ANZCA

FPM

Anaesthesia training program curriculum

November 2020 v1.10

The inspiration for the ANZCA Roles in Practice emerged from the adaptation of the CanMEDS Curriculum Framework.

http://www.royalcollege.ca/portal/page/portal/rc/canmeds

The CanMEDS 2015 Physician Competency Framework has been referred to for the 2016 updates.

ANZCA would like to acknowledge the Royal College of Anaesthetists who have have given permission for extracts of the CCT curriculum to be used for the additional perioperative medicine learning outcomes added in September 2017. Please refer to www.rcoa.ac.uk/careers-training/training-anaesthesia/the-training-curriculum/CCT2010

To ensure that users have access to the latest version of the ANZCA Anaesthesia training program Curriculum, the version (and version date) of the document appears within. There will be periodic updates to this document so please consider this if printing or downloading the document. The College only provides this document online and not in print.

Version control register

Version	Author	Approved by	Approval date	Published	Sections modified	Next review
1.10	Education Unit/EDEC	EDEC/EEMC	October 2020	October 2020	Corrected administrative errors for: IT_PO 2.7 SS_IC 1.103 SS_OB 1.12 Amended learning outcome descriptors for: BT_PO 1.42	2021

Foreword

With the introduction of the 2004 ANZCA curriculum, the Australian and New Zealand College of Anaesthetists committed to a review of the curriculum and training program and this began in 2008. This review addressed the need to maintain a contemporary training program with regard to both clinical content and educational method, and specifically targeted:

- Opinions and suggestions regarding the 2004 ANZCA curriculum.
- Desired outcomes for an ANZCA trainee.
- Innovative ideas for the ANZCA training program.
- Ideas for comprehensive clinical teacher training and support.

The review was reported to the ANZCA Council in April 2010 and the recommendations arising from the review are available on the ANZCA website.

The College launched the ANZCA Curriculum Revision 2013 project in July 2010 to revise the ANZCA training program, with the primary aim of developing a new curriculum in line with recommendations from the review. The project involved broad input from Fellows, trainees, educational experts and other health professionals and the revised curriculum is the result of extensive consultation with these groups. The curriculum will guide teaching and learning in the specialty of anaesthesia in Australia and New Zealand from 2013 onwards.

The curriculum articulates to trainees, Fellows, other professional groups and the general public the learning outcomes to be met by ANZCA trainees through a combination of supervised clinical experience, courses, scholarly pursuits, self-directed learning and other educational activities. It provides the basis upon which learning opportunities and assessments will be focused. It builds on the knowledge, skills and professional attributes that trainees initially develop during medical school and postgraduate medical education and training, and extends them into the context of anaesthetic care. It also promotes continuing professional development and contributions to the specialty after fellowship is attained.

It is anticipated that this document will evolve over time to incorporate new educational methods and clinical approaches and practice in response to community needs, the latest research, technological and medical advances and in response to developments in the specialty. The College calls upon all Fellows and trainees to identify amendments or additions over time and to contribute to maintaining the clinical and educational relevance of this document.

The curriculum should be read in conjunction with the *ANZCA Handbook for Training* and *Regulation 37: Training in anaesthesia leading to FANZCA and accreditation of facilities to deliver the 2013 curriculum*.

Professor Barry Baker
Dean of Education, 2010-2014

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1. Introduction

The Australian and New Zealand College of Anaesthetists (ANZCA) is the professional organisation for specialist anaesthetists (Fellows) and anaesthetists in training (trainees) in Australia and New Zealand and is directly responsible for the training, examination and specialist accreditation of anaesthetists in these countries. The College provides a five-year anaesthesia program undertaken in hospitals and clinical placements approved by ANZCA for training leading to the specialist qualification of diploma of fellowship.

2. The scope of anaesthesia practice

Specialist anaesthesia practice requires a unique range of clinical knowledge and skills. These include knowledge and skills in anaesthesia and sedation, regional anaesthesia, airway management, pain medicine, perioperative medicine, resuscitation, trauma and crisis management and quality and safety in patient care. Anaesthetists in Australasia work in a range of clinical environments from isolated rural environments to large metropolitan teaching hospitals in both public and private practice and the armed services. Anaesthetists apply their knowledge and skills to caring for patients in a variety of clinical contexts, providing anaesthesia and sedation for surgery and other procedures, providing pain management and periprocedural care, working in resuscitation, trauma and retrieval teams and working with specialists in intensive care medicine. There are subspecialised areas of practice based around patient groups such as paediatric anaesthesia and obstetric anaesthesia or surgical sub-specialties such as anaesthesia for cardiac or neurosurgery. The ANZCA training program provides education and training for all clinical environments and contexts, including foundation knowledge and skills for sub-specialised areas of practice.

A key principle in redesigning the curriculum has been an emphasis on trainees' development across all professional roles. Specialist anaesthetists have professional roles in common with other medical specialties, expressed in the ANZCA curriculum framework as medical expert, communicator, collaborator, leader and manager, health advocate, scholar and professional.

Perhaps more than any other specialty, anaesthetists work as members of a team, enabling and facilitating care by other health professionals. It is therefore important that anaesthetists put the patient at the centre of their care and this is reflected in the design and wording throughout the curriculum.

3. Aim of the curriculum

The aim of the curriculum is to define the required learning, teaching and assessment of the ANZCA training program.

More specifically, the curriculum aims to:

- Articulate full scope of practice required by a specialist anaesthetist in a general hospital setting (breadth and depth of knowledge, range of skills and professional behaviours necessary for quality care).
- Guide supervisors of training and other Fellows involved in the training program on suitable learning experiences for trainees as they progress through each training period.
- Foster trainees' self-directed learning by providing clear requirements for each core and specialised study unit.
- Document how the College's volume of practice requirements and assessment strategy align with the learning outcomes of the training program.
- Outline how each learning outcome is assessed during the training program.
- Promote regular and productive interaction between trainees and supervisors, through formative workplace-based assessments and reviews at the completion of each clinical placement and core study unit.
- Provide consistency of standard and outcome across different settings.

- Enable comparison with international training programs to determine equivalency of standards of experience, education and assessment.
- Outline foundation knowledge and skills for further training in sub-specialised areas.
- Provide a framework to inform the scope of continuing professional development activities.

4. Key sections of the curriculum

The key themes/sections of the curriculum are the:

1. **ANZCA Roles in Practice**
2. **ANZCA Clinical Fundamentals**
3. **Specialised study units**

The ANZCA Roles in Practice have been developed from the ANZCA curriculum framework. They have the framework titles of medical expert, communicator, collaborator, leader and manager, health advocate, scholar and professional and show how these professional roles are expressed in anaesthesia practice in terms of learning outcomes. They can be applied across all levels of training and have been brought together at the beginning of the curriculum document to emphasise their importance and prevent repetition. Examples of the ANZCA Roles in Practice are given throughout the curriculum and examples of the specific application of these roles are provided in the specialised study units.

The ANZCA Clinical Fundamentals define the fundamental specialty knowledge and skills of anaesthetists applicable across all areas of practice. They are general anaesthesia and sedation, airway management, regional and local anaesthesia, perioperative medicine, pain medicine, resuscitation, trauma and crisis management and safety and quality in anaesthetic practice. Knowledge and skills in these areas are developed throughout training with the outcomes expected to be achieved by the end of each training period grouped in defined core study units. The clinical fundamentals also thread through the specialised study units where their application in a specific context is expressed.

The specialised study units define the further specialised knowledge and skills required for the anaesthetic management of patients in specific contexts.

Content of the curriculum intersects and overlaps within and between the three sections. For example, within the ANZCA Roles in Practice the communicator and collaborator roles overlap considerably. Within the ANZCA Clinical Fundamentals, airway management and general anaesthesia and sedation have some learning outcomes in common. Between the ANZCA Roles in Practice and the ANZCA Clinical Fundamentals, safe, efficient and effective work practices are addressed in the leader and manager and professional roles as well as in the quality and safety in anaesthetic practice fundamental.

Each section of the curriculum builds upon the previous one. The achievement of learning outcomes and completion of a variety of assessments within the ANZCA Clinical Fundamentals are underpinned by development of the breadth of professional behaviours referred to within the ANZCA Roles in Practice. As trainees focus their attention on completion of specialised study units during basic and advanced training, they will be applying the knowledge and skills they have gained while working through the clinical fundamentals.

5. Training periods and the core study units

The ANZCA training program is divided into four periods: introductory, basic, advanced and provisional fellowship training. During the first three of these training periods the ANZCA Clinical Fundamentals are defined in the core study units. These core study units are constructed to develop core capabilities, providing the foundation for specialised practice during provisional fellowship training. Each core study unit is designed to develop a trainee's competence toward a consultant level of practice.

- **Introductory training.** Trainees may complete this study unit in a minimum of 26 weeks (including a maximum of three weeks leave). This unit introduces the ANZCA Roles in Practice focusing on the development of basic knowledge and skills across the ANZCA Clinical Fundamentals and safe, patient-centred practice. The primary goal of introductory training is for trainees to be able to anaesthetise safely low-risk patients having low-risk surgery.

  Progress in the clinical fundamentals, such that the trainee is able to assess patients preoperatively to plan their care, recognise common crises, use basic airway management techniques and ventilation strategies, manage simple acute pain, and identify when to consult with supervisors regarding attendance or assistance, supports this goal.

  Trainees also progress in the ANZCA Roles in Practice throughout training and by the end of Introductory Training will be expected to:

  - Establish positive relationships with patients characterised by trust
  - Synthesise and concisely convey patient assessment and plans to team members and supervisors
  - Comprehensively, concisely and legibly document patient assessment and plans
  - Identify the roles and responsibilities of, and demonstrate a respectful attitude toward, all the other members of the inter-professional healthcare team
  - Attend with time to adequately prepare for cases and check drugs, equipment and monitoring
  - Set priorities and manage their time to meet commitments
  - Identify patients in need of better pain management
  - Protect patient privacy and dignity, especially while unconscious
  - Identify learning needs and develop personal learning plans
  - Demonstrate willingness to consider feedback, advice, and instruction
  - Display the following values: altruism, honesty, respect, integrity, commitment, and compassion
  - Respect confidentiality of patients and colleagues

  For more information on requirements for the introductory training core study unit, refer to section 2.1.

- **Basic training.** Trainees may complete this study unit in a minimum of 78 weeks (including a maximum of 16 weeks leave for introductory training and basic training). This unit further develops the ANZCA Roles in Practice and trainees will also continue to expand and apply their knowledge of basic sciences, anatomy and equipment, necessary to support safe practice across the ANZCA Clinical Fundamentals. The primary goal of basic training is for the trainee to be able to anaesthetise patients safely with distant supervision, where there is moderate complexity based on patient or surgical factors.

Progress in the clinical fundamentals such that the trainee is able to assess and optimise patients with common medical conditions, recognise and initiate management of common crises, utilise diverse airway management techniques and ventilation strategies, manage acute pain, and perform spinal and epidural blocks supports this goal.

Trainees also progress in the ANZCA Roles in Practice throughout training and by the end of Basic Training will be expected to:

- Communicate with patients using a patient- centred approach
- Document clinical encounters to adequately convey clinical reasoning and the rationale for decisions
- Present verbal reports of clinical care and plans
- Convey all relevant information when handing over responsibility of patient care
- Appropriately consult with other health care providers and colleagues to optimise patient care and safety
- Demonstrate organisational skills in the theatre environment
- Facilitate timely patient access to surgery and other care
- Promote selection of anaesthetic techniques which maximize patient benefit
- Actively monitor their own learning, reviewing and updating learning plans as required
- Apply the concepts of evidence-based medicine in their work
- Formulate clinical questions from cases or scenarios
- Respond appropriately to ethical challenges encountered in practice

For more information on requirements for the basic training core study unit, refer to section 2.2.

- **Advanced training.** Trainees may complete this study unit in a minimum of 104 weeks (including a maximum of 16 weeks leave). The primary goal of advanced training is for the trainee to anaesthetise safely ASA 1-4 patients having complex procedures with distant supervision.

  Progress in the clinical fundamentals such that the trainee is able to assess and optimise patients with significant co-morbidities, manage perioperative crises, resuscitation and trauma, utilise advanced airway management techniques and ventilation strategies, manage complex acute pain, and perform challenging spinal, epidural and other regional blocks supports this goal.

  The trainee will be able to assume a leadership role in multidisciplinary teams when required, and demonstrate a commitment to the safe and ethical care of patients and others in the dynamic and complex environments in which they work.

  Trainees also progress in the ANZCA Roles in Practice throughout training and by the end of Advanced Training will be expected to:

  - Adapt their communication skills to a variety of contexts, including time-critical and stressful situations
  - Explain complex procedures to patients in language they can understand
  - Demonstrate effective leadership and organisational skills, for example by ensuring patient-safety checklists are completed meaningfully, and appropriate cases are prioritised
  - Delegate tasks and responsibilities in an appropriate and respectful manner
  - Balance safety, effectiveness, efficiency and equitable allocation of resources when determining anaesthetic technique

- Intervene when a procedure cannot be completed without undue stress to a patient
- Identify circumstances when development of advanced care directives should be discussed
- Critically appraise evidence and integrate conclusions into clinical care
- Utilise reflection and feedback to direct their own learning
- Teach technical skills, lead small group discussions, and mentor junior staff
- Adhere to relevant standards of professional practice promulgated by ANZCA and regulatory bodies.
- Recognize and support colleagues in need and help them access other available sources of support
- Balance personal and professional priorities to ensure personal well-being and fitness to practice

For more information on requirements for the advanced training core study unit, refer to section 2.3.

- **Provisional fellowship training.** Trainees may complete provisional fellowship training in a minimum of 52 weeks (including a maximum of eight weeks leave).

  During provisional fellowship training Fellows will continue to develop across all ANZCA Roles in Practice, refining their capability to provide quality patient care. The primary goal of this training period is for trainees to demonstrate maturity in identifying and anticipating their learning needs and seeking appropriate opportunities to enhance their abilities, acknowledging their ongoing personal responsibility to maintain and improve their practice. Upon completion of this training period, Trainees are expected to demonstrate efficient and effective work practice at a consultant level, exhibiting broader leadership skills and a commitment to upholding the ethical and professional standards of the specialty.

  For more information on requirements for provisional fellowship training, refer to section 4.

For definitions of supervision levels please refer to *Supervision of clinical experience during ANZCA training* in the ANZCA Handbook for Training.

6. Curriculum diagram

The relationship between training periods and sections of the curriculum is depicted on the following page.

Curriculum structure: overview

Prevocational medical education and training (PMET) (104 weeks) → **Introductory training (IT)* (26 weeks including leave**)** → **Basic training (BT)* (78 weeks including leave**)** → **Advanced training (AT)* (104 weeks including leave**)** → **Provisional fellowship training (PFT)* (52 weeks including leave**)** → **FELLOWSHIP**

General hospital training

Maximum 52 weeks experience in any combination of clinical anaesthesia, intensive care medicine or pain medicine

SELECTION

ANZCA Roles in Practice (including scholar role activities)

ANZCA Roles in Practice: Learning outcomes from the ANZCA Roles in Practice are embedded in workplace-based assessment forms and are applicable to all clinical fundamentals and specialised study units.

Clinical placement reviews

Introductory training (IT)

Topics covered:

Clinical fundamentals

- VOP
- WBA
- Courses

Initial assessment of anaesthetic competence (IAAC)

Sign-off will normally be undertaken during the last four weeks of introductory training, however may be undertaken after 13 weeks if the supervisor of training has assessed and approved recent anaesthetic experience (RAE)***.

Core unit review (CUR)

Basic training (BT)

Topics covered:

Clinical fundamentals

- VOP
- WBA
- Courses

Primary exam

Core unit review (CUR)

Advanced training (AT)

Topics covered:

Clinical fundamentals

- VOP
- WBA
- Courses

Final exam

Specialised study units (SSUs)

- To learn unique/specific aspects of practice. Each unit focuses on a defined area of practice, related to the type of treatment required for the patient.
- Covers the anaesthetic needs and implications of the various treatments required for patients.
- Variable in size, depending on the area of practice and flexible in timing of completion.
- Workplace-based assessments on specialised study units can be completed from basic training onward.

Core unit review (CUR)

Provisional fellowship training

To extend practice and/or begin career direction

An optional set of units for extension of practice in defined areas such as:

- One of the ANZCA Roles in Practice.
- One of the ANZCA Clinical Fundamentals.
- One of the areas of practice defined in the specialised study units.

A study plan defined by the trainee and approved by the College

- Clinical support time
- WBA
- Courses
- CPD

Provisional fellowship review (PFR)

Continuing professional development (CPD)

- Practice evaluation
- Knowledge and skills
- Emergency responses

*Introductory training (IT) comprises a minimum 26 weeks including a maximum three weeks leave; basic training (BT) comprises a minimum 78 weeks including a maximum of 16 weeks leave for introductory training plus basic training combined; advanced training comprises a minimum 104 weeks including a maximum of 16 weeks l leave; provisional fellowship training (PFT) comprises a minimum 52 weeks including a maximum of eight weeks leave.

**Leave is defined as annual leave, sick leave, parental leave or study and examination leave.

*** RAE = recent anaesthetic experience: defined as full- time anaesthetic experience in the 52 weeks prior to the commencement of introductory training and approved for this purpose by the supervisor of training (SOT).

7. The curriculum design

The curriculum incorporates key principles and strategies of adult learning, explicitly states volume of practice and describes the mandated and non-specified workplace-based assessments that trainees will need to undertake over the course of their training.

Education principles

The curriculum has been developed according to the following key principles and strategies of adult learning:

Patient and Community focused - All learning is ultimately aimed at addressing the health needs of patients and the health systems needs of the populations served.

Learner-driven – Individuals are involved in identifying their own learning needs and developing learning plans.

Experiential learning under supervision - Learning primarily occurs within the context of clinical practice, under graduated supervision matched to the trainee's competence to ensure safe patient care.

Reflection and self-assessment – Individuals review their experiences and make judgments on their own performance in order to improve subsequent performance.

Regular feedback - Individuals provide and use progressive feedback to develop action plans that reinforce and develop their learning and professional practice

Spiral learning – Learning is sequenced so new ideas are linked to and build on already known concepts and principles facilitating development from novice to expert.

Integrated learning – Development of medical expertise in the ANZCA Clinical Fundamentals is complemented by learning in the other ANZCA Roles in Practice.

Flexible learning – Individuals learn at different rates. Although minimum durations of time may be applied to facilitate experiential learning, the expected duration to attain competence is variable. Also, sequencing of learning is flexible to account for the different learning opportunities available in different learning contexts.

Entrustment - Progression through training and the granting of increasing levels of responsibility depends on the expert judgement of an individual's capability to reliably perform specific clinical tasks.

Programmatic Assessment - The assessment methods form an integrated system of assessments, which support and extend learning throughout the different stages of the program, closely linked to the desired learning outcomes and other contents of the curriculum.

Assessment of learning – the program of assessment ensures that graduates of the programme are knowledgeable, skill-full professionals able to be entrusted with the work of their profession.

Lifelong learning - Individuals learn to judge the quality of clinical performance and the expected standards of performance, enabling them to become self-regulating learners and manage their own learning.

Note: Education principles were revised in August 2018 and are in draft pilot phase for 12 months.

Specific assessment forms correspond to each type of assessment and contain a number of individual items. Each item has a descriptor, developed from learning outcomes within the ANZCA Roles in Practice, which prompts the supervisor to consider certain aspects of the trainee's performance. The assessor is required to rate the trainee on each item.

Workplace-based assessment provides a framework to support teaching and learning in the clinical environment and promotes a holistic view of a trainee's clinical practice. Trainees have the opportunity to assess their own learning and use feedback from these assessments to inform and develop their own practice. While the goal of workplace-based assessment is to aid trainee learning, they can be used to create a record to demonstrate development and inform the regular review of trainee progression.

8. Volume of practice requirements

A volume of practice for a number of elements in the curriculum has been provided. This will assist both trainees and supervisors to ensure experience gained during training is of the breadth required. Each volume of practice is an absolute minimum required to achieve learning outcomes specified in the curriculum and for some cases/procedures it is expected that trainees will complete many more. The volume of practice a trainee must experience (that is, between one and 50) does not reflect the importance of the type of case/procedure, or the estimated number of cases/procedures required to achieve ultimate competence. Volume of practice was determined as a component of a broader curriculum assessment strategy with the following considerations:

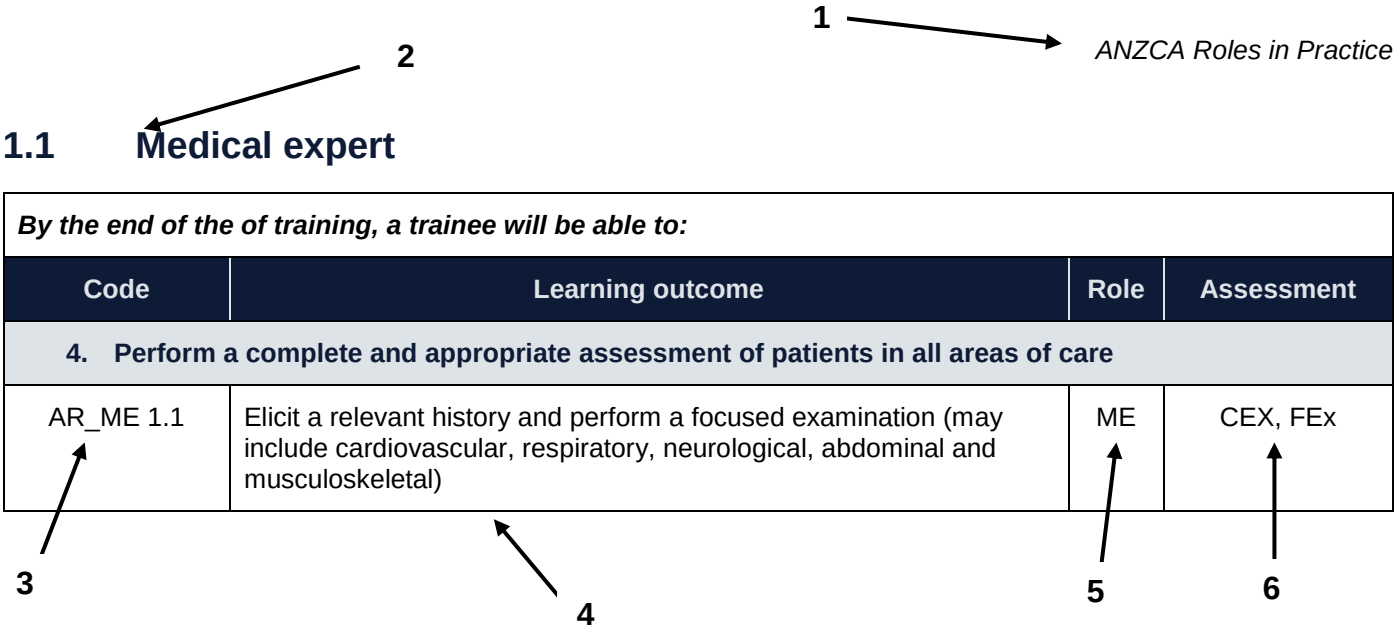
- The core study unit during which the volume of practice must be achieved.
- Mandatory assessments during specific training periods.
- Procedures that will be assessed by direct observation of procedural skills (DOPS).
- Cases that are the focus of mini clinical evaluation exercise (mini-CEX) or case-based discussion (CbD) assessments.
- The number of cases/procedures that must be achieved. In some cases they are deliberately flexible to accommodate variance in local practices.

In addition, assessment activities have been assigned for training in the scholar role and these are known as the scholar role activities. For more information on the assessment and volume of practice requirements for the ANZCA Roles in Practice, including the scholar role, see Section 1, ANZCA Roles in Practice.

9. Format of the curriculum

Each section of the curriculum is presented in a particular format, as shown in the following diagrams.

The learning outcomes for the ANZCA Roles in Practice are presented in the following format:



1. Section header

The header at the top right of the page indicates that the learning outcomes relate to an ANZCA Role in Practice.

2. ANZCA role in practice title

The heading at the top left of the table indicates the title of the ANZCA role.

3. Learning outcome code

This indicates the code for the learning outcome, which is made up of the code for the ANZCA Roles in Practice section, the code for the role itself and sequential numbering. In the above example, this is ANZCA Roles in Practice, medical expert and 1.1 as the first outcome under subsection 1. Perform a complete and appropriate assessment of patients in all areas of care.

4. Learning outcome

This describes the learning outcome to be achieved.

