knows how to make appropriate choice of agents for maintenance as demonstrated by:
4.1.3.1	Explaining the pharmacology, uses and dosages of: <ul style="list-style-type: none"> • Intravenous hypnotic agents used for maintenance • Relaxants • Analgesics • Inhalational agents
4.1.4	Shows understanding of awareness by:
4.1.4.1	Listing the clinical signs of light anaesthesia and explaining the detection and prevention of awareness
4.1.4.2	Explaining the factors that predispose to awareness
4.1.4.3	Describing the use of Cerebral Function Monitors
4.1.5	Shows understanding of the complications of maintenance by:
4.1.5.1	Correctly managing in simulation the critical incidents occurring during anaesthesia
4.1.5.2	Describing the effects and hazards of the pneumoperitoneum induced for laparoscopic surgery
4.1.5.3	Explaining the pathophysiology of pneumothorax
4.1.5.4	Explaining the management of problems due to co-existing disease such as: <ul style="list-style-type: none"> • Asthma • COPD • Hypertension • IHD • Rheumatoid arthritis, jaundice • Steroid therapy • Diabetes
4.1.5.5	Explaining the presenting features of hypovolaemic shock during anaesthesia
4.1.5.6	Explaining the pathophysiology of hypovolaemic shock
4.1.5.7	Explaining the occurrence of autonomic reflexes in response to surgical stimuli
4.1.5.8	Explaining the oculo-cardiac reflex
4.1.5.9	Explaining the problems posed in management of the shared airway
4.1.6	Demonstrates understanding of how to manage fluid therapy by:
4.1.6.1	Correctly using fluid and electrolytes before during and after surgery
4.1.6.2	Explaining and appropriately using blood and blood products; synthetic colloids; crystalloids
4.1.6.3	Explaining the principles of management of massive haemorrhage, volume expansion, blood transfusion (hazards including incompatibility reaction)
4.1.6.4	Explaining the hazards of blood transfusion
4.1.6.5	Explaining how to check a unit of blood prior to transfusion and explains the problem of avoiding infusing the wrong blood
4.1.6.6	Listing the signs and symptoms of transfusion with incompatible blood
4.1.7	Understands the importance of maintaining the patient's temperature:
4.1.7.1	Explains the methods available to prevent patients becoming hypothermic
4.1.7.2	Explains the complications consequent upon hypothermia

4.2	<p>Skills</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator), good practice in maintaining anaesthesia. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i></p>
4.2.1	Demonstrates good practice in monitoring by:
4.2.1.1	Appropriately choosing monitoring parameters during maintenance
4.2.1.2	Correctly collecting and recording data from monitors throughout surgery
4.2.1.3	Making regular observation of the patient
4.2.1.4	Using neuro-muscular function monitor if relevant
4.2.1.5	Using temperature monitoring if appropriate
4.2.1.6	Promptly responding to significant change in the patient's condition as reflected by changes in monitored parameters
4.2.1.7	Keeping a legible, contemporaneous record of anaesthesia
4.2.2	Maintains anaesthesia with inhalational and intravenous agents in patients with elective and urgent conditions by:
4.2.2.1	Making correct use of oral airways, facemasks and laryngeal mask airway during patient maintenance
4.2.2.2	Managing appropriate intermittent positive pressure ventilation, choosing and setting volumes and pressures and monitoring progress
4.2.2.3	Using suitable methods of pain relief during maintenance as decided in consultation with their supervisor
4.2.2.4	Managing appropriate muscle relaxation
4.2.2.5	Monitoring neuromuscular function when appropriate
4.2.2.6	Directing the placement and positioning of the patient when appropriate
4.2.2.7	Remaining alert for the development of airway difficulties during the course of surgery and particularly when the patient or equipment is moved
4.2.2.8	Managing the shared airway when relevant
4.2.2.9	Managing the initial stage of any critical incidents that occur during anaesthesia when the supervising anaesthetist is not present in theatre, always calls the supervising anaesthetist into theatre and subsequently adopts an appropriate role in the team resolving the crisis
4.2.3	Manages the operative environment
4.2.3.1	Correctly transfers the patient from trolley to operating table
4.2.3.2	Cooperates with the anaesthetist to provide suitable additional monitoring in appropriate cases
4.2.3.3	Correctly positions the patient
4.2.3.4	Plays an active part in organising and running the theatre list
4.2.4	Manages the complications of anaesthesia and surgery
4.2.4.1	Manages side effects of drugs used during anaesthesia (hypotension, hypoventilation, bradycardia etc.), always when appropriate involving the supervising anaesthetist
4.2.4.2	Investigates, and correctly manages, intra-operative hypotension, always when appropriate involving the supervising anaesthetist