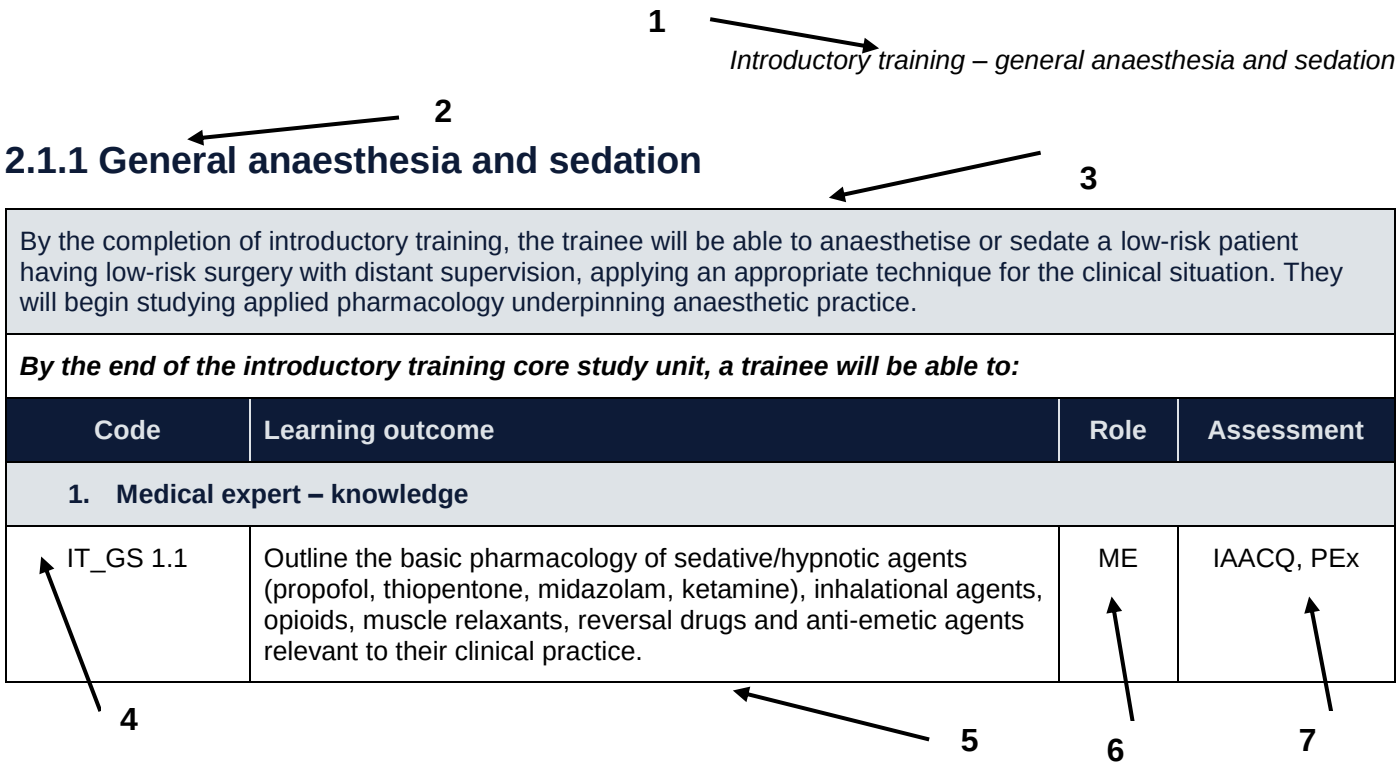
5. Role

This column indicates the role to which the learning outcome is mapped.

6. Assessment method

This indicates the primary assessment method(s) for the learning outcome. In the above example this is CEX for the mini-clinical evaluation exercise and FEx for the final examination.

The learning outcomes for the clinical fundamentals are presented in the following format:



1. Section header

The header at the top right of the page, indicates both the training period to which the learning outcomes apply and the title of the clinical fundamental.

2. Clinical Fundamental title

The heading at the top left of the table indicates the title of the clinical fundamental.

3. Introductory paragraph

The introductory paragraph describes the skills that trainees are expected to achieve by the end of the specific training period.

4. Learning outcome code

This indicates the code for the learning outcome, which is made up of the training period, clinical fundamental title code and sequential number. In the above example, this is introductory training, general anaesthesia and sedation clinical fundamental and 1.1 as the first outcome under subsection 1, medical expert – knowledge.

5. Learning outcome

This describes the learning outcome to be achieved.

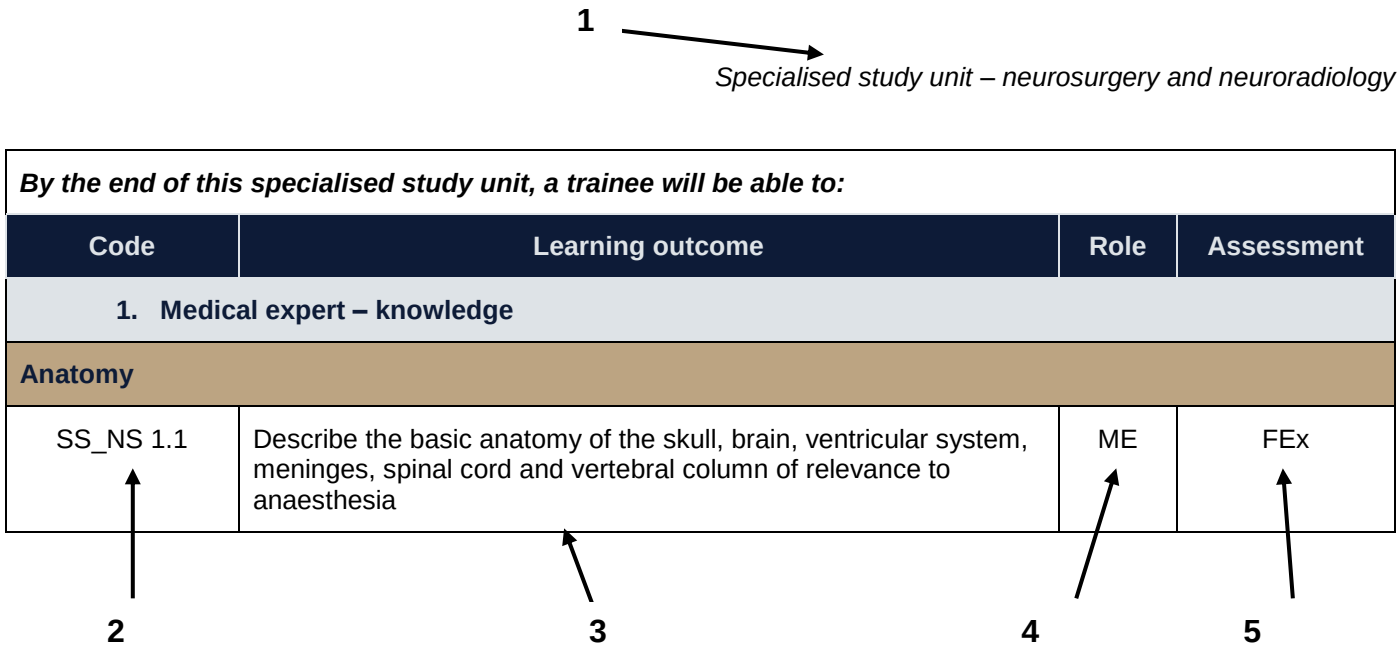
6. Role

This column indicates the role to which the learning outcome is mapped.

7. Assessment method

This indicates the primary assessment method(s) for the learning outcome. In the above example this is IAAC for the initial assessment of anaesthetic competence and PEx for the primary examination.

The learning outcomes for the specialised study units are presented in the following format:



1. Section header

The header at the top right of the page indicates to which specialised study unit the learning outcomes relate.

2. Learning outcome code

This indicates the code, which is made up of the code for the specialised study unit (SSU) section, the code for the specialised study unit and sequential numbering. In the above example, this is specialised study unit neurosurgery and neuroradiology and 1.1 as the first outcome under subsection 1, medical expert - knowledge.

3. Learning outcome

This describes the learning outcome.

4. Role

This column indicates the role to which the learning outcome is mapped, for example, medical expert.

5. Assessment method

This indicates the primary assessment method(s) for the learning outcome, for example, FEx for final exam.

Learning outcome code glossary

ANZCA Roles in Practice (AR)	Clinical fundamentals in introductory, basic and advanced training	Specialised study units (SS)
Medical expert (**ME**)	General anaesthesia and sedation (**GS**)	Head and neck, ear nose and throat, dental surgery and electro-convulsive therapy (**HN**)
Communicator (**CM**)	Airway management (**AM**)	Ophthalmic procedures (**OP**)
Collaborator (**CL**)	Regional and local anaesthesia (**RA**)	Neurosurgery and neuroradiology (**NS**)
Leader and Manager ((LM)	Perioperative medicine (**PO**)	General surgery, urological, gynaecological and endoscopic Procedures (**GG**)
Health advocate (**HA**)	Pain medicine (**PM**)	Thoracic surgery (**TS**)
Scholar (**SC**)	Resuscitation, trauma and crisis management (**RT**)	Cardiac surgery and interventional cardiology (**CS**)
Professional (**PF**)	Safety and quality in anaesthetic practice (**SQ**)	Obstetric anaesthesia and analgesia (**OB**)
		Vascular surgery and interventional radiology (**VS**)
		Orthopaedic surgery (**OR**)
		Intensive care (**IC**)
		Paediatric anaesthesia (**PA**)
		Plastic, reconstructive and burns surgery (**PB**)

Learning outcome

A learning outcome is a description of what the trainee will learn as the result of a period of specified and supported study. Learning outcomes are usually defined in terms of knowledge, skills or attitudes/behaviours and here complete the phrase: “By the end of the *[core study unit/specialised study unit]*, the trainee will be able to….”

In the clinical fundamentals and specialised study units, learning outcomes have been grouped into knowledge and skills. Learning outcomes relating to appropriate attitudes/behaviour are within the ANZCA Roles in Practice. While these separate areas of competence are important, overall the training program aims to guide the development of competence in professional judgment, which is the unique combination of all three.

The meanings of verbs that begin a number of knowledge related learning outcomes are as follows:

- Outline - give the main features or general principles.
- Define - give the precise meaning.
- Describe - give a detailed account of.
- Explain - make plain, interpret and account for.
- Discuss - present in detail for examination and consideration.
- Evaluate - make an appraisal of the worth of something, assess, consider and examine.

When a learning outcome is associated with a volume of practice requirement there is a (V) placed after the learning outcome.

Role

All learning outcomes are associated with one of the seven ANZCA Roles in Practice.

The abbreviations are as follows:

ME – medical expert

CM – communicator

CL – collaborator

LMleader and manager

HA – health advocate

SC – scholar

PF – professional

Assessment

The College has developed an assessment strategy that supports the curriculum. Every learning outcome has been matched to a minimum of one assessment method. Although learning outcomes may be assessed by other assessment methods if the opportunity arises, the primary method used to assess a learning outcome is listed in this column.

Initial assessment of anaesthetic competence questions, primary examination, final examination, or a combination of these methods assesses the knowledge-based learning outcomes within the clinical fundamentals. Knowledge-related learning outcomes for the specialised study units are primarily assessed in the final exam.

Workplace-based assessments will also have a significant role in the assessment of many of the knowledge-based learning outcomes and in particular those that involve the *application* of knowledge. These outcomes will be defined by the specific case, procedure, environment and issues encountered during an assessment. It is for this reason that individual workplace-based assessment methods have not been identified against the knowledge-based learning outcomes. Assessors are encouraged to select relevant questions to explore the trainee's knowledge and how they apply it in that clinical setting.

In some instances trainees will need to achieve the learning outcome early in training (as defined by the core study unit in which it is found), but may not be formally assessed until towards the end of the training program. For example, "By the end of introductory training, trainees will be able to outline the common measures employed to reduce the risk of pulmonary aspiration". Although this outcome should be achieved by the completion of introductory training, formal assessment of this knowledge may not occur until the final examination. These learning outcomes may be assessed prior to that in the workplace but it is expected that competence in all learning outcomes achieved early in training should be maintained throughout.

Some learning outcomes within the ANZCA Roles in Practice will be assessed during the clinical placement reviews, through the use of questions asked by the supervisor of training. These 'clinical placement review questions' are indicated by 'CPRQ' in the assessment column.

Skills outcomes are assessed by workplace-based assessment methods in the course of everyday clinical practice and, where appropriate, using simulation. In a few cases, assessment of skill outcomes takes place during the final examination medical vivas.

Learning outcomes associated with 'mandatory' workplace-based assessment, are indicated by 'M' in front of the workplace-based assessment abbreviation.

Abbreviations are as follows:

CPRQ	clinical placement review questions
SRA	scholar role activities
IAACQ	initial assessment of anaesthetic competence questions
PEx	primary examination
FEx	final examination

For workplace-based assessments (WBAs)

CEX	mini clinical evaluation exercise
M-CEX	mandatory mini clinical evaluation exercise
DOPS	direct observation of procedural skills
M-DOPS	mandatory direct observation of procedural skills
MS-DOPS	mandatory direct observation of procedural skills to be completed in a simulated setting
CbD	case-based discussion
M-CbD	mandatory case-based discussion
MsF	multi-source feedback
M-MsF	mandatory multi-source feedback

Assessment tools have been chosen to specifically target the various types of learning outcomes (knowledge, skills and attitude/behaviour) and have been blueprinted to the curriculum to ensure that trainees' progress in all sections of the curriculum is adequately monitored and assessed.

Workplace-based assessment tools

Direct observation of procedural skills (DOPS)

Direct observation of procedural skills is an assessment designed to assess and provide a structured feedback format for both knowledge and technical proficiency regarding a discrete procedural skill. These assessments can be completed on real patients or in a simulated setting.

Mini clinical evaluation exercise (mini-CEX)

The mini clinical evaluation exercise is designed to assess the clinical skills of trainees and assist them to learn and attain greater autonomy. It provides an assessor with a structured format for directly observing and assessing the performance of a trainee from the preoperative assessment to the patient's discharge from recovery. An assessment can be used to cover the entire encounter or to focus on certain aspects of a case, such as the preoperative assessment.

Case-based discussion (CbD)

This assessment tool examines the skills of reasoning, decision making, interpretation and application of evidence in relation to cases that a trainee has managed. Case-based discussion focuses on an anaesthetic record of a case that the trainee has done fairly independently and is an opportunity to assess and give guidance on relevant clinical knowledge, understanding, documentation and reasoning and encourage the trainee to read further on the issues raised in the case.

Multi-source feedback (MsF)

The major role of multi-source feedback is to broaden the sources of feedback on everyday clinical care; recognising anaesthetists do not work in isolation but as members of interdisciplinary teams.

It provides information on how the trainee is performing across the different ANZCA Roles in Practice, including feedback on how others perceive their skills in communication, collaboration, teamwork, patient advocacy and professionalism.

Unlike the other workplace-based assessments, multi-source feedback does not necessarily use real time observation but rather incidental observations over a period of time. Assessors are anaesthetists and others who have had a direct experience with the trainee.

For more information on each type of workplace-based assessment and the process for completing them, please refer to *ANZCA Handbook for Training*.

To access and download the workplace-based assessment forms visit our website.

Mandatory workplace-based assessment

Refer to the workplace-based assessment requirements table at the beginning of each core study unit for workplace-based assessments that must be completed prior to each core unit review (that is, at the end of introductory training, basic training and advanced training).

Refer to the workplace-based assessment requirements table at the beginning of each specialised study unit for workplace-based assessments that must be completed prior to each specialised study unit review.

Refer to the workplace-based assessment requirements table at the beginning of the provisional fellowship training section for workplace-based assessments that must be completed prior to the provisional fellowship review.

Non-specified workplace-based assessments

During basic and advanced training, trainees must also complete some non-specified workplace-based assessments, in order to meet the required number of assessments during these training periods. For example, trainees are required to complete 11 mini-clinical evaluation exercises (mini-CEX) during basic training, that can be met with a combination of mandated assessment from any specialised study unit (SSU) and non-specified assessment from any clinical fundamental or SSU, or wholly with either type of assessment. When completing a non-specified assessment, trainees should refer to those 'Medical expert –skills' learning outcomes in the clinical fundamentals or specialised study units indicated for assessment by the corresponding assessment method.

Required number of workplace-based assessments

Trainees are required to complete a minimum number of workplace-based assessments every three months according to their training period. Refer to the beginning of each core study unit section and specialised study unit section for the minimum workplace-based assessments required for that period. These tools however are of most value when used as 'assessment for learning' and all trainees are encouraged to do more than the minimum to assist them to develop their skills wherever possible. If performance is not at the level expected for the stage of training, trainees should undertake additional WBAs above the minimum requirement. Supervisors of training should encourage trainees who have identified problem areas and weaknesses to do these additional assessments before presenting for their core unit review or specialised study unit review.

Examinations

Primary examination

The primary examination is taken during basic training. Success in the primary examination is necessary to progress to advanced training. The purpose of this exam is to assess the scientific foundations of clinical anaesthesia. Broadly, the curriculum for the primary is applied physiology, pharmacology, anatomy, measurement, equipment, and quality and safety. Learning outcomes that will be assessed by the primary examination are located within the introductory training and basic training core study units and are indicated by a 'PEx' in the assessment column. Learning outcomes relating to maternal and paediatric physiology and pharmacology are also assessed in the primary examination as indicated by a PEx for the associated learning outcomes in their respective specialised study units.

The primary examination assesses knowledge outcomes via written and oral components.

Final examination

The final examination is taken in advanced training. Success in the final examination is necessary to progress to provisional fellowship training. The focus of the final examination is on the practical integration and application of knowledge in clinical practice. Learning outcomes that will be assessed by the final examination are located within the ANZCA Roles in Practice, the clinical fundamentals in all core study units and in all specialised study units.

The final examination assesses knowledge outcomes via written and oral components. Skills in history taking and physical examination are assessed in the medical vivas.

Using the ANZCA training portfolio system (TPS) to record cases and/or procedures

During training, trainees are required to log their clinical experience in the TPS. Information is entered according to the elements of the clinical experience encountered. While trainees are encouraged to log all their clinical experience in the TPS, it is intended that those cases, procedures or sessions logged for required volume of practice should be those from which the trainee has gained meaningful experience. This is ideally entered on the day of the case/session, but may be entered up to the date of the trainee's next core unit review.

Trainees enter non-identifying patient details including the American Society of Anaesthesiologists (ASA) classification and any medical conditions or disorders the patient has. Trainees will then need to log any specific anaesthetic procedures they complete according to the relevant clinical fundamental and/or specialised study unit.

In some instances, volume of practice cases and/or procedures has been specified for the individual core study units. For example, in the airway management clinical fundamental, 20 endotracheal intubations must be completed in introductory training. In other instances, volume of practice cases and/or procedures can be completed at any time up until the end of advanced training. For example, in the general anaesthesia and sedation clinical fundamental, the arterial cannulation volume of practice of 40 can be accumulated over introductory training, basic training and advanced training.

For more information on the minimum volume of practice for both the clinical fundamentals and specialised study units, refer to section two and section three respectively.

When a trainee enters a clinical experience in the online training portfolio system, the experience may be used toward fulfilling any associated volume of practice requirements. For example, a lumbar epidural inserted for obstetric analgesia may count toward requirements for both lumbar epidurals in the regional fundamental and epidurals for labour anaesthesia in the obstetric anaesthesia and analgesia specialised study unit. Anaesthesia for a craniotomy on a child may count toward requirements in the neurosurgery and neuroradiology specialised study unit and as a paediatric case for requirements in the paediatric anaesthesia specialised study unit.

The logging of volume of practice for procedures and/or cases is a parallel process to the completion of workplace-based assessment. Procedures and/or cases do not need to be completed prior to a workplace-based assessment on the same procedure/case and vice versa, but to ensure workplace-based assessments provide valuable feedback, trainees are advised to practice procedures and experience cases prior to attempting the associated assessments.

Progression

Progression through the curriculum is monitored and assessed at various intervals through the use of the in-training assessment process, which is informed by workplace-based assessments and the primary and final examinations.

The in-training assessment process comprises:

- Clinical placement reviews.
- Specialised study unit reviews.
- Core unit reviews.

Clinical placement review

A clinical placement review occurs between a trainee and their supervisor of training at least every six-months. It is initiated at the beginning and completed at the end of a placement. Additional meetings may occur part way through the placement at the instigation of either the trainee or the supervisor of training. At the beginning of a placement, there must be a discussion of a trainee's clinical placement plan at their planning clinical placement review. The plan is developed by the trainee and will identify the potential training opportunities during their placement. In this plan they will outline the workplace-based assessments and volume of practice cases and/or procedures they intend to complete and the scholar role activities they will be progressing during the placement. The supervisor of training will review the clinical placement plan with the trainee during this planning interview and make suggestions and changes as appropriate.

The feedback clinical placement review conducted with the trainee at the end of their placement, will review their training and establish the progress they have made against their clinical placement plan. It will be informed by the workplace-based assessments completed in that time and will also provide an opportunity for the supervisor of training to ask the trainee a selection of set questions, covering a number of the learning outcomes in the ANZCA Roles in Practice. Based on all this information the supervisor of training will provide a feedback summary and global assessment indicating whether the trainee has met the expectations for his or her level of training during that clinical placement.

Additional interim interviews with the supervisor of training are encouraged as part of the clinical placement review for those trainees who are experiencing any difficulties during their clinical placement and may be instigated by either the trainee or supervisor of training.

Specialised study unit review

The trainees are encouraged to make early contact with the specialised study unit supervisor to establish both the requirements and expectations for completion of that unit and a plan for its completion.

Prior to the review of a specialised study unit the trainee must ensure they have completed the required workplace-based assessment and volume of practice cases and/or procedures. The specialised study unit supervisor will confirm this.

If the trainee has met all the expectations of the study unit then the specialised study unit supervisor will complete the review form, provide a feedback summary and submit the form. This will generate an email to the supervisor of training for verification.

Core unit review

The core unit review is a summative assessment that occurs at the end of each core study unit, and marks progression between the training periods.

It may be incorporated into any clinical placement review but may be performed separately from the review depending on the timing of the completion of the introductory, basic and advanced training periods.

An interview is held between the trainee and their current supervisor of training during which the supervisor of training confirms that all components of the core study unit and training period have been completed, and feedback from the multi-source feedback assessment is provided.

The trainee must meet all the requirements and demonstrate the expected level of performance to progress to the next training period.

Provisional fellowship review

A provisional fellowship review will occur at the completion of the provisional fellowship training. This will be the final clinical placement review and marks the completion of training and confirmation of eligibility to apply for fellowship of the Australian and New Zealand College of Anaesthetists (FANZCA). The trainee will meet with their supervisor of training, who will confirm that all the requirements of provisional fellowship training have been met, as per that agreed as part of the prospective approval of their chosen area of training.

Section One

ANZCA roles in practice

The ANZCA Roles in Practice are the description of the roles that make up anaesthetic practice expressed in terms of learning outcomes. The learning outcomes are by their nature relatively generic and can be applied across training irrespective of the training period. They have relevance in all ANZCA Clinical Fundamentals and specialised study units but have been collated together here at the beginning of the curriculum document to emphasise their importance and prevent repetition.

Selected examples of their applications are given in the specialised study units to emphasise how they may be applied across the breadth of the curriculum but represent only a small sample of how these might be demonstrated throughout training.

The generic learning outcomes identified in the following tables will be assessed as part of the workplace-based assessments that are done whether they are for ANZCA Clinical Fundamentals or specialised study units. The multi-source feedback, which is completed in each training period, will be particularly valuable in the assessment of many of these learning outcomes.

The scholar role, while important in the clinical environment, is more difficult to capture and assess using workplace-based assessments. The scholar role activities have been devised to meet and assess many of the learning outcomes identified in the scholar role. These are detailed at the end of this section.

1.1 Medical expert

By the end of training, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Practice medicine within their defined scope of practice and expertise			
AR_ME 1.1	Demonstrate a commitment to high-quality patient care	ME	CEX, FEx
AR_ME 1.2	Integrate the roles of collaborator, communicator, health advocate, leader and manager, medical expert, professional, and scholar into practice as an anaesthetist	ME	CEX, FEx
AR_ME 1.3	Apply knowledge of the clinical and biomedical sciences relevant to anaesthesia	ME	PEx, FEx
AR_ME 1.4	Perform appropriately timed clinical assessments with management plans and recommendations that are presented in an organised manner	ME	CEX
AR_ME 1.5	Carry out professional duties in the face of multiple, competing demands	ME	CbD, CEX, FEx
AR_ME 1.6	Recognise and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	ME	CbD, CEX
2. Perform a complete patient centred clinical assessment and establish a management plan			
AR_ME 2.1	Elicit a relevant history and perform a focused examination (may include cardiovascular, respiratory, neurological, abdominal, musculoskeletal, and airway)	ME	CEX, FEx
AR_ME 2.2	Adapt history taking and examination and order further investigations where clinically indicated, for example, to determine severity and to clarify diagnosis	ME	CEX, FEx
AR_ME 2.3	Gather relevant information from all available sources including patient's notes, investigations and other health professionals where required	ME	CbD, CEX
AR_ME 2.4	Arrange preoperative optimisation and treatment when required	ME	CEX
AR_ME 2.5	Correctly interpret and discuss the implications of results of investigations	ME	CbD, CEX, FEx
AR_ME 2.6	Identify and prioritise the significant issues and problems that need to be addressed including the patient's preferences and cultural beliefs and incorporate these into the perioperative plan	ME	CbD, CEX
AR_ME 2.7	Document assessment and findings (refer to College professional document: *PS07 Recommendations for the Pre-Anaesthesia Consultation)*	ME	CbD, CEX
AR_ME 2.8	Formulate appropriate clinical plans in collaboration with patients, their families, other health care professionals and team members	ME	Refer to specialised study units, CbD, CEX, MsF

Code	Learning outcome	Role	Assessment
AR_ME 2.9	Demonstrate understanding of relevant issues that may impact upon patient care including patient's health status, procedure, pathology, positioning, and identify any risks and alternative methods that can be used	ME	CbD, CEX
AR_ME 2.10	Prioritise treatment or management options taking into account clinical urgency and available resources	ME	CbD, CEX
3. Demonstrate proficient and appropriate technical/procedural skills			
AR_ME 3.1	Demonstrate proficiency with: • Vascular access • Airway management • Central Neuraxial block • Other regional procedures • Invasive monitoring procedures	ME	Refer to ANZCA Clinical Fundamentals, CEX DOPS
AR_ME 3.2	Demonstrate knowledge and understanding of the procedure including indications, contraindications, anatomy, technique side-effects and complications	ME	DOPS FEx, PEx
AR_ME 3.3	Explain the procedure to the patient and obtain valid and adequate informed consent	ME	CEX, DOPS
AR_ME 3.4	Prepare for the procedure • Ensure trained assisting staff are present and gives clear instructions • Check equipment and prepares drugs • Ensure clinically indicated monitoring • Arrange workspace ergonomically	ME	CEX, DOPS
AR_ME 3.5	Demonstrate an aseptic technique and standard (universal) precautions	ME	DOPS
AR_ME 3.6	Demonstrate manual dexterity and confidence with procedural techniques	ME	DOPS
AR_ME 3.7	Demonstrate the correct procedural sequence with minimal hesitation and avoiding unnecessary actions	ME	DOPS
AR_ME 3.8	Provide reassurance to patients and check for discomfort, concerns and complications during awake procedures	ME	DOPS
AR_ME 3.9	Document episodes of care including any problems and complications that arose	ME	DOPS
AR_ME 3.10	Arrange and document plans for post-procedural patient care	ME	DOPS
4. Demonstrate safe, effective and efficient patient-centred care			
AR_ME 4.1	Implement appropriate plans including • Prepare for any interventions • Create a well organised workspace • Use time effectively and efficiently	ME	CbD ,CEX
AR_ME 4.2	Demonstrate situational awareness through constant monitoring of the patient (both clinically and electronically), the procedure and other personnel	ME	CEX, DOPS

Code	Learning outcome	Role	Assessment
AR_ME 4.3	Maintain focus on patient care and avoid distraction	ME	CEX, DOPS
AR_ME 4.4	Anticipate and prepare for predictable clinical changes	ME	CEX
AR_ME 4.5	Respond in a timely manner to changes in the clinical environment or patient's status and intervene as required	ME	CbD, CEX
AR_ME 4.6	Manage emerging clinical problems or complications early to maximise patient safety	ME	CbD, CEX
AR_ME 4.7	Interpret available data and integrates information to generate differential diagnoses and management plans	ME	CbD, CEX
AR_ME 4.8	Arrange or provide follow up care for patients	ME	CEX
5. Actively contribute to the continuous improvement of health care quality and patient safety			
AR_ME 5.1	Recognise limits of their expertise and experience	ME	CbD, CEX, CPRQ, DOPS, MsF
AR_ME 5.2	Recognise and respond to harm from health care delivery, including patient safety incidents	ME	CEX, DOPS
AR_ME 5.3	Seek assistance, abandon a procedure/intervention or arrange for alternative care to prevent harm to a patient	ME	CbD, MsF
AR_ME 5.4	Demonstrate awareness of issues that may affect own performance such as fatigue and illness	ME	CPRQ, MsF
AR_ME 5.5	Adopt strategies that promote patient safety and address human and system factors.	ME	CbD, CEX, CPRQ

1.2 Communicator

By the end of training, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Develop rapport, trust and ethical therapeutic relationships			
AR_CM 1.1	Establish positive relationships with patients that are characterised by trust and the involvement of patients and families as partners in their care	CM	CEX, MsF
AR_CM 1.2	Demonstrate effective communication skills including: • Active listening • Encouraging discussion • Reinforcing key points • Attending to verbal and nonverbal cues • Adapting to individual patient context, displaying sensitivity and communicating without prejudice or judgment to cultural, linguistic, gender, and sexual identity diversity • Recognising and addressing miscommunication and barriers to communication	CM	CEX
AR_CM 1.3	Adapt communication to a variety of clinical contexts including emergency and life-threatening situations where time is limited	CM	CEX, MsF
AR_CM 1.4	Communicate in a way that encourages confidence, allays anxiety and facilitates co-operation	CM	CEX
AR_CM 1.5	Comfort and reassure patients during stressful situations, procedures and/or during conscious sedation	CM	CEX, DOPS, MsF
AR_CM 1.6	Deliver bad news, deal with anger, confusion and misunderstanding with understanding, respect and compassion	CM	CEX, CPRQ, MsF
AR_CM 1.7	Recognise, negotiate and manage conflict with patients and families	CM	CbD, CPRQ
AR_CM 1.8	Avoid major miscommunication by identifying and moderating negative emotions such as anger and frustration which are possible symptoms of stress	CM	CPRQ
2. Accurately elicit and synthesise relevant information			
AR_CM 2.1	Gather information about the patient's medical condition as well as their beliefs, concerns, expectations and experience	CM	CEX
AR_CM 2.2	Organise personnel and resources to facilitate communication where there are cultural or language barriers, for example, use an interpreter	CM	CbD, CEX, MsF
AR_CM 2.3	Elicit a patient's knowledge and experience of anaesthesia and correct unrealistic expectations and misconceptions	CM	CEX

Code	Learning outcome	Role	Assessment
3. Accurately convey and explain relevant information			
AR_CM 3.1	Provide clear and concise instructions to assisting staff for clinical tasks	CM	CEX, DOPS, MsF
AR_CM 3.2	Individualise communication to the patient taking into account diversity and other factors including but not limited to: • Gender • Age • Religion • Ethnicity and culture (including indigenous cultures) • Language • Mental health status (including psychiatric conditions, dementia and intellectual disability) • Disability • Knowledge level and intellectual capacity • Sexual orientation and identity	CM	CEX, CPRQ, DOPS, MsF
AR_CM 3.3	Explain complex terms to patients in a simple and clear way to ensure they can understand, for example, awake intubation, regional techniques, rapid sequence induction, to ensure informed consent and co-operation (refer to College professional document: *PS26 Guidelines on Consent for Anaesthesia and Sedation)*	CM	CEX, DOPS, MsF
AR_CM 3.4	Inform patients and families to allow them to understand the risks and be actively involved in shared decision making	CM	CEX, DOPS, MsF
AR_CM 3.5	Synthesise and convey relevant information concerning patients and plans to team members	CM	CEX, MsF
AR_CM 3.6	Provide written information to patients to facilitate understanding of procedures and plans	CM	MsF, CbD
4. Develop a common understanding of issues, problems and plans			
AR_CM 4.1	Encourage discussion, including questions, with the patient to ensure a common understanding of issues, problems and plans	CM	CEX, MsF
AR_CM 4.2	Respect diversity and difference and the impact they may have on decision-making	CM	CbD, MsF
AR_CM 4.3	Develop a shared plan of care by engaging patients, families and health professionals in decision-making	CM	CEX, MsF
AR_CM 4.4	Discuss potential post anaesthesia problems and complications with patients and families and advise them when to seek assistance	CM	CEX, DOPS
AR_CM 4.5	Communicate unexpected complications and difficulties to patients and other health professionals to facilitate future care, for example, difficult airway access, anaphylaxis, both verbally and in writing	CM	CEX

Code	Learning outcome	Role	Assessment
AR_CM 4.6	Develop strategies to communicate with patients who are unable to talk, for example, due to intubation, a tracheostomy, aphasia	CM	CEX
5. Effectively convey oral and written communication			
AR_CM 5.1	Comprehensively, concisely and legibly document assessment and management plans	CM	CbD, CEX, DOPS
AR_CM 5.2	Record episodes of care including risks, complications and difficulties (refer to College professional document: *PS06 The Anaesthesia Record. Recommendations on the Recording of an Episode of Anaesthesia Care*)	CM	CbD, CEX, DOPS
AR_CM 5.3	Convey all relevant information when handing over responsibility of patient care to another anaesthetist or other healthcare professional. Refer to College professional document: *PS53 Statement on the Handover Responsibilities of the Anaesthetist*	CM	CEX, MsF

1.3 Collaborator

By the end of training, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Participate effectively and appropriately in an interprofessional healthcare team			
AR_CL 1.1	Describe the roles and responsibilities of an anaesthetist and the other professionals in the healthcare team Refer to College professional documents *PS59 Statement on Roles in Anaesthesia and Perioperative Care* and *PS53 Statement on the Handover Responsibilities of the Anaesthetist*	CL	CPRQ
AR_CL 1.2	Describe the principles of team dynamics	CL	CPRQ
AR_CL 1.3	Function as an effective team member in interprofessional team meetings or during team decision making, demonstrating respect for: • Healthcare team ethics, including confidentiality • The diversity of roles, responsibilities, knowledge and competency of team members • Cultural differences within teams	CL	CEX, CPRQ, MsF
AR_CL 1.4	Consult and work with others to develop and provide a shared plan of care	CL	CEX, MsF
AR_CL 1.5	Negotiate with other team members to prioritise patient care taking into account factors such as urgency of procedure, patient and procedural requirements	CL	CEX, MsF
AR_CL 1.6	Negotiate with other team members to select an anaesthetic technique taking into account patient, anaesthetic and surgical needs	CL	CEX, MsF
AR_CL 1.7	Convey the anaesthetic management plan to team members with clear instructions as to the roles and responsibilities of the team	CL	CEX, MsF
AR_CL 1.8	Enlist the cooperation and assistance of others, to optimise patient care and safety	CL	CEX, MsF
AR_CL 1.9	Participate effectively in team aspects of care, for example, peri-procedural checklists.	CL	CEX, MsF
AR_CL 1.10	Safely hand over the responsibility of patient care to another anaesthetist, healthcare professional or team (refer to College professional document: *PS53 Statement on the Handover Responsibilities of the Anaesthetist*)	CL	CEX, MsF
AR_CL 1.11	Co-ordinate the safe transfer of patients within or between hospitals (refer to College professional document*: PS52*: *Guidelines for Transport of Critically Ill Patients*)	CL	CbD, CEX, MsF
AR_CL 1.12	Describe the use of standard calling criteria for early recognition of deteriorating patients in the recovery room or wards	CL	CbD, CEX, MsF

Code	Learning outcome	Role	Assessment
AR_CL 1.13	Discuss the particular stressors inherent in the anaesthetic context for self and other team members and seek assistance or provide support as necessary (*refer to College professional document: PS49 Guidelines on the Health of Specialists and Trainees)*	CL	CPRQ CbD
AR_CL 1.14	Demonstrate leadership in healthcare teams, when required	CL	MsF
AR_CL 1.15	Communicate effectively to allocate resources during crises	CL	EMAC, MsF
AR_CL 1.16	Function effectively as a team member and follow the leadership of others when required	CL	EMAC, MsF, CbD
AR_CL_1.17	Work collaboratively with colleagues and/or other health professionals on research, educational, quality assurance, and/or administrative tasks	CL	CPRQ, SRA
2. Effectively work with other health professionals to prevent and resolve inter professional conflict.			
AR_CL 2.1	Demonstrate a respectful attitude towards all members of the inter professional team (for example, surgeons, nurses, anaesthetic assistants, administration/management)	CL	MsF
AR_CL 2.2	Acknowledge and show consideration for the professional perspectives, goals and priorities of all team members	CL	CPRQ, MsF
AR_CL 2.3	Negotiate and work with others to prevent and resolve conflict in a manner and timeframe that is appropriate to clinical demands	CL	MsF
AR_CL 2.4	Ensure that any workplace conflict does not impact patients or the care they receive	CL	MsF
AR_CL 2.5	Respect and acknowledge differences, misunderstandings and limitations in self and other professionals that may contribute to inter professional tension	CL	CPRQ, MsF
AR_CL 2.6	Understands and uses communication concepts such as graded assertiveness and closed-loop communication	CL	CPRQ, EMAC
AR_CL 2.7	Participate in team debriefing and implement strategies to improve performance	CL	CbD CPRQ, EMST/EMAC, MsF

1.4 Leader and Manager

By the end of training, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Contribute to the improvement of health care delivery in teams, organizations, and systems			
AR_LM 1.1	Define the characteristics underpinning the provision of quality anaesthetic services, that is, safe, effective, efficient, timely and patient-centred	LM	FEx
AR_LM 1.2	Discuss the processes of quality assurance and quality improvement, and their application to anaesthesia practice including: • Principles of quality assurance • Quality improvement cycle • Risk management • Nature of error • Relationship between adverse events, system factors and human factors • Incident monitoring • Root cause analysis (Refer to College professional document*: PS58: Guidelines on Quality Assurance in Anaesthesia)*	LM	FEx
AR_LM 1.3	Outline strategies to identify and manage adverse events and near misses and analyse these to improve future patient care	LM	FEx
AR_LM 1.4	Contribute to a culture that promotes patient safety, including participation in quality improvement activities.	LM	CPRQ, SRA
2. Develop efficient and effective work practices			
AR_LM 2.1	Set priorities and manage time to balance patient care, practice requirements, outside activities and personal life (refer to College professional document: *PS16 Statement on the Standards of Practice of a Specialist Anaesthetist)*	LM	CPRQ, MsF
AR_LM 2.2	Develop and appraise their work practices and organisational skills to improve efficiency and effectiveness (refer to resource document *RD12 The Isolated Anaesthetist*	LM	CbD, CPRQ
AR_LM 2.3	Use information technology for patient care including accessing computerised results and medical records to facilitate and plan perioperative care	LM	CEX
AR_LM 2.4	Recognise the opportunity provided by advances in health informatics, such as clinical data repositories, for the design and evaluation of quality improvement activities	LM	CPRQ, SRA

Code	Learning outcome	Role	Assessment
AR_LM 2.5	Demonstrate effective leadership and organisational skills in the theatre environment including: • Case allocation and prioritisation • Efficient running of theatre lists • Prioritisation of clinical tasks to match workload and calling for assistance when appropriate. • Ensuring a safe environment and suitable resources for patient care	LM	CEX, MsF
AR_LM 2.6	Discuss how evidence-based medicine and management processes can be used to optimise cost-appropriate care for patients with significant co-morbidities	LM	FEx
AR_LM 2.7	Discuss the standardisation of equipment between different areas of care	LM	FEx
3. Allocate finite healthcare resources appropriately			
AR_LM 3.1	Understand general principles and sources of organisational and healthcare funding	LM	CPRQ
AR_LM 3.2	Outline the relative costs of drugs and equipment in anaesthesia	LM	CbD, CPRQ, FEx
AR_LM 3.3	Balance safety, effectiveness, efficiency and equitable allocation of resources in: • Choosing anaesthetic techniques • Making complex anaesthetic equipment and drugs available in multiple locations • Providing anaesthetic services in the broader healthcare environment	LM	CbD, CPRQ FEx, MsF
AR_LM 3.4	Optimise cost-appropriate care to minimise waste in the workplace and impact on the environment	LM	MsF
4. Demonstrate leadership and effective management in professional practice			
AR_LM 4.1	Discuss the dynamic nature of healthcare and the necessity of change, including the drivers and barriers to change	LM	FEx, CPRQ
AR_LM 4.2	Describe the principles of change management	LM	FEx, CPRQ
AR_LM 4.3	Lead and facilitate change to enhance health outcomes and patient experience	LM	CPRQ
AR_LM 4.4	Outline the administrative structure and lines of communication available within their health network, hospital and department, including subspecialty areas of practice	LM	CPRQ
AR_LM 4.5	Outline the rules for formal meetings	LM	FEx
AR_LM 4.6	Chair or participate effectively in committees and meetings	LM	CPRQ

Code	Learning outcome	Role	Assessment
AR_LM 4.7	Understand the financial, administrative and human resource requirements needed to manage a practice or hospital department, including but not limited to: • Planning health care delivery (for example, staff rosters/rotas/schedules) • Factors affecting anaesthesia expenditure • Adherence to local guidelines concerning anaesthesia practice and equipment • Quality improvement activities • Processes by which new drugs are approved for research and clinical use in Australia and New Zealand • Regulations regarding the contracting or pricing of personal anaesthesia services	LM	CPRQ, FEx

1.5 Health Advocate

By the end of training, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Advocate for patients and colleagues			
AR_HA 1.1	Identify opportunities for patient advocacy in particular by promoting: • Delivery of timely care • Safe work practices • Delivery of culturally competent care to patients and their family/support network (Refer to Professional document PS62 Statement on Cultural competence)	HA	CbD, CEX, MsF
AR_HA 1.2	Promote the selection of anaesthetic techniques which maximise benefits to patients	HA	CbD, MsF
AR_HA 1.3	Intervene when a procedure cannot be completed without undue stress or potential harm to a patient, and institute alternative management	HA	MsF
AR_HA 1.4	Identify the appropriate resources and facilities required to undertake a procedure safely for a patient, and intervene when these resources and facilities are not available.	HA	MsF
AR_HA 1.5	Advocate for management options that are in the best interests of a patient, including non-operative, palliative and end-of-life care (Refer to College professional document: PS38 *Statement relating to the relief of pain and suffering and end of life decisions)*	HA	CbD, MsF
AR_HA 1.6	Identify patients in need of better pain management	HA	CEX, MsF
AR_HA 1.7	Ensure relief is provided for patients experiencing pain or discomfort	HA	CEX, MsF
AR_HA 1.8	Ensure respect for patient privacy and dignity including those who are unconscious	HA	CEX, DOPS, MsF
AR_HA 1.9	Identify circumstances when the development of advanced care directives/plans should be discussed with patients and their families	HA	CbD, MsF
AR_HA 1.10	Advocate for the health, well-being and safety of colleagues and assist or intervene when required	HA	CEX, MsF
AR_HA 1.11	Actively promote and practice safety and risk reduction in the workplace (including but not limited to to College professional document: *PS28 Guidelines on Infection Control in Anaesthesia* and College professional document: *PS60 Guidelines on the Perioperative Management of Patients with Suspected or Proven Hypersensitivity to Chlorhexidine)*	HA	CEX, MsF
AR_HA 1.12	Describe the ethical and professional issues inherent in health advocacy including altruism, social justice, autonomy, integrity and idealism	HA	CPRQ, FEx

Code	Learning outcome	Role	Assessment
AR_HA 1.13	Discuss how access to appropriate anaesthetic services is limited and describe strategies to address this issue	HA	FEx
AR_HA 1.14	Describe the role of anaesthetists in advocating collectively for patient health and safety Refer to College professional document *PS59 Statement on Roles in Anaesthesia and Perioperative Care*	HA	CPRQ, FEx
AR_HA 1.15	Discuss the principles of health policy and their implications for patients, the health-care system, and the community	HA	CPRQ, FEx
2. Promote health and respond to health needs of patients and the working environment			
AR_HA 2.1	Develop an understanding of the determinants of health in the populations they provide care for including: • The social and economic environment • The physical environment • Health-care system factors • Individual patient's characteristics and behaviours • Availability and barriers to access healthcare resources	HA	FEx
AR_HA 2.2	Describe ways anaesthetists can act individually or collectively to improve health in the populations they serve.	HA	FEx
AR_HA 2.3	Implement evidence-based approaches to promoting good health and refer patients to appropriate resources	HA	CbD, CEX, MsF
AR_HA 2.4	Identify and capitalise on opportunities in their practice for patients to improve their health through lifestyle modification, health promotion and disease prevention Refer to College Professional document *PS12 Guidelines on Smoking as Related to the Perioperative Period*	HA	CEX, MsF
AR_HA 2.5	Outline measures to reduce the impact of anaesthesia care on environmental pollution in the workplace and globally (refer to College Professional Document *"PS64 Statement on environmental sustainability in anaesthesia and pain medicine practice"*).	HA	CPRQ, FEx

1.6 Scholar

By the end of training, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Engage in the continuous enhancement of their professional activities through ongoing learning			
AR_SC 1.1	Describe the principles and processes involved in the maintenance of competence and life-long learning	SC	FEx
AR_SC 1.2	Participate in self-directed learning including: • Developing and amending learning plans as necessary • Identifying educational resources • Keeping a log book of experience and learning issues • Reflecting upon learning issues in practice • Keeping abreast of relevant developments in other specialties	SC	CPRQ, MsF
AR_SC 1.3	Identify opportunities for learning and improvement by regularly reflecting on and assessing performance	SC	MsF
AR_SC 1.4	Initiate discussions with colleagues about performance improvement and be receptive to feedback from colleagues	SC	MsF
AR_SC 1.5	Participate in organised continuing professional development such as educational and scientific meetings and apply new insights to daily practice	SC	CPRQ, SRA
AR_SC 1.6	Participate in quality improvement, patient safety initiatives and peer-review activities to continuously improve personal practice and contribute to collective improvements in practice	SC	CPRQ, SRA
AR_SC 1.7	Participate in audit, including audit of personal practice	SC	CPRQ, SRA
2. Critically evaluate information and its sources, and integrate best available evidence into practice			
AR_SC 2.1	Describe the basic concepts of evidence-based medicine, including levels of evidence, meta-analysis and systematic review	SC	FEx, SRA
AR_SC 2.2	Describe the limitations of evidence-based medicine	SC	FEx, SRA
AR_SC 2.3	Recognise practice uncertainty and knowledge gaps and formulate focused clinical questions from cases or scenarios to address them	SC	SRA
AR_SC 2.4	Critically appraise retrieved evidence in order to address clinical questions: • Conduct a literature search • Critically evaluate the integrity, reliability, quality and applicability of research and literature • Identify limitations of evidence • Describe how evidence influences practice	SC	SRA
AR_SC 2.5	Integrate evidence into decision-making in clinical practice	SC	CbD, SRA, FEx

Code	Learning outcome	Role	Assessment
3. Contribute to the creation and dissemination of knowledge and practices applicable to anaesthesia and health care			
AR_SC 3.1	Describe the principles and processes of research and scientific enquiry including: • Research ethics • Asking a research question • Conducting a systematic search for evidence • Selecting and developing appropriate methods to address a research question • Applying appropriate statistical analysis • Formatting and processing for research papers for publication	SC	SRA, FEx
AR_SC 3.2	Demonstrate an understanding of the role of research in health care	SC	SRA
AR_SC 3.3	Summarise and communicate to professionals and lay audiences, including patients and their families, the findings of relevant research and scholarly inquiry and information about anaesthesia care	SC	SRA, CEX
4. Teach others			
AR_SC 4.1	Describe the principles of adult learning relevant to medical education, including the challenges and opportunities presented by learning in clinical settings, and strategies to enhance learning	SC	FEx, SRA
AR_SC 4.2	Teach technical skills and facilitate small group teaching sessions using a structured approach including: • Identifying the learning needs and desired learning outcomes of those they are teaching including their current level of confidence and competence. • Selecting effective teaching strategies, methods and content appropriate to the individual or group • Organising and convey teaching points at a level appropriate to the learner or audience. • Providing constructive feedback to learners to enhance learning and performance • Guiding learners to reflect on their learning experiences	SC	MsF, SRA
AR_SC 4.3	Present effectively to larger groups	SC	MsF, SRA
AR_SC 4.4	Use multimedia educational resources and information technology effectively, to facilitate learning	SC	SRA
AR_SC 4.5	Recognise the influence of role-modelling and the role of both formal and informal learning	SC	CEX, MsF
AR_SC 4.6	Promote a safe learning environment in the workplace, for trainees and other learners	SC	MsF, SRA
AR_SC 4.7	Ensure patient safety is maintained when learners are involved in care	SC	MsF, SRA

Code	Learning outcome	Role	Assessment
AR_SC 4.8	Assess and evaluate learners, teachers and education programs	SC	MsF, SRA
AR_SC 4.9	Demonstrate effective teaching practices in the operating theatre and other clinical settings	SC	MsF

1.7 Professional

By the end of training, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Demonstrate a commitment to patients through ethical practice			
AR_PF 1.1	Display the following values in all aspects of care: • Altruism • Commitment • Compassion • Honesty • Humility • Integrity • Respect	PF	CEX, DOPS, MsF
AR_PF 1.2	Exhibit appropriate professional behaviours in practice, including, but not limited to: • Showing respect for the confidentiality and privacy of patients and colleagues • Punctuality • Working in a calm and considered manner, even in stressful situations • Responding promptly to requests for assistance or advice and taking responsibility for ensuring ongoing care	PF	CEX, MsF
AR_PF 1.3	Outline the principles of medical ethics described by the following terms: • Autonomy • Beneficence • Non-maleficence • Fidelity • Justice • Utility	PF	CPRQ, FEx
AR_PF 1.4	Respect patient autonomy by enabling shared decision making and ensuring informed consent is obtained	PF	CEX, DOPS, MsF
AR_PF 1.5	Demonstrate a commitment to delivering the highest quality care, without judgment of the patient or situation	PF	MsF
AR_PF 1.6	Appropriately manage conflicts of interest, for example: • Where training needs and patient needs may vary • In clinical research • Regarding relationships with the health industry (Refer to College professional document*: PS40 Policy for the Relationship Between Fellows, Trainees, and the Healthcare Industry*)	PF	CPRQ
AR_PF 1.7	Maintain appropriate relations with patients and their families	PF	CEX, MsF CPRQ
AR_PF 1.8	Discuss the principles and limits of patient confidentiality and privacy as defined by professional practice standards and the law	PF	CPRQ, FEx

AR_PF 1.9	Discuss commonly encountered ethical issues including: • Relief of pain and suffering and end of life decisions • Involvement in procedures to which there may be moral, ethical or clinical objections, for example, termination of pregnancy • Prevention of futile medical care • Organ donation and transplantation • Consent • Choices between maternal and foetal wellbeing • Off label use of drugs	PF	CbD, CPRQ, FEx
AR_PF 1.10	Respond appropriately to ethical issues encountered in practice	PF	MsF, CPRQ
AR_PF 1.11	Discuss the unique vulnerability of anaesthetised or sedated patients	PF	CPRQ, FEx
AR_PF 1.12	Maintain respectful behaviour in the presence of sedated and anaesthetised patients	PF	CEX, MsF
AR_PF 1.13	Teach and learn in the workplace without compromising patient care	PF	CPRQ, SRA
AR_PF 1.14	Discuss the tension between an anaesthetist's role as advocate for an individual patient and the need to manage scarce resources	PF	CPRQ, FEx
AR_PF 1.15	Demonstrate sound judgment and ethical behaviour in the allocation of resources and balancing of competing needs in their workplace	PF	CPRQ, MsF
AR_PF 1.16	Explain the potential abuses of social media and other technology-enabled communication, and their relation to professionalism	PF	CPRQ, FEx
AR_PF 1.17	Use technology-enabled communication, including social media, in a professional, ethical, and respectful manner and in accordance with the ANZCA Social Media policy	PF	CPRQ, FEx
AR_PF 1.18	Intervene when aware of breaches of professionalism involving technology-enabled communication and social media	PF	CPRQ, FEx
AR_PF 1.19	Follow relevant policies regarding the ethical use of electronic medical records	PF	CPRQ, FEx
2. Demonstrate cultural and bias awareness and sensitivity with patients and colleagues			
AR_PF 2.1	Describe how one's own biases may influence interaction with others	PF	CbD, CPRQ
AR_PF 2.2	Describe how the history, culture and socioeconomic status of various Indigenous populations impacts upon their current health status, education and communication	PF	CPRQ, FEx
AR_PF 2.3	Describe the elements of indigenous cultures that may impact upon interactions between indigenous people and health services (for example, negative perceptions of hospitals in relation to death and cultural respect, strong family and community ties)	PF	CPRQ, FEx