4.2.4.3	Investigates and correctly manages intra-operative hypertension, always when appropriate involving the supervising anaesthetist
4.2.4.4	Correctly manages diabetes in accordance with protocols, always when appropriate involving the supervising anaesthetist
4.2.4.5	Uses patient warming equipment if appropriate
4.2.5	Manages fluids:
4.2.5.1	Chooses appropriate fluid therapy
4.2.5.2	Monitors urine output if appropriate
4.2.5.3	Correctly provides intra-operative fluids including blood and blood products
4.2.5.4	Uses fluid warming equipment if appropriate
4.2.5.5	Keeps careful records of intra-operative fluid balance
5	Emergence
5.1	Knowledge <i>APs will consistently demonstrate, in the course of work (or in the simulator), a sound knowledge of good practice in the conduct of emergence from anaesthesia. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i>
5.1.1	Demonstrates understanding of the airway difficulties occurring at emergence by:
5.1.1.1	Listing the causes and treatment of failure to breathe at end of operation
5.1.1.2	Describing how to distinguishing between opioid excess, continued anaesthetic effect and/or neuromuscular blockade
5.1.1.3	Explaining the aetiology and management of airway and breathing difficulties that arise during emergence
5.1.1.4	Explaining the management of laryngospasm
5.1.2	Demonstrates understanding of the reversal of muscle paralysis by:
5.1.2.1	Explaining the use of neostigmine in reversing competitive neuromuscular blockade
5.1.2.2	Explaining the rationale for the concurrent use of atropine or glycopyrrolate with neostigmine
5.1.2.3	Describing the clinical appearance of the patient with residual unreversed paralysis
5.1.2.4	Listing the causes and treatment of failure to breathe at end of operation
5.1.2.5	Explaining how to interpret nerve stimulator patterns
5.2	Skills <i>APs will consistently demonstrate, in the course of work (or in the simulator), a sound knowledge of good practice in the conduct of emergence from anaesthesia. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i>
5.2.1	Manages emergence from anaesthesia in patients with elective and urgent conditions, always when appropriate involving the supervising anaesthetist as demonstrated by:
5.2.1.1	Demonstrating correct use of suction prior to extubation
5.2.1.2	Conducting satisfactory wake-up and recovery phases of anaesthesia
5.2.1.3	Assessing full return of protective reflexes
5.2.1.4	Assessing adequacy of ventilation/reversal

5.2.1.5	Recognising evidence of residual relaxant action
5.2.1.6	Correctly using nerve stimulator to demonstrate the state of neuro-muscular block
5.2.2	Manages airway difficulties occurring at emergence with the supervising anaesthetist. Including:
5.2.2.1	<ul style="list-style-type: none"> • Respiratory obstruction • Laryngospasm • Bronchospasm • Apnoea • Regurgitation and aspiration
6	Postoperative and recovery care
6.1	<p>Knowledge</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator), a sound knowledge of good practice in the conduct of recovery from anaesthesia. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i></p>
6.1.1	Continues monitoring during recovery as shown by:
6.1.1.1	Explaining the continuing need for minimum anaesthetic monitoring of the patient in recovery
6.1.2	Understands the complications of recovery
6.1.2.1	Explains the principles of post-operative oxygen therapy its indications and describes available equipment and techniques
6.1.2.2	<p>Lists the common causes and explains the management of:</p> <ul style="list-style-type: none"> • Cyanosis • Hypotension • Hypertension • Shivering and • Stridor <p>in the postoperative period</p>
6.1.2.3	Demonstrates the principles of postoperative fluid balance and prescribing
6.1.2.4	Explains the assessment of pain and methods of pain management
6.1.2.5	Demonstrates methods of avoiding and treating postoperative nausea and vomiting
6.1.2.6	Explains the causes and management of post-operative confusion
6.1.2.7	<p>Explains the influence on postoperative recovery of:</p> <ul style="list-style-type: none"> • Asthma • COPD • Hypertension • IHD • Rheumatoid arthritis • Jaundice • Steroid therapy • Diabetes
6.1.2.8	Explains the postoperative problems of the obese patient
6.1.2.9	<p>Explains the principles of diagnosis, management and preventing post-operative complications:</p> <ul style="list-style-type: none"> • Pulmonary atelectasis • Chest infection • Deep vein thrombosis • Pulmonary embolus

6.1.3	Understands the management of discharge of patients
6.1.3.1	Identifies the criteria for discharge of patients to the ward
6.1.3.2	Identifies the criteria for discharge of day-stay patients
6.2	<p>Skills</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator), good practice in the conduct of recovery from anaesthesia. They will be able to explain what has influenced the decisions they. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i></p>
6.2.1	Manages recovery from anaesthesia in patients with elective and urgent conditions, always when appropriate involving the supervising anaesthetist as demonstrated by:
6.2.1.1	Giving clear instructions during handover of patient to recovery staff
6.2.1.2	Always seeking the assistance of the supervising anaesthetist in case of post-operative weakness or respiratory difficulty
6.2.2	Makes arrangements for the postoperative period by:
6.2.2.1	Correctly prescribing postoperative fluids in accordance with plan developed with supervising anaesthetist
6.2.2.2	Making accurate assessment of fluid balance and the need for urethral catheterisation
6.2.2.3	Seeking assistance in the evaluation and management of post-operative confusion
6.2.2.4	Making satisfactory assessment of postoperative pain
6.2.2.5	Cooperating with supervising anaesthetist to provide appropriate prescription of postoperative pain regimen
6.2.2.6	Cooperating with supervising anaesthetist to provide appropriate treatment of nausea and vomiting
6.2.2.7	In cooperation with their anaesthetic supervisor provides additional prescription of analgesics for patients who wake in pain and fail to respond to the planned regimen
6.2.2.8	In cooperation with their anaesthetic supervisor provides additional prescription of analgesics for patients who wake with nausea and fail to respond to the planned regimen
6.2.2.9	Continuing care until discharge from recovery, and beyond as appropriate
6.2.2.10	Cooperating with supervising anaesthetist to apply correct criteria for discharge of patients to ward
6.2.2.11	Cooperating with supervising anaesthetist in applying the criteria for discharge of day-stay patients
6.2.3	Cooperates in continuing care by:
6.2.3.1	Responding rapidly to calls for help from recovery staff
6.2.3.2	Always following up patients on the ward before going home
6.2.3.3	Providing liaison with supervising consultant to ensure that all significant issues are communicated to the team responsible for the patient's continuing care

7	Regional anaesthesia (the training of APs will not include the performance of regional anaesthesia)
7.1	<p>Knowledge</p> <p><i>APs will not perform regional anaesthesia. APs will consistently demonstrate, in the course of work (or in the simulator), a knowledge of the principles of regional anaesthesia sufficient for them to act as informed assistants in its conduct. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i></p>
7.1.1	Understanding of the conduct of surgery under regional anaesthesia is demonstrated by:
7.1.1.1	Explaining the special considerations of consent for regional blockade
7.1.1.2	Explaining the technique of spinal and epidural (including caudal) anaesthesia: single shot and catheter techniques
7.1.1.3	Explaining the management of the complications of spinal and epidural (including caudal) analgesia (associated hypotension, shivering, nausea and anxiety)
7.1.1.4	Explaining the pathophysiology and management of accidental total spinal blockade
7.1.1.5	Explaining the management of dural tap
7.1.1.6	Explaining the technique and complications of intravenous regional anaesthesia (IVRA)
7.1.1.7	Explaining the toxicity of local anaesthetic agents and its management
7.1.1.8	Explaining the strategies available to manage failed/deteriorating regional block
7.1.1.9	Demonstrating the use of sedation for painless procedures and to facilitate surgery under regional anaesthesia
7.1.1.10	Explaining the absolute and relative contraindications to regional blockade
7.2	<p>Skills</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator), good practice in the conduct of care of the patient undergoing surgery under regional anaesthesia, with or without sedation, and of the patient receiving combined GA and regional anaesthesia. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i></p>
7.2.1	Manages surgery under regional anaesthesia
7.2.1.1	Correctly manages patient care during surgery under regional anaesthesia with the patient awake or sedated
7.2.1.2	Communicates well with awake patient and gives reassurance
7.2.1.3	Maintains correct theatre environment with awake patient
7.2.1.4	Cooperates with supervising anaesthetist to manage combined general and regional anaesthesia
7.2.1.5	Liases with anaesthetist in management of post-operative care following spinal or epidural block (including urinary retention)
7.2.1.6	Able to assist with the use of epidural techniques for post-operative pain management including the operation of pumps
7.2.1.7	Appropriately uses drugs to provide sedation
7.2.1.8	Able to organise the list to allow block to take effect without causing delay