Code	Learning outcome	Role	Assessment
AR_PF 2.4	Access resources about culturally and linguistically diverse (CALD) communities and religions, their histories and specific health issues as a context for understanding culture, religion and health interactions	PF	CbD, CEX, CPRQ, MsF
AR_PF 2.5	Identify groups from different cultures and religions in their workplace and acquire knowledge to improve their cultural and religious understanding	PF	CPRQ MsF
AR_PF 2.6	Describe the principles underpinning culturally competent care and apply these to their practices (refer to Professional document PS62 Statement on Cultural competence).	PF	FEx, CPRQ
3. Demonstrate a commitment to society and the profession			
AR_PF 3.1	Describe the elements necessary for informed consent	PF	CbD, FEx
AR_PF 3.2	Obtain informed consent (refer to College professional document: *PS26 Guidelines on Consent for Anaesthesia or Sedation)*	PF	CEX, DOPS
AR_PF 3.3	Disclose to patients all costs associated with their anaesthetic care to enable their informed financial decision making	PF	CEX, DOPS
AR_PF 3.4	Describe how informed consent may be affected by the context in which it is obtained including: • Emergency and resuscitation situations • Pain • Concurrent medication • Cultural context • Age and competence of the patient	PF	CbD, CPRQ, FEx
AR_PF 3.5	Respect confidentiality	PF	CEX, DOPS, MsF
AR_PF 3.6	Discuss the role of advanced care directives in anaesthetic practice	PF	CbD, FEx
AR_PF 3.7	Contribute to a culture of continuous quality improvement by actively participating in the reporting of adverse events and near misses and subsequent management processes	PF	CPRQ
AR_PF 3.8	Respond to actual or potential clinical error by accurately recording the event and applying the principles of open disclosure	PF	CbD, CPRQ
AR_PF 3.9	Adopt a non-punitive approach to incident reporting and management	PF	CPRQ
AR_PF 3.10	Outline and apply to practice the standards of ethical and professional conduct of a medical practitioner*	PF	CPRQ, FEx
AR_PF 3.11	Practise in a way that gives due consideration to the standards of anaesthetic practice outlined in 'Supporting Anaesthetists' Professionalism and Performance: A guide for clinicians', the ANZCA 'Code of Professional Conduct' and ANZCA professional documents	PF	CPRQ, FEx

Code	Learning outcome	Role	Assessment
AR_PF 3.12	Fulfil the regulatory and legal obligations required of practice in their jurisdiction, including: • Credentialling • Registration • Prescription and clinical use of restricted/controlled medications • Coronial requirements • Mandatory reporting (Refer to College professional document*: PS 02 Statement on Credentialling and defining the Scope of Clinical Practice in Anaesthesia*)	PF	MsF
AR_PF 3.13	Describe how to respond to, cope with, and constructively learn from a complaint or legal action	PF	CPRQ, FEx
AR_PF 3.14	Outline the rationale for accreditation and the role of self accreditation in the provision of sub-specialty anaesthetic services (for example, cardiac or neonatal anaesthesia) for both anaesthetists and institutions (Refer to College professional document*: PS 02 Statement on Credentialling and defining the Scope of Clinical Practice in Anaesthesia*)	PF	CPRQ, FEx
AR_PF 3.15	Outline the professional obligations and intervention necessary to protect patients when a colleague is impaired or practicing beyond the limits of their capabilities	PF	CPRQ, FEx
AR_PF 3.16	Identify situations where senior assistance or supervision is required for junior surgeons and/or medical staff, and encourage, support or facilitate this as necessary.	PF	CbD, CPRQ, FEx
AR_PF 3.17	Respond in an appropriate and timely manner to others' unprofessional behaviour in the workplace such as breaches of confidentiality, racial or other discrimination, or bullying and harassment	PF	CPRQ, MsF
AR_PF 3.18	Participate in peer review and the assessment of junior learners	PF	MSF
4. Demonstrate a commitment to own health, sustainable practice and supporting colleagues			
AR_PF 4.1	Balance personal and professional priorities to ensure personal well-being and fitness to practice. As described in the following professional and resource documents: • *PS43 Statement on Fatigue and the Anaesthetist* • *PS49 Guidelines on the Health of Specialists and Trainees* • *PS16 Statement on the Standards of Practice of a Specialist Anaesthetist* • *RD12 The Isolated Anaesthestist*	PF	MsF, CPRQ
AR_PF 4.2	Outline how access to drugs for anaesthesia and sedation may lead to dependency and describe the signs of possible drug dependency in colleagues	PF	CPRQ, FEx
AR_PF 4.3	Discuss possible reasons for the increased suicide risk for anaesthetists and ways in which risk can be alleviated	PF	CPRQ, FEx
AR_PF 4.4	Outline the professional responsibilities of anaesthetists who may be carriers of a communicable disease	PF	CPRQ, FEx

Code	Learning outcome	Role	Assessment
AR_PF 4.5	Discuss the features indicating that another professional may be in need, particularly in relation to drug dependency and situations that may increase suicide risk (refer to resource documents *RD3 Depression and Anxiety*, *RD13 Impairment in a Colleague* and *RD20 Substance Abuse*)	PF	CPRQ, FEx CbD
AR_PF 4.6	Describe avenues of assistance available to colleagues in need and help them to seek this out	PF	CPRQ, FEx
AR_PF 4.7	Promote a culture that recognizes, supports, and responds effectively to colleagues and trainees in need	PF	MSF
AR_PF 4.8	Provide mentorship to colleagues and trainees	PF	MSF
AR_PF 4.9	Describe the methods that may be used to mitigate stress related to clinical practice	PF	CPRQ, FEx
AR_PF 4.10	Identify particularly stressful times in clinical practice and take measures to mitigate that stress for self and colleagues	PF	CPRQ, FEx
AR_PF 4.11	Contribute to the advancement of anaesthesia by involvement in professional organisations	PF	CPRQ

ANZCA Roles in Practice assessment

Trainees must complete all five scholar role activities prior to the core unit review for advanced training (refer to the table below) and attend/participate in scholar role meetings prior to the provisional fellowship review. Trainees must complete any two scholar role activities prior to the basic training core unit review. *This requirement changed for HEY 2017. Refer to the handbook for training for further information.*

The multi-source feedback (MsF) will provide a longitudinal assessment of many of the important learning outcomes from the ANZCA Roles in Practice that cannot be reliably captured in the snapshot assessments provided by the other workplace-based assessment tools. This will be important to inform the core unit review and ensure the development of trainees across the ANZCA Roles in Practice.

Role	TP	Assessment	No.
Scholar	**Activities**		
	BT or AT	Teach a skill (with evaluation, feedback and reflection)	1
		Facilitate a small group discussion or run a tutorial (with evaluation, feedback and reflection)	1
		Critically appraise a paper published in a peer-reviewed indexed journal for internal assessment	1
		Critically appraise a topic for internal evaluation and present it to the department	1
		Complete an audit and provide a written report for internal evaluation	1
	Meetings		
	BT, AT or PFT	Attend regional or greater conferences/meetings	2
		Participate in existing quality assurance programs May include clinical audit, critical incident monitoring, morbidity and mortality meetings	20 quality assurance meetings
All ANZCA Roles in Practice	IT, BT, AT, and PFT	Multi-source feedback (MsF)	Refer to each core unit and section four

Section Two

ANZCA clinical fundamentals

The ANZCA Clinical Fundamentals define the fundamental specialty knowledge and skills of anaesthetists applicable across all areas of practice. They are general anaesthesia and sedation, airway management, regional and local anaesthesia, perioperative medicine, pain medicine, resuscitation, trauma and crisis management and safety and quality in anaesthetic practice. Knowledge and skills in these areas are developed throughout training and thread through the specialised study units where their application in a specific context is expressed.

Volume of practice (VOP) cases and/or procedures

Clinical fundamental	TP	Skill	VOP
Airway management	IT	Endotracheal intubation	20
	IT or BT	Use of different laryngoscopes to visualise the larynx May include video laryngoscope, alternative blades	10
	IT, BT or AT	Nasal intubation	10
		Gaseous induction of general anaesthesia (in an adult)	5
		Awake fibreoptic bronchoscopy or intubation	5
Total minimum VOP			**50**
General anaesthesia and sedation	IT, BT or AT	Arterial cannulation	40
		Central venous cannulation	40
		Anaesthesia using TIVA	50
Total minimum VOP			**130**
Perioperative medicine – patient factors and medical conditions	IT, BT or AT	Infectious diseases	
Total minimum VOP			**20**

Clinical fundamental	TP	Skill	VOP
Regional and local anaesthesia	**Central neuraxial blocks**		
	IT, BT or AT	Epidural *May include epidurals from obstetric specialised study unit*	70
		Spinal	70
	Regional anaesthesia/analgesia		
	IT or BT	Independent intra-operative management of a patient having a procedure performed solely under central neural blockade. ASA 1 or 2 patients, procedure of moderate complexity with distant supervision *May be covered in volume of practice for central neuraxial blockade*	1
	IT, BT or AT	Upper limb *Must include minimum one (1) anaesthesia/analgesia for shoulder pathology* *Must include minimum five (5) brachial plexus blocks*	10
		Thorax, abdomen or pelvis (*non-neuraxial only)*	5
		Lower limb (non-neuraxial, including knee and hip)	15
Total minimum VOP			**171**
Resuscitation, trauma and crisis management	IT, BT or AT	Trauma team member for the initial assessment and resuscitation of a multi-trauma case *Note: Early Management of Severe Trauma course (or equivalent for example Advanced Trauma Life Support ATLS) required if volume of practice is not met*	5
Total minimum VOP			**5**

2.1 Introductory training

The primary goal of introductory training is for trainees to be able to anaesthetise safely low-risk patients having low-risk surgery. This unit introduces the ANZCA Roles in Practice focusing on the development of basic knowledge and skills across the ANZCA Clinical Fundamentals and safe, patient-centred practice.

Progress in the clinical fundamentals, such that the trainee is able to assess patients preoperatively to plan their care, recognise common crises, use basic airway management techniques and ventilation strategies, manage simple acute pain, and identify when to consult with supervisors regarding attendance or assistance, supports this goal.

Trainees also progress in the ANZCA Roles in Practice throughout training and by the end of Introductory Training will be expected to:

- Establish positive relationships with patients characterised by trust
- Synthesise and concisely convey patient assessment and plans to team members and supervisors
- Comprehensively, concisely and legibly document patient assessment and plans
- Identify the roles and responsibilities of, and demonstrate a respectful attitude toward, all the other members of the inter-professional healthcare team
- Attend with time to adequately prepare for cases and check drugs, equipment and monitoring
- Set priorities and manage their time to meet commitments
- Identify patients in need of better pain management
- Protect patient privacy and dignity, especially while unconscious
- Identify learning needs and develop personal learning plans
- Demonstrate willingness to consider feedback, advice, and instruction
- Display the following values: altruism, honesty, respect, integrity, commitment, and compassion
- Respect confidentiality of patients and colleagues

To successfully complete introductory training, a trainee must complete the following:

- A minimum time of 26 weeks, including a maximum of three weeks leave and one week of Other Clinical Time.
- Initial assessment of anaesthetic competence (refer to the section on the initial assessment of anaesthetic competence below.
- Volume of practice requirements for introductory training (refer to the table of volume of practice requirements at the start of section two).
- Workplace-based assessment requirements for introductory training (refer to the section on the initial assessment of anaesthetic competence below).
- Advanced life support (ALS) course or equivalent – for more information and standard refer to Handbook for Training (may be completed within the 52 weeks prior to the completion of introductory training).
- 'Can't intubate, can't oxygenate' (CICO) course or equivalent – for more information and standard refer to Handbook for Training.
- Clinical placement reviews at least twice per 26 weeks.
- Core unit review.

Initial assessment of anaesthetic competence

The initial assessment of anaesthetic competence (IAAC) has been developed to ensure that trainees new to anaesthesia have achieved competence in key anaesthetic skills and have the fundamental knowledge to safely undertake basic anaesthetic practice in a more independent capacity. This is usually completed within the last four weeks of introductory training however it may be completed after 13 weeks if the supervisor of training has assessed and approved evidence of recent anaesthetic experience.

The initial assessment of anaesthetic competence is comprised of two components:

1. Initial assessment of anaesthetic competence workplace-based assessments.
2. Satisfactory responses to initial assessment of anaesthetic competence questions (IAACQ).

Initial assessment of anaesthetic competence workplace-based assessments (WBA)

For completion of the initial assessment of anaesthetic competence, trainees are required to complete the CICO course requirement for introductory training and the following workplace-based assessments throughout introductory training:

- Three satisfactory direct observation of procedural skills (DOPS) assessments.
- Six satisfactory mini clinical evaluation exercise (mini-CEX) assessments.

Clinical fundamental	Focus of assessment	Assessment	No.
Airway management	Airway intubation, RSI and extubation	M-DOPS AM1IT	1
	Bag/mask ventilation and insertion of LMA	M-DOPS AM2IT	1
Safety and quality in anaesthetic practice	Anaesthetic machine check	M-DOPS SQ1IT	1
Total DOPS			**3**
Airway management	Preoperative airway assessment (done as part of the preoperative assessment mini-CEX for perioperative medicine) Trainees may conduct a pre-operative assessment on one patient but assessors are asked to look at both their airway assessment skills and their other pre-operative assessment skills during this encounter.	M-CEX PO1IT	1
Perioperative medicine			
Pain medicine	Assessment and management of a patient in acute pain on a pain round	M-CEX PM1IT	1
Any clinical fundamental	Not specified – may select low-risk cases of low complexity encountered in their clinical practice*	CEX	4
Total mini-CEX			**6**

* Trainees should refer to those learning outcomes from 'medical expert – skills' in the ANZCA Clinical Fundamentals of the introductory training core study unit assessed by mini-CEX, to get some indication of the areas of focus that they might select to be assessed on.

All workplace-based assessments completed must be directly relevant to the ANZCA Clinical Fundamentals, as no workplace-based assessments for the specialised study units should be completed during introductory training.

Sound clinical knowledge and its application underpin many of the areas of a workplace-based assessment. An assessor is encouraged to explore relevant knowledge and may ask a trainee questions. These questions should focus on knowledge-based learning outcomes identified in the ANZCA Clinical Fundamentals of the introductory training core study unit, which follow.

Initial assessment of anaesthetic competence questions

The initial assessment of anaesthetic competence also includes an assessment of medical expert knowledge. This assessment is conducted by the supervisor of training or introductory training tutor in the form of a series of questions based on a sample of learning outcomes from the introductory core study unit (section 2.1) of the curriculum. These learning outcomes are indicated by 'IAACQ' in the assessment column.

Other workplace-based assessment requirements for introductory training

During introductory training, trainees are also required to complete one multi-source feedback (MsF) to inform the core unit review and progression to basic training.

Clinical Fundamental	Focus of assessment	Assessment	No.
Any clinical fundamental and the ANZCA Roles in Practice	Various areas	M-MsF IT	1
Total MsF			**1**

2.1.1 Airway management

By the completion of introductory training, the trainee will be able to identify issues that may lead to difficulty in airway management. The trainee will be able to manage the normal airway with distant supervision where appropriate, in both spontaneously breathing and ventilated patients and demonstrate an ability to maintain oxygenation when the airway is threatened.

By the end of the introductory training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
5. Medical expert – knowledge			
IT_AM 1.1	Describe the basic structural anatomy of the upper airway including the larynx	ME	IAACQ, PEx
IT_AM 1.2	Discuss the important features of history and examination that may identify a potentially difficult airway	ME	IAACQ, FEx
IT_AM 1.3	Outline preoperative fasting requirements and the common measures employed to decrease the risk of pulmonary aspiration	ME	IAACQ, FEx
IT_AM 1.4	Describe an appropriate airway strategy for anaesthesia taking account of patient and procedural factors in patients with a normal airway, including indications for rapid sequence induction.	ME	IAACQ, FEx
IT_AM 1.5	Describe the indications for manual in-line stabilisation of the neck and the implications for airway management	ME	IAACQ, FEx
IT_AM 1.6	Outline the equipment required to be immediately available for basic airway management and the 'can't intubate, can't oxygenate' (CICO) situation	ME	IAACQ, PEx
IT_AM 1.7	Describe the optimal patient position for intubation	ME	IAACQ, FEx
IT_AM 1.8	Describe the common complications of intubation	ME	IAACQ, FEx
IT_AM 1.9	Describe preoxygenation, including its physiological basis	ME	IAACQ, PEx
IT_AM 1.10	Outline an appropriate ventilation strategy suitable for routine elective and emergency patients	ME	IAACQ, FEx
IT_AM 1.11	Outline potential management plans to ensure oxygenation of the patient with an unexpected difficult airway	ME	IAACQ, FEx
IT_AM 1.12	Outline the clinical features, possible causes, physiological consequences and management of perioperative upper airway obstruction	ME	IAACQ, FEx
IT_AM 1.13	Describe a 'can't intubate, can't oxygenate' drill, including the technique for performing an emergency surgical airway	ME	IAACQ, FEx
IT_AM 1.14	Describe and classify the view obtained at direct laryngoscopy according to a common grading scale (Cormack-Lehane)	ME	IAACQ, FEx
IT_AM 1.15	Describe the features of oesophageal and endobronchial intubation and outline appropriate management	ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
IT_AM 1.16	Describe the clinical features and outline a management plan for a patient with aspiration of gastric contents	ME	IAACQ, FEx
IT_AM 1.17	Describe the clinical features that indicate a patient can be extubated safely	ME	IAACQ, FEx
IT_AM 1.18	Describe potential complications at extubation	ME	IAACQ, FEx
IT_AM 1.19	Describe optimisation of the patient for extubation	ME	IAACQ, FEx
IT_AM 1.20	Outline the important airway considerations in determining the suitability of a patient for discharge to recovery	ME	IAACQ, FEx
6. Medical expert – skills			
In patients with an anticipated normal airway, the trainee is able to:			
IT_AM 2.1	Perform and document an airway assessment, including an appropriate history and physical examination including dental status, to determine if a patient has identifiable risk factors for difficulty in airway management	ME	M-CEX
IT_AM 2.2	Perform effective face mask ventilation	ME	M-DOPS
IT_AM 2.3	Demonstrate assessment of the adequacy of ventilation and identify airway obstruction	ME	M-DOPS
IT_AM 2.4	Perform manoeuvres to relieve airway obstruction including chin lift/head tilt, jaw thrust, airway insertion, application of CPAP and one/two person bag-mask ventilation (V)	ME	M-DOPS
IT_AM 2.5	Perform insertion of a supraglottic airway such as the LMA (V)	ME	M-DOPS
IT_AM 2.6	Perform endotracheal intubation, minimising the risk of dental damage and including correct use of the laryngoscope (V)	ME	DOPS
IT_AM 2.7	Perform manoeuvres to improve the view of the larynx during direct laryngoscopy	ME	M-DOPS
IT_AM 2.8	Demonstrate use of a bougie or stylet to assist in endotracheal intubation	ME	DOPS
IT_AM 2.9	Demonstrate and direct the performance of manual in-line stabilisation	ME	DOPS
IT_AM 2.10	Perform rapid sequence induction, including preoxygenation and directing appropriate cricoid pressure	ME	M-DOPS
IT_AM 2.11	Perform safe suctioning of the oropharynx and trachea	ME	M-DOPS
IT_AM 2.12	Demonstrate confirmation of endotracheal intubation including the use of capnography	ME	M-DOPS
IT_AM 2.13	Demonstrate a ‘can’t intubate; can’t oxygenate’ drill, including the technique for performing an emergency surgical airway	ME	CICO

Code	Learning outcome	Role	Assessment
IT_AM 2.14	Demonstrate safe extubation of a patient	ME	M-DOPS
IT_AM 2.15	Demonstrate appropriate positioning of a patient for recovery after extubation	ME	M-DOPS

2.1.2 General anaesthesia and sedation

By the completion of introductory training, the trainee will be able to anaesthetise or sedate a low-risk patient having low-risk surgery with distant supervision, applying an appropriate technique for the clinical situation. They will begin studying the applied pharmacology underpinning anaesthetic practice.

By the end of the introductory training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
7. Medical expert – knowledge			
IT_GS 1.1	Outline the basic pharmacology of sedative/hypnotic agents (propofol, thiopentone, midazolam, ketamine), inhalational agents, opioids, muscle relaxants, reversal drugs and anti-emetic agents relevant to their clinical practice.	ME	IAACQ, PEx
IT_GS 1.2	Outline the process of induction, maintenance and emergence from anaesthesia	ME	IAACQ
IT_GS 1.2a	Outline the continuum of hypnosis from sedation to general anaesthesia	ME	IAACQ
IT_GS 1.3	Outline preoperative fasting requirements, identify patients at risk of aspiration and outline common measures employed to decrease the risk of pulmonary aspiration (also refer to the *Airway management* clinical fundamental)	ME	IAACQ
IT_GS 1.4	Discuss indications for rapid sequence induction of anaesthesia (also refer to the *Airway management* clinical fundamental)	ME	IAACQ
IT_GS 1.5	Describe the chemical composition of crystalloids and colloids used in clinical practice and their effects when used in volume replacement	ME	IAACQ, PEx
IT_GS 1.6	Calculate intravenous fluid requirements and choose intravenous fluid therapy appropriate to the clinical situation for low-risk patients having low-risk surgery	ME	IAACQ, FEx
IT_GS 1.7	Describe the clinical situations when anxiolytic or sedative premedication may be indicated or contraindicated	ME	IAACQ, FEx
IT_GS 1.8	Outline the physiological changes that occur with and the implications for anaesthetic management of pneumoperitoneum	ME	IAACQ, PEx
IT_GS 1.9	Outline the physiological changes that occur with and the implications for anaesthetic management of the following patient positions: • Supine • Trendelenberg and reverse trendelenberg • Lateral • Lithotomy • Prone (Also refer to the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	IAACQ, PEx
IT_GS 1.10	Outline a strategy for the management of postoperative nausea and vomiting. (Refer to the endorsed Society for Ambulatory Anesthesia *Guidelines for Surgical Patients with Postoperative Nausea and Vomiting*)	ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
IT_GS 1.11	Describe the clinical features that indicate a patient can be extubated safely (also refer to the *Airway management* clinical fundamental)	ME	IAACQ, FEx
IT_GS 1.12	Outline a strategy for the management of failure to wake from anaesthesia	ME	IAACQ, FEx
IT_GS 1.13	Outline a strategy for the management of postoperative delirium	ME	IAACQ, FEx
IT_GS 1.14	Outline a strategy for the management of post operative analgesia for patients in their care (also refer to the *Pain medicine* clinical fundamental) (refer to College professional document: *PS45 Statement on Patients' Rights to Pain Management and Associated Responsibilities)*	ME	IAACQ, FEx
IT_GS 1.15	Select a technique for anaesthesia and sedation for simple procedures in low-risk patients	ME	CEX

2.1.3 Pain medicine

By the completion of introductory training, the trainee will be able to manage simple acute pain and recognise clinical situations where consultation with supervisors is required to formulate a pain management plan.			
By the end of the introductory training core study unit, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
8. Medical expert – knowledge			
IT_PM 1.1	Define pain, acute pain and chronic pain	ME	IAACQ, FEx
IT_PM 1.2	Outline the elements of a basic pain history	ME	IAACQ, FEx
IT_PM 1.3	Outline the basic concepts of multimodal analgesia and pre-emptive analgesia	ME	IAACQ, PEx
IT_PM 1.4	Outline the basic pharmacology and clinical use of available analgesic agents.	ME	IAACQ, PEx
IT_PM 1.5	Outline clinical situations where the use of analgesic agents may be associated with increased risk to the patient and requires consultation with supervisors for the initiation of therapy	ME	IAACQ
IT_PM 1.6	Outline the principles of acute pain management and the assessment of analgesic efficacy and adverse effects as contained in the College professional document *PS41 - Guidelines on Acute Pain Management*	ME	IAACQ, FEx
IT_PM 1.7	Outline a protocol for the management of pain in recovery	ME	IAACQ, FEx
IT_PM 1.8	Outline a pain management plan for patients having day surgery procedures	ME	IAACQ, FEx
IT_PM 1.9	Outline the risks associated with and the monitoring requirements for patients receiving patient-controlled analgesia (PCA), opioid infusions or continuous regional analgesia for acute pain management	ME	IAACQ, FEx
IT_PM 1.10	Outline the problems in managing acute pain for patients with chronic prior exposure to opioids	ME	IAACQ, FEx
IT_PM 1.11	Describe the assessment and adjustment of continuous regional techniques for acute pain control.	ME	IAACQ, FEx
IT_PM 1.12	Describe the advantages and disadvantages of patient-controlled analgesia (PCA), continuous infusion and intermittent prescription of opioids for acute pain management	ME	IAACQ, FEx
IT_PM 1.13	Outline the management of hypotension associated with a central neuraxial block	ME	IAACQ, FEx
IT_PM 1.14	Outline the management of 'high spinal' block (also refer to the *Regional and local anaesthesia* and *Resuscitation, trauma and crisis management* clinical fundamentals)	ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
IT_PM 1.15	Outline a plan to transition patients with acute pain from parenteral to oral analgesic therapies (in low complexity cases)	ME	IAACQ, FEx
IT_PM 1.16	Outline the contribution of psychosocial factors to the patient's experience of pain	ME	IAACQ, FEx
9. Medical expert – skills			
IT_PM 2.1	Participate in pain medicine sessions with level 1 supervision (V)	ME	CEX
IT_PM 2.2	Assess a patient in acute pain	ME	M-CEX
IT_PM 2.3	Prescribe and manage patient controlled analgesia (PCA) and/or analgesic infusions for patients with acute pain and consult appropriately for patients at increased risk of complications from these modalities	ME	CEX

2.1.4 Perioperative medicine

Please note: Learning Outcomes applicable to Perioperative Medicine in Introductory Training will also be found in other Clinical Fundamentals and the Roles in Practice.