8	Management of respiratory and cardiac arrest
8.1	<p>Knowledge</p> <p><i>The AP must pass an ALS course. They will understand the underlying principles of the genesis, diagnosis and management of cardiac arrest. They will know the relevant algorithms, guidelines and protocols.</i></p>
8.1.1	Understand the principles of managing cardio-respiratory arrest as shown by:
8.1.1.1	Explaining the causes of cardio-respiratory arrest and how to differentiate between them
8.1.1.2	Explaining the likely causes of cardio-respiratory arrest during induction, maintenance and recovery from anaesthesia
8.1.1.3	Explaining the importance of considering non-cardiac causes of cardio-respiratory arrest
8.1.1.4	Explaining how to recognise individual life-threatening arrhythmias
8.1.1.5	Explaining how to recognise and manage the non-cardiac causes of cardio-respiratory arrest
8.2	<p>Skills</p> <p><i>The AP must pass an ALS course. They will understand the underlying principles of the genesis, diagnosis and management of cardiac arrest. They will know the relevant algorithms, guidelines and protocols.</i></p>
8.2.1	Manages cardio-respiratory arrest and can demonstrate:
8.2.1.1	Providing basic life support
8.2.1.2	ALS trained
8.2.1.3	Recognition cardiac and respiratory arrest in simulation
8.2.1.4	Conducts immediate life support on manikin
8.2.1.5	Automated external defibrillation
8.2.1.6	Manual external defibrillation on an adult
9	Management of trauma, stabilisation and transfer of patients
9.1	<p>Knowledge</p> <p><i>The AP will understand the principles of team management of major trauma. The AP will not be involved in major trauma and resuscitation without the presence of an anaesthetist. The AP will demonstrate, in the course of work (or in the simulator), in the course of work, that they understand the general principles of trauma care sufficient to play their role in assisting the anaesthetists as a member of the team caring for the patient with major injuries.</i></p>
9.1.1	Understands how to participate in trauma life support to assess the patient as demonstrated by:
9.1.1.1	Explaining how to assist at the performance of a primary and secondary survey
9.1.1.2	Explaining the recognition assessment and management of hypovolaemic shock
9.1.1.3	Explaining the principles of the management of head injury
9.1.1.4	Explains the immediate management of cervical spine injuries
9.1.2	Understands the immediate support of the trauma victim as demonstrated by:
9.1.2.1	Explaining the Immediate specific treatment of life-threatening illness or injury, with special reference to thoracic and abdominal trauma
9.1.2.2	Explaining the principles of emergency airway management
9.1.2.3	Explaining the principles of central venous access: anatomy and techniques
9.1.2.4	Explaining central venous pressure monitoring: technique, complications and interpretation

9.1.2.5	Explaining invasive arterial pressure monitoring: technique, complications and interpretation
9.1.2.6	Explaining the principles, anatomy and pathophysiology peritoneal lavage
9.1.2.7	Explaining the principles, anatomy and pathophysiology of pleural drain insertion
9.1.3	Understands the problems of anaesthesia in trauma victims
9.1.3.1	Describes the effects of trauma on gastric emptying
9.1.3.2	Explains the principles of anaesthesia in the presence of a recent head injury
9.1.3.3	Explains the principles of the safe transfer of patients
9.2	<p>Skills</p> <p><i>The AP will understand the principles of team management of major trauma. The AP will not be involved in major trauma and resuscitation without the presence of an anaesthetist. The AP will demonstrate, in the course of work (or in the simulator), in the course of work, practice of trauma care sufficient to play their role in assisting the anaesthetists as a member of the team caring for the patient with major injuries.</i></p>
9.2.1	Participates in the assessment of seriously injured patients as demonstrated by:
9.2.1.1	Assisting in immediate management of trauma patient: primary and secondary survey
9.2.1.2	Scoring Glasgow Coma Scale
9.2.1.3	Cooperating to organise appropriate investigations (Hb, cross-match, chest X-ray etc.)
9.2.1.4	Assisting in the management of circulatory shock
9.2.1.5	Assisting in emergency airway management, oxygen therapy and ventilation
9.2.2	Skilled in the immediate support of the trauma victim
9.2.2.1	Able to deputise for the anaesthetist during the initial ATLS management of patients if the responsible anaesthetist is unavoidably detained
9.2.2.2	Assists with chest drain insertion and management: emergency relief of tension pneumothorax
9.2.2.3	Assists with cannulation of major vessels for resuscitation and monitoring
9.2.2.4	Immobilises cervical spine
9.2.2.5	Under direction/supervision of anaesthetist makes transfers within and between hospitals
9.2.2.6	Can cooperate with clinicians to provide analgesia for trauma victim
9.2.2.7	Able to assist with establishing central venous pressure monitoring and can interpret readings
9.2.2.8	Able to assist with establishing arterial pressure monitoring: interpretation of readings
9.2.3	Understands the problems of anaesthesia in trauma victims
9.2.3.1	Able to deal with emergencies before, during and after anaesthesia until assistance arrives
9.2.3.2	Assists with anaesthesia in the trauma victim

10	Anaesthesia and the elderly
10.1	Knowledge <i>The AP will demonstrate in the course of work (or in the simulator) an understanding of the particular factors that influence anaesthesia in the elderly.</i>
10.1.1	Understands the special circumstances of anaesthesia and surgery in the elderly as shown by ability to discuss anaesthesia and modify the anaesthesia plan in the light of:
10.1.1.1	<ul style="list-style-type: none"> • Physiological changes with age • Altered pharmacological response in age • Reduction of physiological reserve with age • Frequent presence of co-morbidities in elderly patients • Positioning difficulties in elderly patients • Communication difficulties (eyesight, hearing, CVAs) in elderly patients • Loss of mental clarity and memory loss
10.1.2	Understands the problem of being understood by elderly patients in the perioperative environment and especially:
10.1.2.1	Lists the causes of post-operative confusion
10.1.2.2	Identifies the importance of social circumstances
10.1.2.3	Explains the problems of consent in mental infirmity
10.2	Skills <i>The AP will demonstrate, the course of work (or in the simulator) good practice in anaesthesia for the elderly.</i>
10.2.1	Modifies technique with elderly patients:
10.2.1.1	Modifies technical performance in the face of physiological changes in the elderly
10.2.1.2	Cooperates in the management of post-operative confusion
10.2.1.3	Makes special efforts to communicate clearly (N.B. deafness and blindness)
10.2.1.4	Respects the dignity and autonomy of elderly patients
11	Acute pain management
11.1	Knowledge <i>APs will consistently demonstrate, in the course of work (or in the simulator) that they understand the issues that influence the management of acute pain. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear underlying understanding of the theory.</i>
11.1.1	Knows how to plan the patient's pain relief regimen as shown by:
11.1.1.1	Explaining the analgesic ladder and how to use it
11.1.1.2	Explaining the use of simple analgesics
11.1.1.3	Explaining the use of opioids
11.1.1.4	Explaining the use of non-steroidal anti-inflammatory agents
11.1.1.5	Explaining the use of local anaesthetic agents
11.1.1.6	Explaining the pros and cons of alternative methods of pain relief
11.1.1.7	Explaining the side effects of analgesics
11.1.1.8	Explaining the treatment of opioid overdose