By the completion of introductory training, the trainee will be able to perform a pre-operative assessment of patients to inform discussion of perioperative management with supervisors and recognise when further assessment and optimisation and/or referral is required.

By the end of the introductory training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
Preoperative			
IT_PO 1.1	Outline the ASA physical status classification system and the implications for anaesthesia	ME	IAACQ, FEx
IT_PO 1.2	Outline the functional assessment of patients based on exercise capacity and performance of activities of daily living	ME	IAACQ, FEx
IT_PO 1.3	Outline how functional assessment is used in perioperative risk assessment	ME	IAACQ, FEx
IT_PO 1.4	Outline the implications for anaesthetic management and perioperative risk of a range of medical conditions including but not limited to: Cardiovascular • Coronary artery disease • Valvular heart disease • Cardiac conduction abnormalities/pacemakers • Left heart failure (CCF) • Hypertension • Cerebrovascular disease (embolic and haemorrhagic) • Peripheral vascular disease Respiratory • Chronic obstructive pulmonary disease • Asthma • Respiratory tract infection • Obstructive sleep apnoea • Chronic tobacco use Metabolic/Endocrine • Obesity (including morbid obesity) • Diabetes • Electrolyte and acid base disorders • Steroid dependence Haematological/Immunological • Anaemia • Thrombocytopenia • Thromboembolic disease (DVT/PE) • Coagulopathy/anticoagulant use • Immunocompromised patient Gastrointestinall/Renal • Renal impairment (acute and chronic) • Gastro-oesophageal reflux • GIT haemorrhage	ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
IT_PO 1.5	Outline the indications for common perioperative investigations	ME	IAACQ, FEx
IT_PO 1.6	Discuss the information (i.e. material risks) that must be provided to patients as part of the informed consent process (also refer to the ANZCA Roles in Practice, *Medical Expert and Professionalism*)	ME	IAACQ, FEx
Intraoperative			
IT_PO 1.7	Describe the treatment of life threatening arrhythmias (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental)	ME	IAACQ, FEx
IT_PO 1.8	Outline an anaesthetic and postoperative management plan for healthy patients undergoing day surgery procedures or similar (also refer to the *Pain medicine* and *General anaesthesia and sedation* clinical fundamentals for pain management and fluid management respectively)	ME	IAACQ, FEx
Postoperative			
IT_PO 1.9	Outline the management of common problems in the Post-Anaesthesia Care Unit (PACU) including: • hypotension • hypertension • tachycardia • postoperative nausea and vomiting severe pain	ME	IAACQ, FEx
Code	**Learning outcome**	**Role**	**Assessment**
2. Medical expert – skills			
IT_PO 2.1	Participate in preadmission clinic sessions with level 1 supervision (V) (refer to College professional document: *PS07 Recommendations for the Pre-Anaesthesia Consultation)*	ME	CEX
IT_PO 2.2	Take a targeted history and perform a focused examination (may include cardiovascular, respiratory, neurological, abdominal and musculoskeletal) to identify features that will affect perioperative anaesthetic management.	ME	M-CEX FEx
IT_PO 2.3	Interpret common perioperative investigations (CXR, ECG, haematology, biochemistry, spirometry, arterial blood gases) and identify when abnormalities will affect perioperative management	ME	M-CEX, FEx
IT_PO 2.4	Identify patients at risk of aspiration in the perioperative period and describe a plan to reduce that risk	ME	CEX
IT_PO 2.5	Identify common and life-threatening arrhythmias	ME	CEX
IT_PO 2.6	Identify the patient with unstable disease requiring prompt attention	ME	CEX
IT_PO 2.7	Assess severity and stability of common medical conditions and perioperative risk, and initiate perioperative management in low severity and stable cases.	ME	CEX, FEx

2.1.5 Regional and local anaesthesia

By the completion of Introductory training, the trainee will have acquired the initial knowledge and skills for the safe conduct of regional anaesthesia including selection of appropriate patients and procedures, knowledge of aseptic techniques and management of complications.

By the end of the introductory training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
3. Medical expert – knowledge			
IT_RA 1.1	Describe the principles for the safe conduct of major regional anaesthesia as outlined in College professional document *PS03 Guidelines for the Management of Major Regional Analgesia*	ME	IAACQ, FEx
IT_RA 1.2	Outline the pre-operative assessment of the patient necessary before performing any regional technique	ME	IAACQ, FEx
IT_RA 1.3	Describe the sterile technique necessary for the performance of regional anaesthesia	ME	IAACQ, FEx
IT_RA 1.4	Outline the skills required for the safe performance of regional blockade, including: • Confirming and marking site of surgery and site of regional technique • Positioning of patient • Identification of anatomical landmarks • Use of aseptic technique • Selection of appropriate needle • Selecting, checking, drawing up, diluting, and labelling of drugs for injection • Checking for inadvertent intravenous and intraneural administration	ME	IAACQ, FEx
IT_RA 1.5	Outline the clinical features and management of local anaesthetic toxicity (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental and the endorsed AAGBI Safety Guideline *Management of Severe Local Anaesthetic Toxicity*)	ME	IAACQ, FEx
IT_RA 1.6	Outline the management of hypotension associated with a central neuraxial block.	ME	IAACQ, FEx
IT_RA 1.7	Outline the management of 'high spinal' block	ME	IAACQ, FEx
IT_RA 1.8	Describe the absolute and relative contraindications of a central neuraxial block	ME	IAACQ, FEx
IT_RA 1.9	Describe how to assess the adequacy of a regional technique	ME	IAACQ, FEx
IT_RA 1.10	Describe the measures to be taken when a regional technique is not working completely	ME	IAACQ, FEx
IT_RA 1.11	Outline the complications of a central neuraxial block	ME	IAACQ, FEx

2.1.6 Resuscitation, trauma and crisis management

By the completion of introductory training, the trainee will be able to recognise clinical situations which are life threatening or have the potential for major patient morbidity. They will call for assistance and when appropriate initiate management of these conditions.

By the end of the introductory training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
IT_RT 1.1	Outline a systematic approach to identifying the cause and describe the initial management of the following, when occurring in association with anaesthesia or sedation: • Dyspnoea • Hypoxia • Hypocapnoea/hypocarbia • Hypercapnoea/hypercarbia • Tachycardia • Bradycardia • Hypotension • Hypertension • High airway pressures • Oliguria/anuria • Failure to wake from anaesthesia (also refer to the *General anaesthesia and sedation* clinical fundamental)	ME	IAACQ, FEx

IT_RT 1.2	Outline the clinical features and describe the initial management of patients with the following life threatening conditions:
	• Cardiac arrest
	• Respiratory arrest
	• Shock
	  ○ Hypovolaemic
	  ○ Distributive
	  ○ Cardiogenic
	  ○ Obstructive
	• Cardiac tamponade
	• Acute myocardial ischaemia
	• Acute pulmonary oedema
	• Aortic dissection
	• Arrhythmias causing haemodynamic compromise
	• Aspiration of gastric contents
	• Severe bronchospasm
	• Tension pneumothorax
	• Massive haemoptysis
	• Coma
	• Raised intra-cranial pressure
	• Prolonged seizures
	• Local anaesthetic toxicity (also refer to the Regional and local anaesthesia clinical fundamental and the endorsed AAGBI Safety Guideline *Management of Severe Local Anaesthetic Toxicity*)
	• Anaphylaxis
	• Malignant hyperthermia
	• Pulmonary embolism
	• Gas embolism
	• Coagulopathy in association with surgery or trauma
	• Hyper/hypokalemia
		ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
IT_RT 1.3	Outline the personnel, equipment and drugs available for crisis management in anaesthetising locations	ME	IAACQ, FEx
IT_RT 1.4	Describe the primary survey of the trauma patient	ME	IAACQ, FEx
IT_RT 1.5	Describe techniques for the immobilisation of patients with spinal injuries during transport and transfer	ME	IAACQ, FEx
2. Medical expert – skills			
IT_RT 2.1	Demonstrate proficiency in advanced life support	ME	ALS

2.1.7 Safety and quality in anaesthetic practice

By the completion of introductory training, the trainee will be able to outline the standards required for the safe provision of anaesthesia and sedation and apply them in situations appropriate for a new trainee. They will demonstrate a patient-centred approach to practice, collaboration in multidisciplinary teams to ensure patient safety and the application of ethical principles to their practice.

By the end of the introductory training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
IT_SQ 1.1	Outline and apply the College guidelines and recommendations for standards of safe practice: • Ensure appropriate standards are met in terms of equipment, monitoring and staffing when providing anaesthesia and sedation. Refer to College professional document *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations* • Perform a level 2 and 3 check of the anaesthetic machine and related equipment. Refer to College professional document *PS31: Recommendations on Checking Anaesthesia Delivery Systems* • Apply appropriate monitoring for each case. Refer to College professional document *PS18: Guidelines on Monitoring During Anaesthesia (PILOT)* • Safely draw up, label and store drugs. Refer to College professional document *PS51: Guidelines for the Safe Administration of Injectable Drugs in Anaesthesia* • Demonstrate safe handover of care during and after anaesthesia. Refer to College professional document *PS53 Statement on the Handover Responsibilities of the Anaesthetist* • Outline the planning staffing and equipment required for the safe intra-hospital transfer of patients. Refer to College professional document *PS52:* Guidelines for *Transport of Critically ill Patients* • Outline and apply the surgical safety checklist (including time-out procedure). Refer to endorsed guideline *WHO surgical safety checklist Australian and New Zealand edition* • Outline the requirement for, and competencies of, an assistant for the anaesthetist when undertaking anaesthesia, anlagesia or sedation procedures: Refer to College professional document *PS08: Statement on the Assistant for the Anaesthetist* (PILOT)	ME	Outline IAACQ, FEx Apply CEX, DOPS
IT_SQ 1.2	Describe safe transfusion practices including: • Safe storage and handling of blood and blood products • Protocols for checking prior to transfusing	ME	IAACQ, FEx
IT_SQ 1.3	Outline measures to minimise the risk of injury or complications resulting from the use of a tourniquet	ME	IAACQ, FEx
IT_SQ 1.4	Outline the recommended vaccinations for healthcare workers. Refer to College professional document PS28 Guidelines on Infection Control in Anaesthesia	ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
IT_SQ 1.5	Outline the standards to which reusable anaesthetic equipment needs to be cleaned and/or treated. Refer to College professional document PS28: Guidelines on Infection Control in Anaesthesia	ME	PEx
Positioning			
IT_SQ 1.6	Outline the risk of peripheral nerve injury and measures to minimise this risk during procedures	ME	IAACQ, FEx
IT_SQ 1.7	Outline steps to minimise the risk of eye injury during perioperative care	ME	IAACQ, FEx
IT_SQ 1.8	Outline measures to minimise the risk of injury or complications resulting from the following patient positions • Supine • Trendelenberg and reverse trendelenberg • Lateral • Lithotomy • Prone	ME	IAACQ, FEx
2. Medical expert – skills			
IT_SQ 2.1	Perform a level 2 and 3 check of the anaesthetic machine and related equipment – Refer to College professional document *PS31: Recommendations on Checking Anaesthesia Delivery Systems*	ME	M-DOPS
IT_SQ 2.2	Protect themselves other staff and patients from environmental hazards such as ionising radiation	ME	CEX, MsF
IT_SQ 2.3	Demonstrate the safe manual handling and positioning of patients	ME	CEX, MsF
Infection control			
IT_SQ 2.4	Apply standard precautions including: • Hand washing before and after patient contact • Use of gloves and personal protective equipment when there is risk of exposure to body fluids • Safe disposal of sharps and waste (refer to College professional document: *PS28 Guidelines on Infection Control in Anaesthesia)*	ME	CEX, DOPS
IT_SQ 2.5	Perform invasive procedures using an aseptic technique	ME	DOPS
IT_SQ 2.7	Adhere to local infection control policies when treating patients colonised with resistant organisms	ME	MsF
IT_SQ 2.8	Use antimicrobial agents in surgical prophylaxis as indicated	ME	CEX

2.2 Basic training

The primary goal of basic training is for the trainee to be able to anaesthetise patients safely with distant supervision, where there is moderate complexity based on patient or surgical factors. This unit further develops the ANZCA Roles in Practice. Trainees will continue to expand their knowledge of basic sciences, anatomy and equipment, and their relevant application necessary to support safe practice across all the ANZCA Clinical Fundamentals.

Progress in the clinical fundamentals such that the trainee is able to assess and optimise patients with common medical conditions, recognise and initiate management of common crises, utilise diverse airway management techniques and ventilation strategies, manage acute pain, and perform spinal and epidural blocks supports this goal.

Trainees also progress in the ANZCA Roles in Practice throughout training and by the end of Basic Training will be expected to:

- Communicate with patients using a patient- centred approach
- Document clinical encounters to adequately convey clinical reasoning and the rationale for decisions
- Present verbal reports of clinical care and plans
- Convey all relevant information when handing over responsibility of patient care
- Appropriately consult with other health care providers and colleagues to optimise patient care and safety
- Demonstrate organisational skills in the theatre environment
- Facilitate timely patient access to surgery and other care
- Promote selection of anaesthetic techniques which maximize patient benefit
- Actively monitor their own learning, reviewing and updating learning plans as required
- Apply the concepts of evidence-based medicine in their work
- Formulate clinical questions from cases or scenarios
- Respond appropriately to ethical challenges encountered in practice

They will continue to accrue experience with cases across the ANZCA Clinical Fundamentals and start to accrue experience in the specialised study units.

To successfully complete basic training, a trainee must complete the following:

- A minimum of 78 weeks, including a maximum of 16 weeks of leave for introductory and basic training combined.
- Primary examination.
- Volume of practice requirements for basic training (refer to the table of volume of practice requirements in section two).
- Workplace-based assessment requirements for basic training (refer to the section on workplace-based assessment requirements for basic training below).
- An advanced life support (ALS) course or equivalent – for more information and standard refer to Handbook for Training.
- 'Can't intubate, can't oxygenate' (CICO) course or equivalent – for more information and standard refer to Handbook for Training.
- Clinical placement reviews at least twice per 26 weeks.
- Scholar role activities (refer to the table of scholar role activities in the section on ANZCA Roles in Practice assessment).
- Core unit review.

Workplace-based assessment requirements for basic training

During basic training, trainees are required to complete a minimum of:

- 12 direct observation of procedural skills (DOPS) assessments.
- 12 mini clinical evaluation exercise (mini-CEX) assessments.
- Six case-based discussion (CbD) assessments.
- One multi-source feedback (MsF).

These may be completed from both the ANZCA Clinical Fundamentals and the specialised study units as indicated below.

Clinical fundamental/ specialised study unit	Focus of assessment	Assessment	No.
General anaesthesia and sedation	Central venous cannulation with the use of ultrasound guidance	M-DOPS GS1BT	1
General anaesthesia and sedation	Arterial cannulation	M-DOPS GS2BT	1
Airway management	Fibreoptic intubation	MS-DOPS AM2BT	1
Regional and local anaesthesia	Performance of a spinal block on a patient who is not anatomically difficult	M-DOPS RA1BT	1
Any specialised study unit	Select from any required M-DOPS identified in the specialised study units*	M-DOPS	8*
Any clinical fundamental or specialised study unit	Not specified - may select procedures encountered in their clinical practice**	DOPS	
Total DOPS			**12**
Perioperative medicine	Pre-assessment of a patient with multi-system disease Trainees may choose to combine this with the pre-operative assessment mini-CEX for a patient having head and neck surgery to count towards the *Head and neck, ear, nose and throat, dental surgery and electro-convulsive therapy* SSU. Trainees may conduct a pre-operative assessment for one patient however this must be logged as two separate WBAs with specific feedback for each area of focus provided. If this assessment is combined with the mini-CEX on head and neck anaesthesia, the same cannot be done for the pre-assessment mini-CEX for Perioperative medicine during advanced training.	M-CEX PO1BT	1
Any specialised study unit	Select from any required M-CEX identified in the specialised study units*	M-CEX	11*
Any clinical fundamental or specialised study unit	Not specified - may select cases of moderate complexity encountered in their clinical practice**	CEX	
Total mini-CEX			**12**

Clinical fundamental/ specialised study unit	Focus of assessment	Assessment	No.
Pain medicine	Assessment and management of a patient in acute pain on a pain round	M-CbD PM1BT	1
Resuscitation, trauma and crisis management	Discussion of their management of crises	M-CbD RT1BT	2
Any clinical fundamental or specialised study unit	Not specified - may select cases of moderate complexity encountered in their clinical practice*	CbD	3
Total CbD			**6**
Any clinical fundamental and the ANZCA Roles in Practice	Various areas	M-MsF BT	1
Total MsF			**1**

*Trainees should refer to the table of assessment at the start of the specialised study units and choose from a listed mandatory assessment i.e. one with the prefix 'M' or 'MS'. The latter indicates that the assessment may be completed in a simulated setting, where an opportunity to complete the assessment on a live patient is unavailable.

**When completing a non-specified assessment, trainees should refer to those 'Medical expert –skills' learning outcomes in the clinical fundamentals or specialised study units indicated for assessment by the corresponding assessment method. For example, the Airway management clinical fundamental contains a skill outcome at the basic training level on demonstrating insertion of a reinforced laryngeal mask airway (LMA). The Paediatric anaesthesia specialised study unit contains a skill outcome on performing nasal intubation in children, indicated for assessment by DOPS. If a trainee undertakes a placement in paediatric anaesthesia during basic training and is presented with an opportunity to perform this skill, then they can elect to complete a DOPS assessment toward the combined mandatory and non-specified target for basic training.

If a trainee completes basic training without exposure to a specialised study unit with a specified assessment, that is, with the prefix 'M' or 'MS', then the minimum required number of assessments for a combined target would all be on non-specified topics from either an ANZCA Clinical Fundamental or specialised study unit.

Sound clinical knowledge and its application underpin many of the areas of a workplace-based assessment. An assessor is encouraged to explore relevant knowledge and may ask a trainee questions as part of the assessment process. These questions should focus on knowledge-based learning outcomes identified in the clinical fundamentals of the basic training core study unit, which follow.

The required minimum **run rate** for workplace-based assessments **per three month period** for basic training is:

- Two DOPS.
- Two mini-CEX.
- One CbD.

Trainees are not required to meet the workplace-based assessment (WBA) run rate that applies at the time that they undertake one or more placements in intensive care. However, it is advisable to continue to complete workplace-based assessments where possible, particularly on cases or procedures that are relevant to the intensive care setting.

Please note that trainees must still complete the minimum number of WBAs required in each training period, irrespective of how much time they spend in intensive care medicine.

2.2.1 Airway management

By the completion of basic training, the trainee will have extended the knowledge and skills in airway management they developed in the introductory unit. In particular, the trainee will have greater knowledge of airway anatomy and physiology and the equipment available for airway management. The trainee will be able to perform more advanced airway management techniques and use a wider range of ventilation strategies.

By the end of the basic training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
BT_AM 1.1	Describe the anatomy of the upper airway, larynx and trachea, including its innervation and endoscopic appearance	ME	PEx
BT_AM 1.2	Describe the physiology of the airway including airway reflexes	ME	PEx
BT_AM 1.3	Describe the effect of anaesthetic agents and other drugs on airway reflexes	ME	PEx
BT_AM 1.4	Describe the physiological consequences of anaesthesia and patient positioning on the respiratory system and their management (also refer to the *General anaesthesia and sedation* clinical fundamental)	ME	PEx
BT_AM 1.5	Describe the potential impact of trauma to the upper or lower airway on ventilation and airway management	ME	FEx
BT_AM 1.6	Describe the clinical features of patients with critical airway obstruction	ME	FEx
BT_AM 1.7	Outline the clinical situations where airway anatomy may be distorted and ventilation impaired	ME	FEx
BT_AM 1.8	Describe the commonly performed airway assessment methods and the findings that would suggest potential airway management difficulties	ME	FEx
BT_AM 1.9	Discuss the indications and contraindications for nasal intubation	ME	FEx
BT_AM 1.10	Outline a strategy for the safe use of throat packs	ME	FEx
BT_AM 1.11	Outline different extubation strategies for 'high risk' extubation situations	ME	FEx
BT_AM 1.12	Describe the situations where awake intubation or spontaneous breathing induction (gaseous or intravenous) of anaesthesia may be appropriate	ME	FEx
BT_AM 1.13	Describe the full range of equipment used in airway management including the rationale and indications for its use, as outlined in College professional document *PS56 - Guidelines on Equipment to Manage a Difficult Airway During Anaesthesia*	ME	FEx

Code	Learning outcome	Role	Assessment
BT_AM 1.14	Outline the relative merits and limitations of alternative laryngoscopy blades used for endotracheal intubation	ME	FEx
BT_AM 1.15	Outline the various supraglottic airway devices available	ME	FEx
BT_AM 1.16	Describe equipment used for manual ventilation	ME	FEx
BT_AM 1.17	Outline indications for and the limitations and possible complications of supraglottic airway devices	ME	FEx
BT_AM 1.18	Describe methods for providing local anaesthesia to the airway	ME	FEx
BT_AM 1.19	Describe different modes of ventilation available on modern ventilators and their physiological consequences	ME	PEx
BT_AM 1.20	Discuss the clinical features, possible causes and management of perioperative upper airway obstruction including laryngospasm	ME	FEx
BT_AM 1.21	Discuss the issues involved when access to the airway is shared with surgeons or proceduralists	ME	FEx
2. Medical expert – skills			
BT_AM 2.1	Demonstrate assembly of a self-inflating resuscitator bag	ME	DOPS
BT_AM 2.2	Demonstrate the setting of appropriate ventilator parameters to deliver volume and pressure-controlled ventilation and adjust according to the clinical situation.	ME	CEX
BT_AM 2.3	Demonstrate the use of different laryngoscopes, such as video laryngoscopes, or blades, such as Straight, Kessel, Polio, McCoy blades to visualise the larynx (V)	ME	DOPS
BT_AM 2.4	Demonstrate insertion of a reinforced LMA	ME	CEX, DOPS
BT_AM 2.5	Demonstrate the use of an intubating laryngeal mask to assist intubation	ME	DOPS
BT_AM 2.6	Demonstrate the skills required for flexible laryngeal intubation or bronchoscopy (V)	ME	DOPS
BT_AM 2.7	Relieve airway obstruction in patients with difficult mask ventilation	ME	CEX

2.2.2 General anaesthesia and sedation

By the completion of basic training, the trainee will be able to anaesthetise or sedate ASA 1-3 patients having surgery of moderate complexity with distant supervision, applying an appropriate technique for the clinical situation. They will develop knowledge of applied pharmacology underpinning anaesthesia practice and gain skills in vascular access and care of the anaesthetised patient.