11.2	<p>Skills</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator), good practice in the management of acute pain. They will be able to explain what has influenced the decisions they make. They will act in accordance with local guidelines and protocols.</i></p>
11.2.1	Demonstrates good practice in the use of analgesics and is:
11.2.1.1	Able to assess and manage postoperative pain and nausea in cooperation with the anaesthetist where necessary
11.2.1.2	Able to monitor acute pain and pain relieving methods
11.2.1.3	Able to use simple analgesics: paracetamol: NSAIDs
11.2.1.4	Able to use opioids appropriately: intravenously, intramuscularly, subcutaneously, PCA; and oral
11.2.1.5	Quick to respond to unrelieved pain
11.2.1.6	Able to assemble and operate analgesia pumps correctly
12	Infection control
12.1	<p>Knowledge</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator) that they understand the practice of infection control. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions. Their actions should reveal clear understanding of the underlying theory.</i></p>
12.1.1	Understands the background to preventing cross infection and hospital based infection as shown by:
12.1.1.1	Explaining how to perform surgical scrub
12.1.1.2	Explaining standards precautions and good working practices (hand washing, gloves etc.)
12.1.1.3	Explaining the correct sterile preparation for surgery and sterile procedures
12.1.1.4	Explaining the decontamination of equipment related to anaesthesia
12.1.1.5	Explaining cross infection: modes and common agents, and how to minimise it
12.1.2	Understands the concept of the patient at special risk of infection as demonstrated by:
12.1.2.1	Explaining common surgical infections: antibiotic choice and prophylaxis
12.1.2.2	Explaining the specific risks of infection to immunocompromised patients
12.1.2.3	Listing groups of patients that are at particular risk of infection
12.1.2.4	Listing groups of operations that present a particular risk of becoming infected (implants etc.)
12.1.3	Understands blood borne infection as shown by:
12.1.3.1	Explaining infections from contaminated blood
12.1.3.2	Explaining hepatitis and HIV infections: modes of infection: natural history: at risk groups
12.1.4	Understands personal risks of infection and strategies for prevention as shown by:
12.1.4.1	Explaining personal immunisation
12.1.4.2	Listing groups of patients that have particular risk of transmitting infection (TB, HIV)
12.1.4.3	Identifying the correct systems for dealing with contaminated sharps
12.1.4.4	Explaining what to do in case of contamination or needle stick injury

12.2	<p>Skills</p> <p><i>APs will consistently demonstrate, in the course of work (or in the simulator) good practice in infection control. They will be able to explain what has influenced the decisions they make. They will know local guidelines and protocols and will understand why the protocol requires particular actions.</i></p>
12.2.1	Uses sterile precautions
12.2.1.1	Performs surgical scrub
12.2.1.2	Uses aseptic techniques in dealing with drugs and intra-venous fluids
12.2.1.3	Assiduous in avoiding contamination of working surfaces and equipment
12.2.1.4	Uses disposable filters and breathing systems
12.2.1.5	Use of protective clothing/gloves/masks etc.
12.2.1.6	Correctly prepares and drapes operative areas
12.2.2	Uses prophylactic antibiotic regimes
12.2.2.1	Administers correct IV antibiotics at the appropriate time as prescribed
12.2.3	Demonstrates particular caution in high risk situations
12.2.3.1	Takes necessary precautions with patients that have particular risk of becoming infected
12.2.3.2	Takes necessary precautions with patients that have particular risk of transmitting infection (TB, HIV)
12.2.3.3	Takes necessary precautions with operations that present a particular risk of becoming infected (implants etc.)
13	Critical incidents
13.1	<p>Knowledge</p> <p><i>The AP will understand why critical incidents occur and how they develop. They will understand, as far as is necessary for management, the underlying physiology that determines their presentation. They will understand the immediate care of critical incidents and how to continue to assist in patient care as a member of the team. They will know appropriate protocols and guidelines.</i></p>
13.1.1	Understands how to proceed if problems are encountered
13.1.1.1	Explains the importance of careful attention to anaesthesia at all times
13.1.1.2	Explains the circumstances in which they will call the supervising anaesthetist to resolve problems
13.1.2	Understands the principles of the causes, detection and management of critical incidents and is able to explain these in relation to:
13.1.2.1	<ul style="list-style-type: none"> • Cardiac and/or respiratory arrest • Unexpected Hypoxia with or without cyanosis • Unexpected increase in peak airway pressure • Progressive fall in minute volume during spontaneous respiration or IPPV • Fall in end tidal CO₂ • Rise in end tidal CO₂ • Rise in inspired CO₂ • Unexpected hypotension • Unexpected hypertension • Sinus tachycardia • Arrhythmias (ST segment changes; sudden tachydysrhythmia; sudden bradycardia; ventricular-ectopics, ventricular-tachycardia, – ventricular-fibrillation) • Convulsions

13.1.3	Understands the immediate management of the following specific conditions and can discuss these in connection with:
13.1.3.1	<ul style="list-style-type: none"> • Aspiration of vomit • Laryngospasm • Bronchospasm • Tension pneumothorax • Gas/Fat/Pulmonary embolus • Adverse drug reactions • Anaphylaxis • Transfusion of mismatched blood or blood products • Malignant hyperthermia • Inadvertent intra-arterial injection of irritant fluids • High spinal block • Local anaesthetic toxicity • Failed intubation • Difficulty with IPPV and sudden or progressive loss of minute volume
13.2	<p>Skills</p> <p><i>The AP will demonstrate management of critical incidents in the simulator. They will show good practice in the immediate first aid of critical situations and will assist in the further management of these. They will demonstrate the use of appropriate protocols and guidelines.</i></p>
13.2.1	Monitors and observes patients
13.2.1.1	Promptly detects a deteriorating situation by careful monitoring
13.2.2	Responds immediately with appropriate management, and continue to cooperate in the team management (in the theatre or in simulation) of:
13.2.2.1	<ul style="list-style-type: none"> • Cardiac and/or respiratory arrest • Unexpected hypoxia with or without cyanosis • Unexpected increase in peak airway pressure • Progressive fall in minute volume during spontaneous respiration or IPPV • Fall in end tidal CO₂ • Rise in end tidal CO₂ • Rise in inspired CO₂ • Unexpected hypotension • Unexpected hypertension • Sinus Tachycardia • Arrhythmias (ST segment changes; sudden tachydysrhythmia; sudden bradycardia; ventricular ectopics; ventricular tachycardia; ventricular-fibrillation) • Convulsions

13.2.3	Responds immediately with appropriate management, and continues to cooperate in the team management (in theatre or in simulation) of:
13.2.3.1	<ul style="list-style-type: none"> • Aspiration of vomit • Laryngospasm • Bronchospasm • Tension pneumothorax • Gas/Fat/Pulmonary embolus • Adverse drug reactions • Anaphylaxis • Transfusion of mismatched blood or blood products • Malignant hyperpyrexia • Inadvertent intra-arterial injection of irritant fluids • High spinal block • Local anaesthetic toxicity • Failed intubation • Difficulty with IPPV and sudden or progressive loss of minute volume
13.2.4	Demonstrates appropriate team working in crisis situations
13.2.4.1	Able to command the attention of others when a crisis is occurring
13.2.4.2	Cooperates with anaesthetist supervisors to give appropriate Information to patient and where necessary, to organise counselling and advice
13.2.4.3	Practises response protocols in resuscitation room or in simulation with other relevant health care professionals when appropriate
13.2.4.4	Completes critical incident report
14	Attitudes and behaviour
14.1	Conduct
14.1.1	Committed to the need to behave professionally
14.1.1.1	Accepts the need to have a clean neat appearance
14.1.1.2	Accepts the need for punctuality
14.1.1.3	Abides by their professional code of conduct
14.1.1.4	Accepts the need to consider the views of patient and the needs of the surgeon
14.1.1.5	Always acts within the limits of his/her competence and authority
14.1.1.6	Behaves in a manner that calms situations and reassures patients and colleagues
14.1.1.7	Behaves ethically
14.1.1.8	Behaves with probity
14.1.1.9	Respects the patient's right to confidentiality
14.1.1.10	Has an appropriately polite and businesslike manner
14.1.2	Understands personal limitations
14.1.2.1	Accepts the importance of always working under the close supervision of a medically qualified anaesthetist
14.1.2.2	Seeks further opinion whenever unsure and when required by protocol and guidelines
14.1.2.3	Committed to the principle of team responsibility
14.1.2.4	Commits to the principal of undertaking only that which they are competent to undertake
14.1.2.5	Accepts the need for them to be accountable to others
14.1.2.6	Accepts the need to conform to procedural norms such as guidelines and protocols