By the end of the basic training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
3. Medical expert – knowledge			
Pharmacodynamics			
BT_GS 1.1	Explain the concept of drug action with respect to: • Receptor theory • Enzyme interactions • Physico-chemical interactions	ME	PEx
BT_GS 1.2	Explain receptor activity with regard to: • Ionic fluxes • Second messengers and G proteins • Nucleic acid synthesis • Evidence for the presence of receptors • Regulation of receptor number and activity	ME	PEx
BT_GS 1.3	Define and explain dose-effect relationships of drugs with reference to: • Graded and quantal response • Therapeutic index • Potency and efficacy • Competitive and non-competitive antagonists • Partial agonists, mixed agonist-antagonists and inverse agonists • Additive and synergistic effects of drug combinations	ME	PEx
BT_GS 1.4	Describe efficacy and potency with reference to dose-response curves	ME	PEx
BT_GS 1.5	Explain the law of mass action and describe affinity and dissociation constants	ME	PEx
BT_GS 1.6	Describe the mechanisms of adverse drug effects	ME	PEx
Pharmacokinetics			
BT_GS 1.7	Explain the concept of pharmacokinetic modelling of single and multiple compartment models and define: • Half life • Clearance • Zero and first order kinetics • Volume of distribution • Bio-availability • Area under the plasma concentration time curve • Extraction ratio	ME	PEx
BT_GS 1.8	Describe absorption and factors that will influence it with reference to clinically utilised sites of administration	ME	PEx

Code	Learning outcome	Role	Assessment
BT_GS 1.9	Describe factors influencing the distribution of drugs (for example, protein binding, lipid solubility, pH, pKa) and their alteration in physiological and pathological disturbance	ME	PEx
BT_GS 1.10	Describe the mechanisms of drug clearance and how physiological and pathological disturbance may affect these	ME	PEx
BT_GS 1.11	Describe the mechanisms of non-hepatic and hepatic metabolism of drugs including: • Phase one and phase two reactions • Hepatic extraction ratio and its significance • First pass effect, enzyme induction and inhibition	ME	PEx
BT_GS 1.12	Explain and describe the clinical application of concepts related to intravenous and infusion kinetics including: • Effect-site and effect-site equilibration time • Concept of context sensitive half time • Calculation of loading and maintenance dosage regimens	ME	PEx
BT_GS 1.13	Explain clinical drug monitoring with regard to peak and trough concentrations, minimum therapeutic concentration and toxicity	ME	PEx
Variability in drug response			
BT_GS 1.14	Develop an understanding of variations in individual drug responses together with clinical application of this knowledge	ME	PEx
BT_GS 1.15	Define tachyphylaxis, tolerance, addiction, dependence and idiosyncrasy and describe mechanisms of tolerance	ME	PEx
BT_GS 1.16	Describe alterations to drug response due to physiological change with particular reference to the elderly	ME	PEx
BT_GS 1.17	Describe alterations to drug response due to pathological disturbance with particular reference to cardiac, respiratory, renal and hepatic disease	ME	PEx
BT_GS 1.19	Describe the mechanisms of drug interaction	ME	PEx
BT_GS 1.20	Describe and give examples of the clinical importance of pharmacogenetic variation, for example, atypical cholinesterase, codeine metabolism	ME	PEx
BT_GS 1.21	Describe and give examples of the clinical importance of isomerism	ME	PEx
BT_GS 1.22	Describe the mechanisms of action and potential adverse effects of buffers, anti-oxidants, anti-microbial and solubilising agents added to drugs	ME	PEx

Code	Learning outcome	Role	Assessment
Pharmacology of specific agents			
BT_GS 1.23	Describe the physical properties of inhalational agents, including the: • Principles of vaporisation of inhalational agents • Properties of an ideal inhalational anaesthetic agent • Structure-activity relationships of inhalational agents	ME	PEx
BT_GS 1.24	Describe the uptake, distribution and elimination of inhalational anaesthetic agents and the factors which influence induction and recovery from inhalational anaesthesia including the: • Concepts of partition coefficients, concentration effect and second gas effect • Relationships between inhaled and alveolar concentration • Significance of the distribution of cardiac output and tissue partition coefficients on uptake and distribution of volatile agents	ME	PEx
BT_GS 1.25	Describe the effects of inhalational agents on the cardiovascular, respiratory and central nervous systems	ME	PEx
BT_GS 1.26	Describe the toxicity of inhalational agents	ME	PEx
BT_GS 1.27	Describe the pharmacology of nitrous oxide	ME	PEx
BT_GS 1.28	Describe the comparative pharmacology of nitrous oxide, halothane, enflurane, isoflurane, desflurane, sevoflurane, xenon and ether	ME	PEx
BT_GS 1.29	Describe the physical properties of sedative/hypnotic agents, including: • Formulation • Properties of an ideal agent • Structure-activity relationships	ME	PEx
BT_GS 1.30	Describe and compare the pharmacokinetics of intravenous induction and sedative agents, the factors which affect recovery from intravenous anaesthesia and the clinical implications of these differences	ME	PEx
BT_GS 1.31	Describe and compare the pharmacodynamics of intravenous induction and sedative agents and in particular the effects on the cardiovascular, respiratory and central nervous systems	ME	PEx
BT_GS 1.32	Describe the adverse effects of individual induction, sedative and premedicant agents	ME	PEx
BT_GS 1.33	Describe how physiological and pathological disturbance can alter the pharmacology of intravenous anaesthetic agents	ME	PEx
BT_GS 1.34	Outline the pharmacology and clinical use of flumazenil	ME	PEx
BT_GS 1.35	Describe the physiology of the neuromuscular junction and the mechanism of action of neuromuscular blocking agents	ME	PEx

Code	Learning outcome	Role	Assessment
BT_GS 1.36	Describe the pharmacokinetics of neuromuscular blocking agents	ME	PEx
BT_GS 1.37	Describe the pharmacological differences between neuromuscular blocking agents and the clinical importance of these differences.	ME	PEx
BT_GS 1.38	Describe the adverse effects of neuromuscular blocking agents and factors that may modify responses to muscle relaxants	ME	PEx
BT_GS 1.39	Describe the reversal of neuromuscular blockade using anti-cholinesterase agents, anticholinergics and sugammadex and the physiological effects of reversal	ME	PEx
BT_GS 1.40	Describe the adverse effects of anticholinesterase agents	ME	PEx
BT_GS 1.41	Describe the clinical application of opioids to anaesthesia and sedation (also refer to the *Pain medicine* clinical fundamental)	ME	PEx
BT_GS 1.42	Describe the pharmacokinetics of intravenous opioids (also refer to the *Pain medicine* clinical fundamental)	ME	PEx
BT_GS 1.43	Outline the physiological basis of vomiting	ME	PEx
BT_GS 1.44	Describe the clinical pharmacology of dopamine antagonists, anti-cholinergic agents, serotonin antagonists, anti-histamines pro-kinetics and steroids relevant to premedication and the management of nausea and vomiting	ME	PEx
Integrated pharmacology for anaesthesia and sedation			
BT_GS 1.45	Define and describe the features that distinguish between conscious sedation, deeper levels of sedation, and general anaesthesia.	ME	FEx
BT_GS 1.45a	Outline the requirements for safe practice of procedural sedation contained in ANZCA professional document PS9 - Guidelines on Sedation and/or Analgesia for Diagnostic and Interventional Medical, Dental or Surgical Procedures and the ANZCA safe procedural sedation competencies	ME	FEx
BT_GS 1.45b	Discuss the indications for conscious sedation	ME	FEx
BT_GS 1.45c	Describe the concepts of ‘therapeutic index’ and ‘margin of safety’ with reference to the provision of procedural sedation	ME	FEx
BT_GS 1.45d	Outline the rationale for titration of agents in procedural sedation	ME	FEx
BT_GS 1.45e	Discuss the potential advantages and adverse consequences of the use of combinations of drugs for procedural sedation	ME	FEx
BT_GS 1.46	Discuss factors influencing choice of agents for: • Induction and maintenance of anaesthesia • Muscle relaxation	ME	PEx

Code	Learning outcome	Role	Assessment
BT_GS 1.47	Discuss the indications for muscle relaxation in anaesthesia	ME	PEx
BT_GS 1.48	Describe the effects of anaesthetic agents on regional circulation	ME	PEx
BT_GS 1.49	Discuss proposed mechanisms of anaesthesia and the sites of action of anaesthetic agents including the physiology and pharmacology of neurotransmitters and their receptors (that is, GABA, excitatory amino acids, acetylcholine, noradrenaline, dopamine and serotonin)	ME	PEx
BT_GS 1.50	Describe the concept and clinical application of MAC in relation to inhaled anaesthetic agents	ME	PEx
BT_GS 1.51	Describe the concept of depth of anaesthesia and how this may be monitored	ME	PEx
BT_GS 1.51a	Outline the aetiology of and measures to prevent intra-operative awareness under general anaesthesia.	ME	PEx
BT_GS 1.52	Explain the principles involved in the electronic monitoring of depth of sedation and anaesthesia, including the use of EEG analysis	ME	PEx
BT_GS 1.53	Describe the synergism between anaesthetic agents, opioids and regional blockade and how this is used clinically	ME	PEx
BT_GS 1.54	Describe techniques to balance anaesthetic depth with changing surgical stimulus	ME	PEx
BT_GS 1.55	Describe the concept of depth of neuromuscular blockade and explain the use of neuromuscular monitoring	ME	PEx
BT_GS 1.56	Describe the clinical features and management of inadequate reversal of neuromuscular blockade	ME	PEx
BT_GS 1.57	Explain the techniques of intravenous and inhalational induction and describe clinical indications and advantages and disadvantages of both techniques	ME	PEx
BT_GS 1.58	Outline the clinical signs and appropriate management of intra-arterial injection of a harmful substance	ME	FEx
BT_GS 1.59	Describe the pharmacological principles of and sources of error with target controlled infusion	ME	PEx
BT_GS 1.60	Describe the physiological effects of anaesthesia on the respiratory system and its clinical management (also refer to the *Airway management* clinical fundamental)	ME	PEx
BT_GS 1.61	Discuss the effects of anaesthesia on the immune, haematological and endocrine systems	ME	PEx
BT_GS 1.62	Discuss the prevention and management of postoperative nausea and vomiting	ME	PEx
BT_GS 1.63	Discuss the management of failure to wake from anaesthesia	ME	FEx

Code	Learning outcome	Role	Assessment
BT_GS 1.64	Discuss the management of postoperative delirium	ME	FEx
Temperature homeostasis and anaesthesia			
BT_GS 1.65	Describe the mechanisms by which heat is produced by the body and transferred between the body and its environment	ME	PEx
BT_GS 1.66	Describe the physiological effects of hypo/hyperthermia	ME	PEx
BT_GS 1.67	Describe the energy requirements for maintenance of normal body temperature	ME	PEx
BT_GS 1.68	Describe the physiological responses to lowered and raised environmental temperature, and the effects of anaesthesia on these responses	ME	PEx
BT_GS 1.69	Discuss methods of maintaining body temperature during anaesthesia and sedation, including active warming of patients (also refer to the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	PEx
BT_GS 1.69a	Describe how a patient's temperature is monitored and discuss the indications for temperature monitoring with the advantages and disadvantages of particular sites and methods (also refer to monitors and monitoring standards, which is covered in the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	PEx
Vascular access			
BT_GS 1.70	Describe the anatomy including ultrasonic anatomy of the peripheral venous system relevant to performing intravenous cannulation	ME	PEx
BT_GS 1.71	Outline measures to increase the rate of successful intravenous cannulation and to minimise patient discomfort during this procedure	ME	FEx
BT_GS 1.72	Describe the anatomy and anatomical relations of the great veins relevant to performing central venous cannulation, including the ultrasound anatomy	ME	PEx
BT_GS 1.73	Describe central venous cannulation by the jugular, subclavian and femoral routes, including: • Indications and contraindications • Possible complications, including measures to reduce these • Steps involved • Documentation required	ME	FEx
BT_GS 1.74	Describe the anatomy of the radial, brachial, femoral and dorsalis pedis arteries and their anatomical relations relevant to arterial cannulation including the ultrasound anatomy	ME	PEx

Code	Learning outcome	Role	Assessment
BT_GS 1.75	Describe arterial cannulation, including: • Indications and contraindications • Possible complications, including measures to reduce these • Steps involved • Documentation required	ME	FEx
Fluid therapy			
BT_GS 1.76	Outline factors determining perioperative fluid requirements and choice of fluids	ME	FEx
BT_GS 1.77	Discuss the appropriate choice of monitoring devices to guide fluid management in the perioperative period (also refer to monitors and monitoring standards, which are covered in the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	FEx
BT_GS 1.79	Discuss the indications for and complications of invasive blood pressure monitoring and the interpretation of the data (also refer to monitors and monitoring standards, which is covered in the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	FEx
Medical expert – skills			
BT_GS 2.1	Use ultrasound to facilitate central or peripheral intravenous cannulation	ME	M-DOPS
BT_GS 2.2	Perform central venous cannulation (V) (Refer to endorsed guideline from ANZICS*: Central Line Insertion and Maintenance Guideline 2012)*	ME	M-DOPS
BT_GS 2.3	Perform arterial cannulation (V)	ME	M-DOPS
BT_GS 2.4	Set up a transducer system for invasive pressure monitoring and correct equipment related problems (also refer to monitors and monitoring standards, which is covered in the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	M-DOPS
BT_GS 2.5	Prescribe appropriate fluid and fluid replacement therapy for patients in their care	ME	CEX, CbD
BT_GS 2.6	Perform conscious sedation in appropriately selected patients	ME	CEX

2.2.3 Pain medicine

By the completion of basic training, the trainee will become an effective member of an acute pain team. They will be able to implement a management strategy for patients with acute pain in the hospital environment in consultation with supervisors. They will develop an understanding of the neurobiology of pain, the assessment of pain, the applied pharmacology of analgesic agents and the interaction of chronic pain conditions with analgesic misuse and acute pain problems.

By the end of the basic training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
4. Medical expert – knowledge			
Neurobiology			
BT_PM 1.1	Describe the anatomy of the sensory pathways with particular reference to pain sensation	ME	PEx
BT_PM 1.2	Describe the anatomy of the autonomic nervous system	ME	PEx
BT_PM 1.3	Describe the basic physiological mechanisms of pain including: • Peripheral nociception • Conduction • Spinal cord modulation • Central processing of pain • Mediators, pathways and reflexes • Peripheral and central sensitisation • Pre-emptive and preventive analgesia	ME	PEx
BT_PM 1.4	Describe the physiological mechanism of progression from acute to chronic pain	ME	PEx
BT_PM 1.5	Describe the injury response to acute pain	ME	PEx
BT_PM 1.6	Describe the applied physiology and psychology of neuropathic pain	ME	PEx
BT_PM 1.7	Outline the effects of pain and analgesia on injury-induced organ dysfunction	ME	PEx
BT_PM 1.8	Describe the alterations to physiology and perception of pain in the older patient	ME	PEx

Code	Learning outcome	Role	Assessment
Pharmacology			
BT_PM 1.9	Describe the pharmacology of the following agents applicable to pain management, including: • Opioids • Tramadol • Tapentadol • Local anaesthetic agents (also refer to the *Regional and local anaesthesia* clinical fundamental) • NSAIDs • Paracetamol • NMDA antagonists • Anticonvulsants • Antidepressants • Corticosteroids • Inhalational analgesics - nitrous oxide, methoxyflurane	ME	PEx
BT_PM 1.10	Describe the effect of physiological change and pathological disturbance on the pharmacology of the agents listed in learning outcome BT_PM 1.9, with special reference to the elderly	ME	PEx
BT_PM 1.11	Describe the different modes of administration of analgesic agents and evaluate their clinical application	ME	PEx
Pharmacology of specific agents: opioid agonists and antagonists			
BT_PM 1.12	Describe opioid receptors	ME	PEx
BT_PM 1.13	Describe the mechanisms of action of opioids, including tramadol and tapentadol	ME	PEx
BT_PM 1.14	Describe the actions of agonists, partial agonists, mixed agonists-antagonists and antagonists	ME	PEx
BT_PM 1.15	Discuss the pharmacokinetic and clinical implications of different routes of administration for commonly used opioids, including the oral, transdermal, subcutaneous, intramuscular and intravenous routes	ME	PEx
BT_PM 1.16	Outline the dose conversion between commonly used opioids	ME	PEx
BT_PM 1.17	Describe the pharmacokinetics of intravenous opioids and their clinical applications	ME	PEx
BT_PM 1.18	Describe the pharmacology of opioids deposited in the epidural space or cerebrospinal fluid	ME	PEx
BT_PM 1.19	Describe the adverse effects of opioids administered by systemic and neuraxial routes and their prevention and management	ME	PEx
BT_PM 1.20	Describe the potential adverse drug interactions between opioids and other agents	ME	PEx
BT_PM 1.21	Describe the pharmacology of opioid antagonists	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PM 1.22	Describe the pharmacodynamics of individual opioids and evaluate their clinical applications	ME	PEx
Pharmacology of specific agents: NSAIDs			
BT_PM 1.23	Describe the prostaglandin pathways and their physiological role in the production of pain	ME	PEx
BT_PM 1.24	Classify non-steroidal anti-inflammatory drugs and outline their pharmacology in relation to enzyme inhibition, mode of administration and adverse effects.	ME	PEx
BT_PM 1.25	Describe in detail pharmacology of paracetamol including mode of action, clinical utility, metabolism and toxicity, advantages and disadvantages of different routes of administration	ME	PEx
Pharmacology of specific agents: NMDA receptor antagonists			
BT_PM 1.26	Describe the location and role of NMDA receptors	ME	PEx
BT_PM 1.27	Describe in detail the pharmacology of ketamine including mode of action, clinical utility, metabolism and toxicity, advantages and disadvantages of different routes of administration	ME	PEx
Pharmacology of specific agents: anticonvulsants			
BT_PM 1.28	Describe the pharmacology of anticonvulsants relevant to pain medicine, including gabapentin and carbamazepine	ME	PEx
Clinical pain management			
BT_PM 1.29	Describe the principles of the assessment of acute pain including the relevance of functional assessment	ME	FEx
BT_PM 1.30	Discuss the importance of psychological and social factors in the presentation and management of acute pain	ME	FEx
BT_PM 1.31	Outline the pathophysiology of chronic opioid use and abuse and outline management strategies for opioid tolerant patients with acute pain	ME	FEx
BT_PM 1.32	Formulate a plan for acute pain management, which shows integrated knowledge of the interaction of analgesic agents, patient factors and the aetiology of pain (refer to College professional document: *PS41 Guidelines on Acute Pain Management*	ME	FEx, CbD
BT_PM 1.33	Describe the association between acute and chronic pain and the risk of progression from one to the other	ME	FEx
BT_PM 1.34	List the predictive factors for chronic postsurgical pain and outline measures to prevent or minimise its occurrence	ME	FEx

Code	Learning outcome	Role	Assessment
BT_PM 1.35	Outline clinical situations where regional infusion techniques may be of benefit for the management of acute pain (also refer to the *Regional and local anaesthesia* clinical fundamental)	ME	FEx
BT_PM 1.36	Describe the principles of neuraxial analgesia including efficacy, drugs used, adverse effects, program parameters, equipment, patient selection and safe administration	ME	FEx
BT_PM 1.37	Discuss the risks associated with and the monitoring requirements for patients receiving patient controlled anaesthesia (PCA), opioid infusions, neuraxial and continuous regional analgesia for acute pain management	ME	FEx
5. Medical expert – skills			
BT_PM 2.1	Participate in acute pain medicine sessions during basic training (V)	ME	CEX, M-CbD
BT_PM 2.2	Assess pain using pain assessment scales	ME	CEX, M-CbD
BT_PM 2.3	Prescribe, set up and appropriately adjust neuraxial and continuous peripheral infusions for patients with acute pain and consult appropriately for patients at increased risk of complications (also refer to the *Regional and local anaesthesia* clinical fundamental)	ME	CEX, M-CbD
BT_PM 2.4	Organise appropriate review and follow up for patients, after their discharge from the acute pain service	ME	CEX, MsF

1.2.4 Perioperative medicine

Please note: Learning Outcomes applicable to Perioperative Medicine in Basic Training will be found in other Clinical Fundamentals, the ANZCA Roles in Practice, and the Specialised Study Units.

By the completion of basic training, the trainee will have knowledge of basic sciences and their application necessary to support the safe practice of perioperative medicine. They will extend their clinical assessment knowledge and skills to assess severity of and optimisation of common medical conditions that impact anaesthesia with appropriate consultation and supervision.			
By the end of the basic training core study unit, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Medical expert – knowledge			
Preoperative			
BT_PO 1.1	Discuss how abnormalities of common perioperative investigations (CXR, ECG, haematology, biochemistry, spirometry, arterial blood gases) will affect perioperative management	ME	FEx
BT_PO 1.2	Describe the features of a diagnostic test, including the concepts of sensitivity, specificity, positive and negative predictive value and how these are affected by the prevalence of the disease in question	ME	PEx
BT_PO 1.3	Describe the adverse effects of antimicrobial agents	ME	PEx
BT_PO 1.3a	Outline the pharmacology of commonly encountered illicit drugs and their interactions with drugs used in anaesthetic care	ME	PEx
BT_PO 1.4	Discuss the role of antibiotic prophylaxis in preventing infection and the identification of patients requiring it.	ME	FEx
BT_PO 1.4a	Outline the pharmacology of herbal medicines.	ME	PEx
BT_PO 1.4b	Describe adverse effects and potential drug interactions of herbal medicines with particular reference to the perioperative period.	ME	PEx
BT_PO 1.5	Describe the implications for anaesthetic management and perioperative risk of a range of medical conditions, including but not limited to: Cardiovascular • Cardiomyopathy • Right heart failure Respiratory • Restrictive lung disease Neurological/Muscular • Epilepsy • Parkinson's disease • Multiple sclerosis • Cerebral Palsy • Myasthenia gravis and myaesthenic syndrome • Muscular dystrophies, myopathies and myotonias	ME	FEx

	• Spinal cord injury Metabolic/Endocrine • Porpyria • Thyroid disease • Carcinoid syndrome/disease • Calcium disorders • Phaeochromocytoma/adrenal disease • Pseudocholinesterase deficiency Haematological/Immunological • Haematological malignancies • Immunocompromised patient • Post-transplant patient • Investigation of drug allergies Gastrointestinal/Renal • End stage renal failure and dialysis • Liver disease (acute and chronic) • Gallbladder disease • Bowel disease (including obstruction) • Pancreatitis • Pyloric stenosis (in neonates) • Oesophageal/gastric obstruction Infectious diseases • Modes of transmission (contact/droplet/airborne) and precautions • Blood-borne viral disease • Tuberculosis Psychiatric/Behavioural • Anorexia nervosa • Anxiety and depression • Psychosis/schizophrenia • Alcohol abuse • Illicit drug dependence/intoxication Multisystem diseases/states • Frailty (age and disease related) • Rheumatoid arthritis • Scleroderma • Ankylosing spondylitis • Pulmonary hypertension • Porphyria • Carcinoid disease and syndrome • Disorders of calcium metabolism • Phaeochromocytoma • Parkinson's disease • Myasthenia gravis and myasthenic syndrome • Muscular dystrophies, myopathies and myotonias • Multiple sclerosis • Cerebral palsy • Haematological malignancies • Immunocompromised patient • Post-transplant patient • Scleroderma		

Code	Learning outcome	Role	Assessment
BT_PO 1.5a	Describe the perioperative care pathways in primary and secondary care and their effect on patient outcomes	ME	FEx
BT_PO 1.5b	Describe the effect of ethnicity on physiology and disease	ME	FEx
BT_PO 1.5c	Discuss the health disparities experienced by indigenous populations and implications for perioperative care (also refer to cultural awareness and sensitivity within the ANZCA Roles in Practice, Professionalism)	ME	Fex
Intraoperative			
BT_PO 1.5d	Discuss the principles and role of goal-directed therapy	ME	FEx
Postoperative			
BT_PO 1.5e	Recognise and initiate management of issues in the Post-Anaesthesia Care Unit (PACU) or postoperative ward including but not limited to: • Airway compromise • Hypoxia • Shock • Altered mental state • Oliguria Also refer to the *Airway Management*, *Pain medicine* and *Resuscitation, trauma and crisis management* clinical fundamentals.	ME	FEx
CLINICAL SCIENCES			
Respiratory anatomy and physiology			
BT_PO 1.6	Discuss the structure of the chest wall and diaphragm and the implications for respiratory mechanics	ME	PEx
BT_PO 1.7	Outline the anatomy of the lower airways	ME	PEx
BT_PO 1.8	Outline the anatomy of the pulmonary and bronchial circulations	ME	PEx
BT_PO 1.9	Describe the neural and chemical control of ventilation via central and peripheral chemoreceptors and indicate how this is altered by anaesthesia and abnormal clinical states	ME	PEx
BT_PO 1.10	Describe the properties of surfactant and relate these to its role in influencing respiratory mechanics	ME	PEx
BT_PO 1.11	Define compliance (static, dynamic and specific) and relate this to the elastic properties of the lung	ME	PEx
BT_PO 1.12	Discuss ‘fast’ and ‘slow’ alveoli, including the concept of ‘time constants’	ME	PEx
BT_PO 1.13	Describe the elastic properties of the chest wall and plot pressure-volume relationships of the lung, chest wall and the total respiratory system	ME	PEx
BT_PO 1.14	Explain the vertical gradient of pleural pressure and its significance	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PO 1.15	Explain the physics of gas flow and the significance of the relationship between resistance and flow in the respiratory tract	ME	PEx
BT_PO 1.16	Describe the factors affecting airway resistance and how airway resistance may be measured	ME	PEx
BT_PO 1.17	Describe closing capacity and its relationship to airway closure and explain its clinical significance and measurement	ME	PEx
BT_PO 1.18	Describe the work of breathing	ME	PEx
BT_PO 1.19	Describe altered lung mechanics in common disease states	ME	PEx
BT_PO 1.20	Discuss lung volumes and capacities, their measurement and normal values	ME	PEx
BT_PO 1.21	Discuss dead space, its measurement and apply the Bohr equation and alveolar gas equation	ME	PEx
BT_PO 1.22	Describe the composition of ideal alveolar and mixed expired gases	ME	PEx
BT_PO 1.23	Describe the oxygen cascade	ME	PEx
BT_PO 1.24	Describe the alveolar exchange of oxygen and carbon dioxide	ME	PEx
BT_PO 1.25	Discuss diffusion capacity and its measurement	ME	PEx
BT_PO 1.26	Discuss normal ventilation-perfusion matching	ME	PEx
BT_PO 1.27	Discuss West's zones of the lung	ME	PEx
BT_PO 1.28	Describe the shunt equation	ME	PEx
BT_PO 1.29	Discuss regional ventilation-perfusion inequalities, venous admixture and the effect on oxygenation and carbon dioxide elimination.	ME	PEx
BT_PO 1.30	Outline methods used to measure ventilation-perfusion inequalities	ME	PEx
BT_PO 1.31	Discuss the carriage of oxygen in blood, the oxyhaemoglobin dissociation curve, oxygen stores in the blood and their clinical significance and implications	ME	PEx
BT_PO 1.32	Discuss the carriage of carbon dioxide in blood, the carbon dioxide dissociation curve and their clinical significance and implications	ME	PEx
BT_PO 1.33	Discuss the difference between the pulmonary and systemic circulations	ME	PEx
BT_PO 1.34	Discuss pulmonary vascular resistance and the control of pulmonary vascular tone	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PO 1.35	Discuss the physiological consequences of intermittent positive pressure ventilation and positive end-expiratory pressure	ME	PEx
BT_PO 1.36	Discuss the physiological effects of hypoxaemia, hyper and hypocapnia, and carbon monoxide poisoning	ME	PEx
BT_PO 1.37	Discuss the effect of the following on ventilation: • Changes in posture • Exercise • Altitude • Anaesthesia • Ageing • Morbid obesity	ME	PEx
BT_PO 1.38	Define humidity and outline the importance of humidification	ME	PEx
BT_PO 1.39	Outline the non-ventilatory functions of the lungs	ME	PEx
Respiratory pharmacology			
BT_PO 1.40	Describe the pharmacology of anti-asthma drugs, including beta 2 agonists, corticosteroids, anticholinergics, leukotriene antagonists and theophylline	ME	PEx
BT_PO 1.41	Outline the pharmacology of drugs used to treat pulmonary hypertension including nitric oxide	ME	PEx
BT_PO 1.41a	Discuss oxygen therapy including methods of delivery, indications and contraindications, physiological and pathophysiological effects.	ME	PEx
Cardiovascular anatomy and physiology			
BT_PO 1.42	Describe the anatomy of the heart including the coronary circulation and territories supplied.	ME	PEx
BT_PO 1.43	Discuss the physiological basis of electrical activity and its relationship to mechanical events including the: • Ionic basis of automaticity the normal and abnormal processes of cardiac excitation • Physiological basis of the electrocardiograph in normal and common pathological states • Factors that may influence cardiac electrical activity • Correlation of the mechanical events of the cardiac cycle with the electrical and ionic events	ME	PEx
BT_PO 1.44	Describe the physiology of cardiac muscle and the mechanism of excitation contraction coupling	ME	PEx
BT_PO 1.45	Discuss the factors that determine and control cardiac output and the implications for clinical practice including: • Preload, afterload and contractility • The Frank-Starling mechanism • Cardiac output and vascular function curves • Pressure volume relationships in the heart	ME	PEx
Code	**Learning outcome**	**Role**	**Assessment**

BT_PO 1.46	Describe the factors determining myocardial oxygen supply and demand and their clinical implications	ME	PEx
BT_PO 1.47	Discuss the control of blood pressure and the distribution of blood volume and flow throughout the cardiovascular system including: • The factors determining systemic blood pressure and its regulation and control • Total peripheral resistance and factors affecting it • The relationship between organ blood flow and demand and the role of autoregulation • Clinically significant features of the coronary, cerebral, skin, muscle, renal, hepatic and splanchnic circulations • The essential features of the microcirculation including fluid exchange and its control	ME	PEx
BT_PO 1.48	Discuss the cardiovascular responses to: • Changes in posture • Exercise • Valsalva maneouvre • Positive pressure ventilation and PEEP • Pneumoperitoneum • Haemorrhage and hypovolaemia • Surgery and trauma	ME	PEx
BT_PO 1.49	Describe the cardiovascular changes that occur with ageing	ME	PEx
BT_PO 1.50	Describe the cardiovascular changes that occur with morbid obesity	ME	PEx
Cardiovascular pharmacology			
BT_PO 1.51	Describe the autonomic nervous system and its physiological roles including: • Autonomic receptors and cellular effects of receptor activation • Autonomic transmitters, their synthesis, release and fate	ME	PEx
BT_PO 1.52	Describe the mechanism of action and effects of sympathomimetic and anticholinergic drugs used clinically	ME	PEx
BT_PO 1.53	Describe the pharmacology and clinical application of adrenergic agonists	ME	PEx
BT_PO 1.54	Describe the pharmacology of commonly used alpha and beta receptor blocking agents, their clinical use, adverse effects and use in the perioperative period	ME	PEx
BT_PO 1.55	Outline clinically important drug interactions with the autonomic nervous system	ME	PEx
BT_PO 1.56	Describe the physiological and pharmacological basis of antiarrhythmic therapy including classification based on electro-physiological activity and mechanism of action	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PO 1.57	Describe the pharmacology of antiarrhythmic agents and their clinical applications including the following agents: lignocaine, flecainide, beta blockers, amiodarone, sotalol, ibutilide, calcium antagonists, digoxin, adenosine, and magnesium	ME	PEx
BT_PO 1.58	Describe the pharmacology of anti-hypertensive agents and their clinical application, including the following agents: clonidine, alpha-methyl dopa, alpha and beta blockers, nitric oxide, sodium nitroprusside and glyceryl trinitrate, calcium antagonists, ACE inhibitors and angiotensin receptor antagonists, hydralazine and the potassium channel activators.	ME	PEx
BT_PO 1.59	Describe the pharmacology of drugs used to manage myocardial ischaemia/infarction, including: nitrates, beta blockers, calcium antagonists, anti-platelet agents, anti-coagulants and fibrinolytic agents	ME	PEx
BT_PO 1.60	Describe the pharmacology of drugs used to manage acute or chronic cardiac failure, including: sympathomimetics, phosphodiesterase inhibitors, digoxin, diuretics, ACE inhibitors, nitrates and beta blockers	ME	PEx
Renal and fluid and electrolytes			
BT_PO 1.61	Describe the functional anatomy of the kidneys and urinary tract	ME	PEx
BT_PO 1.62	Explain the physiology of renal blood flow	ME	PEx
BT_PO 1.63	Describe glomerular filtration and tubular function	ME	PEx
BT_PO 1.64	Explain the counter-current mechanisms in the kidney	ME	PEx
BT_PO 1.65	Explain the mechanisms involved in the regulation of renal function	ME	PEx
BT_PO 1.66	Outline the endocrine functions of the kidney	ME	PEx
BT_PO 1.67	Describe the role of the kidney in the handling of glucose, nitrogenous products and drugs	ME	PEx
BT_PO 1.68	Describe the principles of measurement of glomerular filtration rate and renal blood flow	ME	PEx
BT_PO 1.69	Describe the physiological effects and clinical assessment of renal dysfunction	ME	PEx
BT_PO 1.70	Explain the renal responses to hypovolaemia	ME	PEx
BT_PO 1.71	Explain the effects of anaesthesia on renal function	ME	PEx
BT_PO 1.72	Describe the function, distribution and physiological importance of sodium, potassium, magnesium, calcium and phosphate ions	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PO 1.73	Describe the mechanisms involved in the maintenance of fluid and electrolyte balance	ME	PEx
BT_PO 1.74	Outline the constituents and functions of plasma	ME	PEx
BT_PO 1.75	Define osmotic pressure and explain the factors that determine it	ME	PEx
BT_PO 1.76	Describe the regulation of osmolality	ME	PEx
BT_PO 1.77	Outline the significance of oncotic pressure, colloid osmotic pressure and reflection coefficients	ME	PEx
BT_PO 1.78	Describe the regulation of acid/base balance	ME	PEx
BT_PO 1.79	Describe acid-base chemistry using the Henderson-Hasselbach equation and strong ion difference	ME	PEx
BT_PO 1.79a	Explain the principles of blood gas and acid-base analysis, and interpret blood gas analysis in clinical situations.	ME	PEx, CbD
BT_PO 1.80	Describe alterations to drug response due to renal disease	ME	PEx
BT_PO 1.81	Outline a physiological basis of classifying diuretics related to their site of action	ME	PEx
BT_PO 1.82	Describe the pharmacology of diuretics including mannitol, frusemide, thiazides, aldosterone antagonists and carbonic anhydrase inhibitors	ME	PEx
Metabolic and endocrine physiology			
BT_PO 1.82a	Outline basic cellular physiology in particular • The structure of the cell membrane and trans-membrane transport mechanisms • The composition and regulation of intracellular fluid • The generation of the trans-membrane potential • Energy production by metabolic processes in cells	ME	PEx
BT_PO 1.83	Describe the physiological consequences of starvation	ME	PEx
BT_PO 1.84	Discuss the factors that influence metabolic rate	ME	PEx
BT_PO 1.85	Explain the control of blood glucose	ME	PEx
BT_PO 1.86	Describe the role of the hypothalamus in the integration of neuro-humoral responses	ME	PEx
BT_PO 1.87	Describe control of secretion and the functions of: • Pituitary hormones • Thyroid hormones • Adrenocortical hormones • Adrenomedullary hormones • Renin and angiotensin • Atrial natriuretic peptide	ME	PEx
BT_PO 1.88	Describe the regulation of plasma calcium including the actions and control of vitamin D, parathormone and calcitonin	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PO 1.89	Outline the role of prostaglandins and other autocoids	ME	PEx
Endocrine pharmacology			
BT_PO 1.90	Describe the pharmacology of: • Insulin preparations • Oral hypoglycaemics • Corticosteroid drugs	ME	PEx
BT_PO 1.91	Outline the pharmacology of: • Thyroid hormone replacement and anti-thyroid drugs • Glucagon • Vasopressin and analogues	ME	PEx
Neuro-physiology			
BT_PO 1.92	Outline the basic electrophysiology of nerve conduction	ME	PEx
BT_PO 1.93	Describe the physiology of sleep	ME	PEx
BT_PO 1.94	Outline the basis of the electroencephalogram	ME	PEx
BT_PO 1.95	Discuss the determinants and control of: • Intracranial and intraspinal pressure • Cerebral blood flow and autoregulation • Cerebral perfusion pressure • Spinal cord perfusion	ME	PEx
BT_PO 1.96	Discuss the significance of the blood brain barrier	ME	PEx
BT_PO 1.97	Describe the dynamics and metabolism of cerebrospinal fluid	ME	PEx
BT_PO 1.98	Describe cerebral and spinal cord metabolism including energy production, effects of temperature and factors leading to cell damage and cell death	ME	PEx
BT_PO 1.98a	Describe the physiology of skeletal muscle including mechanism of excitation contraction coupling and compare and contrast the physiology of skeletal, cardiac and smooth muscle.	ME	PEx
Neurological pharmacology			
BT_PO 1.99	Outline the pharmacology of anti-depressant, anti-psychotic, anti-convulsant, anti-parkinsonian and anti-migraine medication	ME	PEx
BT_PO 1.100	Outline the pharmacology of histamine antagonists	ME	PEx
BT_PO 1.101	Outline the pharmacology of drugs acting via effects on serotonin or serotonin receptors	ME	PEx
BT_PO 1.102	Discuss the clinical features and management of serotonin syndrome	ME	PEx

Code	Learning outcome	Role	Assessment
Gastrointestinal anatomy and physiology			
BT_PO 1.103	Describe the storage, synthetic, metabolic, immunological and excretory functions of the liver and identify the physiological consequences of hepatic disease	ME	PEx
BT_PO 1.104	Describe the anatomical and physiological considerations in hepatic blood flow, and the changes that occur with anaesthesia	ME	PEx
BT_PO 1.105	Describe the portal circulation and its significance	ME	PEx
BT_PO 1.106	Describe the laboratory assessment of liver function and hepatic failure	ME	PEx
BT_PO 1.107	Explain the: • Physiology of swallowing • Factors preventing reflux of gastric contents into the oesophagus • Control of gastric motility and emptying • Composition of gastric fluid • Physiology of nausea and vomiting	ME	PEx
Gastrointestinal pharmacology			
BT_PO 1.108	Describe alterations to drug response due to hepatic disease	ME	PEx
BT_PO 1.109	Outline the pharmacological treatment of peptic ulcer disease and reflux	ME	PEx
Haematology, transfusion medicine and oncology			
BT_PO 1.110	Describe the physiological consequences of acute and chronic anaemia	ME	PEx
BT_PO 1.111	Outline the major haemoglobinopathies and their clinical significance	ME	PEx
BT_PO 1.112	Describe the physiology of haemostasis, including: • Coagulation • The role of platelets • Fibrinolysis	ME	PEx
BT_PO 1.113	Describe the physiological mechanisms of limiting and preventing thrombosis	ME	PEx
BT_PO 1.114	Outline the methods for assessing coagulation, platelet function and fibrinolysis	ME	PEx
BT_PO 1.115	Describe blood groups and methods of cross matching blood	ME	PEx
BT_PO 1.116	Outline the composition, indications and risks of use of the following blood components and products: • Packed red cells • Fresh frozen plasma • Cryoprecipitate • Platelets • Factor VIIa	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PO 1.117	Describe the changes that occur during blood storage and their clinical implications	ME	PEx
Pharmacology of haematology, transfusion medicine and oncology			
BT_PO 1.118	Describe the pharmacology of heparin and low molecular weight heparins including their side-effects	ME	PEx
BT_PO 1.119	Describe the mode of action of protamine and potential adverse reactions	ME	PEx
BT_PO 1.120	Describe the pharmacology of warfarin and other anticoagulant drugs	ME	PEx
BT_PO 1.121	Describe methods to reverse the effect of warfarin	ME	PEx
BT_PO 1.122	Classify and describe the pharmacology of anti-platelet drugs	ME	PEx
BT_PO 1.123	Outline the pharmacology of thrombolytic agents	ME	PEx
BT_PO 1.124	Outline the pharmacology of antifibrinolytic agents, in particular tranexamic acid	ME	PEx
BT_PO 1.125	Outline the pharmacology of cancer chemotherapeutic agents and immunotherapy with particular reference to problems that these may cause during the perioperative period	ME	PEx
Immunology			
BT_PO 1.126	Explain how the body defends against infection	ME	PEx
BT_PO 1.127	Outline the effects of anaesthesia and surgery on immune function	ME	PEx
BT_PO 1.128	Describe the immunological basis and pathophysiological effects of hypersensitivity	ME	PEx
BT_PO 1.129	Outline the principles of tissue/organ transplantation and the mechanisms of rejection of allogeneic organs	ME	PEx
Immunology-related pharmacology			
BT_PO 1.130	Outline the pharmacology of antimicrobial drugs and their interactions with other drugs used during the perioperative period	ME	PEx
BT_PO 1.131	Explain the principles of antibiotic prophylaxis	ME	PEx
BT_PO 1.132	Outline the pharmacology of antiseptics and disinfectants, their clinical use and associated risks	ME	PEx
2. Medical expert – skills			
BT_PO 2.1	Participate in preadmission clinic sessions with level 2 to 4 supervision (V) (refer to College professional document: *PS07 Recommendations for the Pre-Anaesthesia Consultation)*	ME	CEX
BT_PO 2.2	Elicit a relevant history and perform a focused patient examination to identify features that will affect perioperative anaesthetic management	ME	M-CEX
BT_PO 2.3	Assign a patient's ASA physical status during preoperative assessment and discuss the implications for anaesthesia	ME	M-CEX

Code	Learning outcome	Role	Assessment
BT_PO 2.4	Perform a functional assessment of patients presenting for anaesthesia and discuss how this is used in perioperative risk assessment	ME	M-CEX
BT_PO 2.5	Identify patients at risk of aspiration in the perioperative period and implement a plan to reduce that risk	ME	CEX
BT_PO 2.6	Identify patients at risk of perioperative thromboembolism and initiate appropriate perioperative management	ME	CEX
BT_PO 2.7	Assess severity and perioperative risk and initiate peri-operative management in low severity and stable cases. • Respiratory infection • Chronic obstructive airways disease • Obstructive sleep apnoea • Pulmonary embolus • Asthma • Ischaemic heart disease • Congestive cardiac failure • Arrhythmias and conduction abnormalities • Pacemakers/AICDs • Hypertension • Valvular heart disease • Peripheral vascular disease • Thromboembolism • Acute renal impairment • Chronic renal impairment • Kidney failure requiring dialysis • Adrenal disease • Chronic steroid use/dependence • Thyroid disease • Transient ischaemic attacks and stroke • Epilepsy • Pseudocholinesterase deficiency • Spinal cord injury • Haematemesis • Gastro-oesophageal reflux • Diseases of the stomach • Chronic liver disease • Gallbladder disease • Bowel disease • Bowel obstruction • Pyloric obstruction • Oesophageal obstruction • Pancreatitic disease including pancreatitis • Anticoagulant use • Coagulopathy • Thrombocytopenia • Investigation of drug allergies • Rheumatoid arthritis • Ankylosing spondylitis • Human immunodeficiency virus (HIV) • Hepatitis • Tuberculosis • Anorexia Nervosa • Anxiety disorders • Depression disorders • Psychosis • Illicit drug dependence/intoxication	ME	CEX, CbD

Code	Learning outcome	Role	Assessment
BT_PO 2.8	Assess severity and stability of common medical conditions and manage perioperatively, consulting and managing collaboratively when appropriate.	ME	CEX, CbD

2.2.5 Regional and local anaesthesia

By the completion of basic training, the trainee will be competent in performing spinal and epidural blocks on patients who are not anatomically difficult, and be able to manage ASA 1-2 patients having procedures of moderate complexity under regional anaesthesia with distant supervision. They will begin performing peripheral blocks. Knowledge of the related basic sciences and equipment is required.

By the end of the basic training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
3. Medical expert – knowledge			
BT_RA 1.1	Describe the physiology of nerve conduction	ME	PEx
BT_RA 1.2	Describe the physiological consequences of a central neuraxial block	ME	PEx
BT_RA 1.3	Discuss the pharmacology of local anaesthetic agents including: • Mechanisms of action • Comparative pharmacology of different agents • Toxicity • Use of adjuvant agents to enhance the quality or extend duration of block • Pharmacokinetics of drugs administered in the epidural and subarachnoid space	ME	PEx
BT_RA 1.4	Describe the anatomy of the vertebral column spinal cord and meninges relevant to the performance of central neuraxial block with appropriate surface markings.	ME	PEx
BT_RA 1.5	Describe the dermatomal innervations	ME	PEx
BT_RA 1.6	Describe the myotomal innervation	ME	PEx
BT_RA 1.7	Describe the pain and sensory pathways	ME	PEx
BT_RA 1.8	Describe the principles of ultrasound imaging and the safe use of ultrasound equipment for regional anaesthesia	ME	PEx
BT_RA 1.9	Describe the principles of nerve stimulation to locate nerves and the safe use of nerve stimulators	ME	PEx
Central neuraxial blocks			
BT_RA 1.10	List the absolute and relative contraindications to a central neuraxial block	ME	FEx
BT_RA 1.11	List the minor and major complications of a central neuraxial block	ME	FEx
BT_RA 1.12	Discuss clinical situations where a central neuraxial block may have specific benefits	ME	FEx
BT_RA 1.13	Describe clinical situations in which epidural blockade or combined spinal/epidural may be indicated in preference to spinal anaesthesia alone	ME	FEx

Code	Learning outcome	Role	Assessment
BT_RA 1.14	Describe factors influencing dose and choice of anaesthetic agents for spinal anaesthesia and epidural anaesthesia/analgesia	ME	PEx
BT_RA 1.15	Describe how the baricity of the agents used and positioning of patients may affect the extent of block in spinal anaesthesia	ME	PEx
BT_RA 1.16	Describe the drugs which may be injected into the intrathecal or epidural space as adjuvant agents to a central neuraxial block and discuss their risks and benefits	ME	PEx
BT_RA 1.17	Describe the midline and paramedian approaches to the sub-arachnoid space and epidural space	ME	PEx
BT_RA 1.18	Describe the prevention and management of nausea, hypotension and bradycardia associated with a central neuraxial block	ME	FEx
BT_RA 1.19	Describe how to assess the adequacy of a central neuraxial block for surgery	ME	FEx
BT_RA 1.20	Outline a plan of management for a 'total spinal' or excessively high block (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental)	ME	FEx
BT_RA 1.21	Discuss measures to reduce the incidence and severity of post-dural puncture headache	ME	FEx
BT_RA 1.22	Outline the symptoms and signs of possible post-dural puncture headache and outline a management plan for treatment	ME	FEx
BT_RA 1.23	Outline the possible complications of low CSF pressure	ME	FEx
BT_RA 1.24	Discuss the management of common complications of a central neuraxial block such as nausea, hypotension and bradycardia	ME	FEx
4. Medical expert – skills			
BT_RA 2.1	Adhere to the principles for the safe conduct of major regional anaesthesia as outlined in College professional document *PS03 Guidelines for the Management of Major Regional Analgesia*	ME	DOPS
BT_RA 2.2	Perform an appropriate preoperative patient assessment when a regional technique will be used and select an appropriate technique taking into account patient needs and surgical requirements	ME	DOPS
BT_RA 2.3	Perform regional blockade safely and gently	ME	DOPS
BT_RA 2.4	Assess adequacy of block for surgery and describe measures to manage an inadequate block	ME	DOPS

Code	Learning outcome	Role	Assessment
BT_RA 2.5	Perform an epidural block on a patient who is not anatomically difficult according to the principles for the safe conduct of major regional anaesthesia, as outlined in College professional document *PS03 Guidelines for the Management of Major Regional Analgesia* (V)	ME	DOPS
BT_RA 2.6	Perform a spinal block on a patient who is not anatomically difficult according to the principles for the safe conduct of major regional anaesthesia, as outlined in College professional document *PS03 Guidelines for the Management of Major Regional Analgesia* (V)	ME	M-DOPS
BT_RA 2.7	Manage with distant supervision ASA 1-2 patients having a central neuraxial block for procedures of moderate complexity (V)	ME	CbD

2.2.6 Resuscitation, trauma and crisis management

By the completion of basic training, the trainee will be able to participate as a multidisciplinary team member in the initial assessment and resuscitation of patients with life threatening medical and surgical conditions. They will demonstrate understanding of the pathophysiology of immediately life threatening conditions and will be able to recognise and initiate management of crises that may be encountered by anaesthetists in the course of their practice.

By the end of the basic training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
Physiology			
BT_RT 1.1	Define shock	ME	PEx
BT_RT 1.2	Integrate knowledge of factors determining cardiac output to classify causes of shock	ME	PEx
BT_RT 1.3	Describe the physiological consequences of shock	ME	PEx
BT_RT 1.4	Describe oxygen delivery and outline the use of indicators of tissue oxygenation (base deficit, lactate, mixed venous oxygen saturation) in resuscitation	ME	PEx
BT_RT 1.5	Describe the systemic inflammatory response and its physiological effects	ME	PEx
BT_RT 1.6	Describe the physiological basis of anaphylaxis	ME	PEx
BT_RT 1.7	Describe blood groups and the physiological basis of transfusion reactions	ME	PEx
BT_RT 1.8	Outline the changes that occur in stored blood	ME	PEx
BT_RT 1.9	Describe physiological consequences of massive transfusion	ME	PEx
BT_RT 1.10	Outline the causes of hypoxaemia	ME	PEx
BT_RT 1.11	Describe the physiological consequences of hypoxaemia	ME	PEx
BT_RT 1.12	Outline the factors determining intracranial pressure and discuss its regulation	ME	PEx
BT_RT 1.13	Describe the cerebral circulation, the regulation of cerebral blood flow and factors leading to the loss of autoregulation	ME	PEx
BT_RT 1.14	Discuss cerebral perfusion pressure	ME	PEx
BT_RT 1.15	Describe the blood supply to the spinal cord and the regulation of spinal cord blood flow	ME	PEx
BT_RT 1.16	Discuss spinal cord perfusion pressure	ME	PEx

Code	Learning outcome	Role	Assessment
Pharmacology			
BT_RT 1.17	With reference to the management of shock, describe the pharmacology of vasopressors and inotropes, including: adrenaline, noradrenaline, phenylephrine, metaraminol, dopamine, dobutamine, phosphodiesterase inhibitors, vasopressin	ME	PEx
BT_RT 1.18	Describe the pharmacology of therapeutic drugs recommended in the ARC and ILCOR resuscitation guidelines.	ME	PEx
BT_RT 1.19	With reference to the treatment of malignant hyperthermia, describe the pharmacology of dantrolene	ME	PEx
Anatomy			
BT_RT 1.20	Outline the anatomy relevant to vascular access in resuscitation: specifically for safe cannulation of antecubital, saphenous jugular and subclavian veins and placement of intraosseous infusion devices	ME	PEx
BT_RT 1.21	Outline the anatomy relevant to the drainage of pericardial fluid	ME	PEx
BT_RT 1.22	Outline the anatomy relevant to drainage of the pleural space	ME	PEx
BT_RT 1.23	Outline the anatomy of the cerebral and spinal cord circulation	ME	PEx
Resuscitation of the shocked patient			
BT_RT 1.24	Outline the clinical signs that may differentiate the causes of shock	ME	FEx
BT_RT 1.25	Outline initial investigations of the shocked patient	ME	FEx
BT_RT 1.26	Outline the likely changes in blood gas analysis in the shocked patient	ME	FEx
BT_RT 1.27	Outline the use of indicators of tissue oxygenation (base deficit, lactate, mixed venous oxygen saturation) in resuscitation	ME	FEx
BT_RT 1.28	Correlate clinical signs of hypovolaemic shock with estimates of volume loss	ME	FEx
BT_RT 1.29	Outline how the clinical signs of hypovolaemic shock may be altered by anaesthesia, sedation and current medication	ME	FEx
BT_RT 1.30	Outline how the clinical signs of shock may be altered by age	ME	PEx, FEx
BT_RT 1.31	Outline an approach to volume replacement in shock due to: • Haemorrhage • Loss of fluid and electrolytes	ME	FEx
BT_RT 1.32	Outline the indications for the use of vasopressors and/or inotropes in the management of shock	ME	FEx

Code	Learning outcome	Role	Assessment
BT_RT 1.33	Outline strategies to prevent and manage complications of massive transfusion	ME	FEx
BT_RT 1.34	Outline the diagnosis and management of major transfusion reactions	ME	FEx
BT_RT 1.35	Outline an approach to obtaining vascular access in the shocked patient	ME	FEx
BT_RT 1.36	Describe drainage of the pericardial space	ME	FEx
BT_RT 1.37	Describe how to program an external pacemaker	ME	FEx
Acute respiratory failure			
BT_RT 1.38	Define respiratory failure and differentiate between type 1 and type 2 respiratory failure	ME	PEx
BT_RT 1.39	Interpret blood gas analysis in respiratory failure	ME	PEx
BT_RT 1.40	Outline methods to treat life threatening hypoxaemia	ME	FEx
BT_RT 1.41	Describe the management of severe asthma	ME	FEx
BT_RT 1.42	Describe the diagnosis and management of pneumothorax	ME	FEx
BT_RT 1.43	Describe the technique of emergency drainage of tension pneumothorax	ME	FEx
BT_RT 1.44	Describe insertion of an intercostal catheter	ME	FEx
Acute neurological deterioration			
BT_RT 1.45	Outline the causes of coma and an approach to the initial assessment and management of the comatose patient	ME	FEx
Code	**Learning outcome**	**Role**	**Assessment**
BT_RT 1.46	Describe the Glasgow Coma Scale	ME	FEx
BT_RT 1.47	Describe the management of prolonged seizures and status epilepticus	ME	FEx
BT_RT 1.48	Outline the causes of acute spinal cord dysfunction and an approach to the initial assessment and management of the patient with acute spinal cord dysfunction	ME	FEx
Metabolic and electrolyte disturbances			
BT_RT 1.49	Describe clinical situations likely to result in and outline the initial management of: • Hyper/hypokalemia • Hyponatremia and hypo-osmolality • Hypernatremia • Hyper/hypoglycemia • Hyper/hypocalcemia • Hyper/hypomagnesemia • Metabolic acidosis	ME	FEx

Code	Learning outcome	Role	Assessment
Environmental and equipment crises			
BT_RT 1.50	Outline the steps to take in the event of: • An operating room fire • Electrical power failure in the operating suite	ME	FEx
BT_RT 1.51	Describe the likely presentation of and steps to take in the event of: • Failure of pipeline gas supply • Anaesthesia machine and ventilator malfunction • Breathing circuit malfunctions such as stuck valves and massive leaks	ME	FEx
Trauma			
BT_RT 1.52	Outline appropriate preparation of equipment and personnel prior to the arrival of the trauma patient in the hospital.	ME	FEx
BT_RT 1.53	Outline features of the patient's history that are indicative of injury severity.	ME	FEx
BT_RT 1.54	Identify contraindications to urinary catheters and nasogastric tubes during trauma resuscitation	ME	FEx
BT_RT 1.55	Describe indications for a definitive airway in the trauma patient	ME	FEx
BT_RT 1.56	Describe strategies to prevent hypothermia in the trauma patient	ME	FEx
BT_RT 1.57	Describe infection control techniques in the trauma setting	ME	FEx
BT_RT 1.58	Outline the initial steps in local disaster management protocols for their institution	ME	FEx
2. Medical expert – skills			
BT_RT 2.1	Demonstrate intraosseous puncture	ME	DOPS
BT_RT 2.2	Demonstrate insertion of a rapid infusion device	ME	DOPS
BT_RT 2.3	Manage the following when occurring in association with anaesthesia or sedation: • Dyspnoea • Hypoxia • Hypocapnoea/hypocarbia • Hypercapnoea/hypercarbia • Tachycardia • Bradycardia • Hypotension • Hypertension • High airway pressures • Oliguria/anuria • Failure to wake from anaesthesia (also refer to the *General anaesthesia and sedation* clinical fundamental)	ME	CEX, M-CbD

Code	Learning outcome	Role	Assessment

BT_RT 2.4	Initiate the management of patients with the following life threatening conditions:
	• Cardiac arrest
	• Respiratory arrest
	• Shock
	  ○ Hypovolaemic
	  ○ Distributive
	  ○ Cardiogenic
	  ○ Obstructive including cardiac tamponade
	• Acute myocardial ischaemia
	• Acute pulmonary oedema
	• Aortic dissection
	• Arrhythmias causing haemodynamic compromise
	• Aspiration of gastric contents
	• Severe bronchospasm
	• Tension pneumothorax
	• Massive haemoptysis
	• Coma
	• Raised intra-cranial pressure
	• Prolonged seizures
	• Local anaesthetic toxicity (see also regional fundamental)
	• Anaphylaxis
	• Malignant hyperthermia
	• Pulmonary embolism
	• Gas embolism
	• Coagulopathy in association with surgery or trauma
	• Hyper/hypokalemia
		ME	CEX, EMAC, M-CbD

2.2.7 Safety and quality in anaesthetic practice

By the completion of basic training, the trainee will be able to apply the standards required for the safe provision of anaesthesia and sedation in situations appropriate for a basic trainee. They will be able to describe the desirable safety features of environments where anaesthesia and sedation is provided. They will be able to describe the principles of design, operation and safe use of equipment.