14.2	Communication
14.2.1	Accepts the need for proper communication with patients and their relatives and supporters
14.2.1.1	Deals sensitively and honestly with relatives in difficult situations
14.2.1.2	Always communicates frankly and openly with patients and their relatives and supporters
14.2.1.3	Accepts the need to behave in an open, helpful and cooperative manner
14.2.1.4	Accepts the requirement for explanation to patients about all aspects of diagnosis, investigation and treatment
14.2.1.5	Accepts the need for patients to consent to all interventions and specifically accepts the requirement for properly informed consent for operation.
14.2.2	Accepts the need for proper communication with colleagues
14.2.2.1	Accepts the need for proper communication with other professionals
14.2.2.2	Accepts the need to be clear in explanations to patient and staff
14.2.2.3	Recognises the responsibility to communicate with colleagues
14.2.2.4	Accepts the requirement to achieve appropriate information transfer
14.2.3	Accepts the need to relate properly to patients
14.2.3.1	Accepts the need to show care and compassion for patients
14.2.3.2	Behaves in a caring, compassionate manner
14.2.3.3	Accepts the need to adopt a reassuring manner with patients at times when they are distressed
14.2.4	Manages information properly:
14.2.4.1	Maintains and manages information and reports
14.2.4.2	Receives, records, stores and shares information
14.2.4.3	Analyses and collates information in response to queries
14.2.4.4	Provides information to support decision making
14.2.4.5	Accepts the need not to betray confidential information
14.2.4.6	Does not betray professional confidences
14.3	Commitment to safety
14.3.1	Personally committed to maximising safety by their own behaviour
14.3.1.1	Accepts that vigilance is necessary in taking responsibility for the anaesthetic care of patients
14.3.1.2	Always vigilant
14.3.1.3	Accepts the need to pay attention to detail in all aspects of work
14.3.1.4	Always pays attention to detail
14.3.2	Commits to the team responsibility for safety
14.3.2.1	Commits to maximise safety, and not to compromise it by accepting substandard equipment both as to range and quality
14.3.2.2	Commits to maximise safety, and not to compromise it by accepting a substandard quality of work by other team members
14.3.2.3	Accepts that in some circumstances, in the absence of their medical supervisor, they will need to take command of the team
14.3.2.4	Commits to the joint responsibility for equipment, in particular its maintenance and safety

14.4	Open to the value of others and of their rights and opinions
14.4.1	With respect to their attitude to others:
14.4.1.1	Accepts the autonomy and personal rights of others
14.4.1.2	Recognises the requirement to supports and promote the equality, diversity, rights and responsibilities of individuals
14.4.1.3	Commits to promoting a culture that values and respects the diversity of individuals
14.4.1.4	Respects the dignity of all patients
14.4.1.5	Respects the personal and religious beliefs of patients and attempts to accommodate these within procedure whilst still maintaining safety
14.4.1.6	Recognises the particular problems with maintaining the autonomy of the elderly
14.4.1.7	Respects for the social norms of all patients particular with regard to gender, religion, ethnicity and age
14.4.1.8	Respect the cultural norms of all patients
14.4.1.9	Recognises the limitations of therapy
14.4.1.10	Respects the ethics of 'do not resuscitate' orders
14.4.1.11	Accepts the imperative that all interventions must be necessary and in the patients best interests
14.4.1.12	Commits to the fact that every patient is entitled to the best care available
14.5	Commitment to health and safety at work
14.5.1	Commits to the need for a health and safety culture within the workplace
14.5.1.1	Ensures own actions reduce risks to health and safety
14.5.1.2	Promotes monitors and maintains health, safety and security in the workplace
14.5.1.3	Accepts responsibility for prevention of self-infection
14.5.1.4	Commits to policies for prevention of cross infection
14.5.1.5	Accepts the importance and process of critical incident reporting
14.5.1.6	Accepts the need to follow through a critical incident with warning flags, presentation at morbidity meetings, correct reporting etc.
14.5.1.7	Accepts the need to respect standing orders
14.6	Commitment to education and training
14.6.1	Commits to maintaining high standards of personal practice
14.6.1.1	Commits to developing own knowledge and practice
14.6.1.2	Commits to reflect upon and develop own practice using supervision and support systems
14.6.1.3	Promotes the values and principles underpinning good practice
14.6.1.4	Contributes to the development of the knowledge and practice of others
14.6.1.5	Commits to the value of supporting and challenging workers on specific aspects of their practice
14.6.1.6	Accepts the importance of contributing to research, development and audit activities
14.6.1.7	Locates, critically appraises and implements evidence relevant to practice
14.6.1.8	Accepts the importance of contributing to the evaluation and implementation of research outcomes

14.6.1.9	Accepts the importance of contributing to raising awareness of health issues
14.6.1.10	Accepts responsibility to promote good practice in health, safety and the control of infection in clinical areas

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