By the end of the basic training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
BT_SQ 1.1	Define the characteristics of quality healthcare provision as applied to anaesthesia (safe, effective, efficient, timely, patient-centred) and outline how this might be delivered.	ME	FEx
BT_SQ 1.2	Outline the general principles related to staffing and facilities for recovery room care. Refer to College professional document *PS4: Recommendations for the Post-Anaesthesia Recovery Room*	ME	FEx
BT_SQ 1.3	Outline the mandatory safety requirements for anaesthetic machines. Refer to College professional document *PS54 Statement on the Minimum Safety Requirements for Anaesthetic Machines and Workstations for Clinical Practice.*	ME	PEx
BT_SQ 1.3a	Outline the safe perioperative care of patients presenting for day care procedures. Refer to College professional document: *PS 15 Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery.*	ME	FEx
BT_SQ 1.3b	Outline criteria for safe discharge of patients from the recovery room	ME	FEx
BT_SQ 1.4	Identify the level of supervision required for their training period.	ME	CbD
Basic sciences relevant to anaesthesia equipment, measurement and safety			
BT_SQ 1.5	Describe basic physics applicable to anaesthesia in particular: • Behaviour of fluids (gases and liquids) • Electrical concepts, current, potential difference, resistance, impedance, inductance and capacitance • Principles of humidification and use of humidifiers • Principles of ultrasound imaging and use of doppler	ME	PEx

Code	Learning outcome	Role	Assessment

BT_SQ 1.6	Describe the methods of measurement applicable to anaesthesia, including clinical utility, complications and sources of error in particular:
	• SI units
	• Measurement of volumes, flows, and pressures, including transducers.
	• Measurement of blood pressure
	• Measurement of cardiac output
	• Measurement of temperature
	• Oximetry
	• Gas analysis, including capnography
	• Methods used to measure respiratory function, including:
	  ○ Forced expiratory volume
	  ○ Peak expiratory flow rate
	  ○ Vital capacity
	  ○ Flow-volume loops
	  ○ Functional residual capacity and residual volume
		ME	PEx

Environmental safety			
BT_SQ 1.7	Describe microshock and macroshock and the mechanisms for preventing these, with particular reference to ensuring the compatibility of medical procedure, treatment area, and medical equipment used.	ME	PEx
BT_SQ 1.8	Outline the causes of fires and explosions in the operating suite and discuss methods for prevention and management (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental)	ME	PEx
BT_SQ 1.9	Describe the hazards of anaesthetic gas pollution and the methods of scavenging anaesthetic gases	ME	PEx
BT_SQ 1.10	Describe the supply of medical gases (bulk supply and cylinder) and features to ensure supply safety including pressure valves and regulators and connection systems	ME	PEx
BT_SQ 1.11	Describe how medical suction is generated and how to set up and test suction systems, both fixed and portable	ME	PEx
BT_SQ 1.12	Describe the principles and safe operation of vaporisers	ME	PEx
BT_SQ 1.13	Describe and classify breathing systems used in anaesthesia. Evaluate their clinical utility and hazards associated with their use	ME	PEx
BT_SQ 1.14	Describe different systems to deliver supplemental oxygen and the advantages and disadvantages of these systems	ME	PEx
BT_SQ 1.15	Outline how CO2 is absorbed in a circle system and the hazards associated with the use of CO2 absorption	ME	PEx
BT_SQ 1.16	Describe when a level 1 anaesthesia machine check is required. Refer to College professional document *PS31: Recommendations on Checking Anaesthesia Delivery Systems*	ME	PEx

Code	Learning outcome	Role	Assessment
BT_SQ 1.17	Discuss the safety of methods for maintaining body temperature during anaesthesia and sedation, including active warming of patients	ME	PEx
BT_SQ 1.18	Discuss the principles of surgical diathermy, its safe use and the potential hazards	ME	PEx
BT_SQ 1.19	Describe the principles of surgical lasers, their safe use and the potential hazards	ME	PEx
BT_SQ 1.20	Outline the pharmacology of radiological contrast agents	ME	PEx
2. Medical expert – skills			
BT_SQ 2.1	• Ensure appropriate standards are met in terms of equipment, monitoring and staffing when providing anaesthesia and sedation. Refer to College professional document: *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations* and College professional document: *PS08 Statement on the Assistant for the Anaesthetist (PILOT)*	ME	CEX, MsF

2.3 Advanced training

The primary goal of advanced training is for the trainee to anaesthetise safely ASA 1-4 patients having complex procedures with distant supervision. By the completion of advanced training, trainees will demonstrate competency across all the ANZCA Roles in Practice, the ANZCA Clinical Fundamentals and specialised study units.

Progress in the clinical fundamentals such that the trainee is able to assess and optimise patients with significant co-morbidities, manage perioperative crises, resuscitation and trauma, utilise advanced airway management techniques and ventilation strategies, manage complex acute pain, and perform challenging spinal, epidural and other regional blocks supports this goal.

The trainee will be able to assume a leadership role in multidisciplinary teams when required, and demonstrate a commitment to the safe and ethical care of patients and others in the dynamic and complex environments in which they work.

Trainees also progress in the ANZCA Roles in Practice throughout training and by the end of Advanced Training will be expected to:

- Adapt their communication skills to a variety of contexts, including time-critical and stressful situations
- Explain complex procedures to patients in language they can understand
- Demonstrate effective leadership and organisational skills, for example by ensuring patient-safety checklists are completed meaningfully, and appropriate cases are prioritised
- Delegate tasks and responsibilities in an appropriate and respectful manner
- Balance safety, effectiveness, efficiency and equitable allocation of resources when determining anaesthetic technique
- Intervene when a procedure cannot be completed without undue stress to a patient
- Identify circumstances when development of advanced care directives should be discussed
- Critically appraise evidence and integrate conclusions into clinical care
- Utilise reflection and feedback to direct their own learning
- Teach technical skills, lead small group discussions, and mentor junior staff
- Adhere to relevant standards of professional practice promulgated by ANZCA and regulatory bodies.
- Recognize and support colleagues in need and help them access other available sources of support
- Balance personal and professional priorities to ensure personal well-being and fitness to practice

To successfully complete advanced training, a trainee must complete the following:

- A minimum of 104 weeks, including a maximum of 16 weeks leave.
- Final examination.
- Volume of practice requirements for advanced training, refer to the table of volume of practice requirements in section two.
- Early Management of Severe Trauma (EMST) course http://www.surgeons.org/ (delivered by the Royal Australasian College of Surgeons) or equivalent (for example, Advanced Trauma Life Support ATLS) must be completed if the volume of practice cases and/or procedures has not been completed for the *Resuscitation, trauma and crisis management* clinical fundamental.

- Workplace-based assessment requirements for advanced training; refer to the section on workplace-based assessment requirements for advanced training below.
- An advanced life support (ALS) course or equivalent - for more information and standard refer to Handbook for Training.
- 'Can't intubate, can't oxygenate' (CICO) course or equivalent – for more information and standard refer to Handbook for Training.
- Clinical placement reviews at least twice per 26 weeks.
- Scholar role activities, refer to the table of scholar role activities in the section on ANZCA Roles in Practice assessment.
- All specialised study units reviewed (refer to the section on specialised study unit reviews).
- Core unit review.

Workplace-based assessment requirements for advanced training

During advanced training, trainees are required to complete a minimum of:

- Eight direct observation of procedural skills (DOPS) assessments.
- 16 mini clinical evaluation exercise (mini-CEX) assessments.
- Eight case-based discussion assessments (CbD).
- One multi-source feedback (MsF).

These may be completed from both the ANZCA Clinical Fundamentals and the specialised study units as indicated below.

Clinical fundamental/ specialised study unit	Focus of assessment	Assessment	No.
Regional and local anaesthesia	Performance of an upper limb plexus block	MS-DOPS RA1AT	1
Regional and local anaesthesia	Performance of a lower limb plexus block May include a block of the femoral, obturator or sciatic nerve.	MS-DOPS RA2AT	1
Any specialised study unit	Select from any required M-DOPS identified in the specialised study units	M-DOPS	6*
Any clinical fundamental or specialised study unit	Not specified – may select procedures encountered in their clinical practice*	DOPS	
Total DOPS			**8**
Perioperative medicine	Pre-assessment of a complex patient with multiple co-morbid diseases Trainees may choose to combine this with the pre-operative assessment mini-CEX for a patient having head and neck surgery to count towards the *Head and neck, ear, nose and throat, dental surgery and electro-convulsive therapy* SSU. Trainees may conduct a pre-operative assessment for one patient however this must be logged as two separate WBAs with specific feedback for each area of focus provided. If this assessment is combined with the mini-CEX on head and neck anaesthesia, the same cannot be done for the pre-assessment mini-CEX for Perioperative medicine during basic training.*	M-CEX PO1AT	1
Any specialised study unit	Select from any required M-CEX identified in the specialised study units	M-CEX	15*
Any clinical fundamental or specialised study unit	Not specified – may select cases including those of high complexity encountered in their clinical practice*	CEX	
Total mini-CEX			**16**

Clinical fundamental/ specialised study unit	Focus of assessment	Assessment	No.
Pain medicine	Assessment and management of a patient with a complex pain issue, for example acute on chronic pain or history of intravenous drug use (IVDU), on a pain round	M-CbD PM1AT	1
Resuscitation, trauma and crisis management	Discussion of their management of crises	M-CbD RT1AT	2
Any clinical fundamental or specialised study unit	Not specified – may select cases including those of high complexity encountered in their clinical practice*	CbD	5
Total CbD			**8**
Any clinical fundamental and the ANZCA Roles in Practice	Various areas	M-MsF AT	1
Total MsF			**1**

*Trainees should refer to the table of assessment at the start of the specialised study units and choose from a listed mandatory assessment that is, one with the prefix 'M' or 'MS'. The latter indicates that the assessment may be completed in a simulated setting, where an opportunity to complete the assessment on a live patient is unavailable.

**When completing a non-specified assessment, trainees should refer to those 'Medical expert –skills' learning outcomes in the clinical fundamentals or specialised study units indicated for assessment by the corresponding assessment method. . For example, the Airway management clinical fundamental contains a skill outcome at the advanced training level on relieving airway obstruction in patients with difficult airways, indicated for assessment by simulated DOPS. The Paediatric anaesthesia specialised study unit contains a skill outcome on performing nasal intubation in children, indicated for assessment by DOPS. If a trainee undertakes a placement in paediatric anaesthesia during basic training and is presented with an opportunity to perform this skill, then they can elect to complete a DOPS assessment toward the combined mandatory and non-specified target for DOPS during basic training.

If a trainee completes advanced training without exposure to a specialised study unit with a specified assessment, that is, with the prefix 'M' or 'MS', then the minimum required number of assessments assessments for a combined target would all be on non-specified topics from either an ANZCA Clinical Fundamental or specialised study unit.

Sound clinical knowledge and its application underpin many of the areas of a workplace-based assessment. An assessor is encouraged to explore relevant knowledge and may ask a trainee questions. These questions should focus on knowledge-based learning outcomes identified in the ANZCA Clinical Fundamentals of the advanced training core study unit, which follow.

The required minimum **run rate** for workplace-based assessments **per three month period** for advanced training is:

- One DOPS.
- Two mini-CEX.
- One CbD.

Trainees are not required to meet the workplace-based assessment (WBA) run rate that applies at the time that they undertake one or more placements in intensive care. However, it is advisable to continue to complete workplace-based assessments where possible, particularly on cases or procedures that are relevant to the intensive care setting.

Please note that trainees must still complete the minimum number of WBAs required in each training period, irrespective of how much time they spend in intensive care medicine.

2.3.1 Airway management

By the completion of advanced training, the trainee is expected to be competent in advanced airway management and be able to teach airway management skills to junior trainees.			
By the end of the advanced training core study unit, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Medical expert – knowledge			
AT_AM 1.1	Discuss the reliability of the various airway assessment tools	ME	FEx
AT_AM 1.2	Discuss airway strategies for patients with a difficult airway and outline a management plan appropriate to the clinical situation	ME	FEx
AT_AM 1.3	Outline the various supraglottic airway devices available and their relative merits	ME	FEx
AT_AM 1.4	Discuss airway strategies and outline a management plan for patients with critical airway obstruction, for example epiglottitis or laryngeal trauma.	ME	FEx
AT_AM 1.5	Discuss strategies for the safe extubation of patients with difficult airways	ME	FEx
AT_AM 1.6	Discuss the characteristics and appropriate usage of specialised tracheal tubes	ME	FEx
AT_AM 1.7	Discuss airway management for patients with a tracheostomy	ME	FEx
AT_AM 1.8	Discuss ventilation strategies for complex scenarios such as ARDS, bronchospasm, pulmonary hypertension, and select appropriate ventilator parameters for patients with these conditions	ME	FEx
2. Medical expert – skills			
AT_AM 2.1	Interpret relevant airway investigations, for example, nasendoscopy, CT, MRI and flow volume loops	ME	FEx, CEX
AT_AM 2.2	Relieve airway obstruction in patients with difficult airways	ME	DOPS
AT_AM 2.3	Perform nasal intubation (V)	ME	CEX, DOPS
AT_AM 2.4	Perform gaseous induction of general anaesthesia and secure the airway at the appropriate depth of anaesthesia (V)	ME	CEX, DOPS
AT_AM 2.5	Perform awake intubation (with or without a fibre-optic bronchoscope) (V)	ME	DOPS
AT_AM 2.6	Perform supraglottic jet ventilation	ME	CICO
AT_AM 2.7	Demonstrate infraglottic jet ventilation as required in an emergency airway crisis	ME	CICO

2.3.2 General anaesthesia and sedation

By the completion of advanced training, the trainee will be able to provide appropriate sedation and general anaesthesia for ASA 1-4 patients having complex procedures with distant supervision, taking into account the clinical situation including patient and procedural factors and patient co-morbidities and the trainee's experience.

By the end of the advanced training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
Clinical pharmacology			
AT_GS 1.1	Evaluate the place of premedication and the utility of the available agents, particularly with reference to their safety in high risk patients	ME	FEx
AT_GS 1.1a	Discuss the relative merits of sedation and general anaesthesia for high-risk patients undergoing investigations or procedures.	ME	FEx
AT_GS 1.1b	Describe the physiological and pharmacological basis for dose titration in procedural sedation, and the application in high-risk patients.	ME	FEx
AT_GS 1.2	Evaluate the merits of intravenous and inhalational induction	ME	FEx
AT_GS 1.3	Evaluate the use of TIVA and TCI in comparison with inhalational anaesthesia	ME	FEx
AT_GS 1.4	Discuss the clinical situations where incomplete reversal of neuromuscular blockade is likely and evaluate measures taken to avoid it	ME	FEx
AT_GS 1.5	Describe the concept of 'response surface models' and the contribution these models make to the understanding of the process of using combinations of drugs to achieve optimal sedation and anaesthesia	ME	FEx
AT_GS 1.6	Evaluate the prophylaxis and treatment of nausea and vomiting	ME	FEx
Integrated clinical pharmacology for anaesthesia and sedation			
AT_GS 1.7	Evaluate the methods available for monitoring depth of anaesthesia and sedation, including the role of electronic monitoring of depth of sedation and anaesthesia	ME	FEx
AT_GS 1.7a	Discuss the aetiology of and measures to prevent intra-operative awareness under general anaesthesia.	ME	FEx
AT_GS 1.7b	Discuss your management of a patient who complains of intra-operative awareness under general anaesthesia	ME	FEx
AT_GS 1.8	Discuss the potential causes and management of failure to wake from anaesthesia	ME	FEx

Code	Learning outcome	Role	Assessment
AT_GS 1.9	Discuss the potential causes and the prevention and management of perioperative neurocognitive disorders (postoperative delirium, delayed neurocognitive recovery, and postoperative neurocognitive disorder)	ME	FEx
AT_GS 1.10	Outline the pathophysiology of chronic drug use and discuss its interaction with perioperative anaesthetic management	ME	FEx
Vascular access			
AT_GS 1.11	Describe the insertion of PICC lines	ME	FEx
AT_GS 1.12	Discuss the advantages and disadvantages of PICC v CVC	ME	FEx
AT_GS 1.13	Evaluate the place of ultrasound in vascular access	ME	FEx
AT_GS 1.14	Discuss the advantages and disadvantages of the internal/external jugular, subclavian and femoral routes for central venous access (Refer to endorsed guideline from ANZICS*: Central Line Insertion and Maintenance Guideline 2012)*	ME	FEx
Fluid therapy			
AT_GS 1.15	Discuss factors determining perioperative fluid requirements and choice of fluids.	ME	FEx
AT_GS 1.16	Discuss goal directed fluid therapy for complex surgical procedures	ME	FEx
AT_GS 1.17	Critically evaluate the strategies to minimise blood loss and blood transfusion requirements	ME	FEx
AT_GS 1.18	Evaluate the place of CVP measurement in perioperative fluid management	ME	FEx
AT_GS 1.19	Describe the technique of insertion of a pulmonary artery catheter	ME	FEx
AT_GS 1.20	Evaluate the role of the pulmonary artery catheter in perioperative management	ME	FEx
AT_GS 1.21	Evaluate the role of continuous cardiac output monitoring devices (for example, pulse contour cardiac output monitoring) in the perioperative period	ME	FEx
AT_GS 1.22	Evaluate methods of manipulating body temperature during anaesthesia and sedation, including active warming and cooling of patients	ME	FEx
AT_GS 1.23	Discuss the role of echocardiography in perioperative haemodynamic management	ME	FEx

Code	Learning outcome	Role	Assessment
2. Medical expert – skills			
AT_GS 2.1	Choose techniques of conscious sedation, deep sedation, or general anaesthesia that demonstrate integrated knowledge of the interactions of anaesthetic agents and patient and surgical factors	ME	CEX, CbD
AT_GS 2.2	Provide anaesthesia using TIVA (V)	ME	CEX
AT_GS 2.3	Perform gaseous induction of general anaesthesia in an adult (also refer to the *Airway management* clinical fundamental) (V)	ME	CEX, CbD
AT_GS 2.4	Perform central venous cannulation via all routes (internal jugular, subclavian or femoral) (V)	ME	DOPS on any route

2.3.3 Pain medicine

By the completion of advanced training, the trainee will be able to manage patients with acute pain and be able to participate as a multidisciplinary team member in the management of patients with chronic and cancer pain or those requiring palliative care. They will recognise when referral to a pain medicine specialist is required.

By the end of the advanced training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
AT_PM 1.1	Outline the principles of the assessment and management of chronic pain in a multi-disciplinary team context in inpatient and outpatient settings	ME	FEx
AT_PM 1.2	Discuss the importance of psychological and social factors in the presentation and management of pain including: • Anxiety • Depression • Placebo effect • Active and passive coping strategies • Illness behaviour • Compensation and third-party issues	ME	FEx
AT_PM 1.3	Discuss the management of acute pain for patients with addiction disorder or opioid tolerance	ME	FEx
AT_PM 1.4	Discuss the clinical use and mechanisms of action of complementary and alternative medicines used in pain medicine	ME	FEx
AT_PM 1.5	Evaluate the role of acute pain management in rehabilitation and 'fast-track' surgery	ME	FEx
AT_PM 1.6	Discuss the interaction between pain management techniques and postoperative delirium	ME	FEx
AT_PM 1.7	Discuss the relative merits of systemic and neuraxial opioid agents	ME	FEx
AT_PM 1.8	Describe the place of neurolytic blocks in the management of chronic pain	ME	FEx
AT_PM 1.9	Formulate a pain management plan for patients with complex pain problems demonstrating integrated knowledge of the interaction of analgesic agents, patient factors and the aetiology of pain (refer to College professional document: *PS45 Statement on Patients' Rights to Pain Management and Associated Responsibilities)*	ME	FEx, CbD

Code	Learning outcome	Role	Assessment
Management of pain in specific clinical situations			
AT_PM 1.10	Outline the diagnosis and management of acute neuropathic pain including diagnostic criteria, features of specific pain syndromes and indications for referral to a pain medicine specialist	ME	FEx
AT_PM 1.11	Discuss the management of acute pain in patients with pre-existing chronic pain	ME	FEx
AT_PM 1.12	Describe the management of acute back and musculoskeletal pain	ME	FEx
AT_PM 1.13	Discuss the management of acute pain following trauma, including chest and orthopaedic trauma	ME	FEx
AT_PM 1.14	Outline the issues involved in the management of acute pain during pregnancy (also refer to the *Obstetric anaesthesia and analgesia* specialised study unit)	ME	FEx
AT_PM 1.15	Discuss issues relevant to the management of pain in the elderly	ME	FEx
AT_PM 1.16	Outline the management of pain associated with medical conditions, for example, headache, abdominal pain, herpes zoster-associated pain and pain associated with haematological disorders and cancer	ME	FEx
AT_PM 1.17	Outline pain management strategies for patients requiring palliative care (refer to College professional document: *PS38 Statement Relating to the Relief of Pain and Suffering and End of Life Decisions)*	ME	FEx
2. Medical expert – skills			
AT_PM 2.1	Participate in acute pain sessions (V)	ME	CEX, M- CbD
AT_PM 2.2	Provide regional analgesia for the management of acute or chronic pain (excluding labour analgesia), including continuous infusion techniques (V)	ME	CbD
AT_PM 2.3	Initiate management of patients with common chronic pain conditions, consulting specialist pain physicians as required (V)	ME	CEX, CbD
AT_PM 2.4	Prescribe and manage patient controlled analgesia and/or analgesic infusions for patients with acute pain (V)	ME	CbD
AT_PM 2.5	Identify patients requiring palliative care services and refer appropriately	ME	CbD

2.3.4 Perioperative medicine

By the completion of advanced training, the trainee will be able to provide perioperative care for patients with significant co-morbidities, including pre-operative assessment and risk stratification, preparation and optimisation prior to surgery, intraoperative care, and early and late postoperative care to ensure any harmful consequences of surgery are minimised.

By the end of the advanced training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
AT_PO 1.1	Evaluate the available classifications of physical status and their use in preoperative assessment	ME	FEx
AT_PO 1.2	Evaluate measures to alleviate the risk of the following complications in the perioperative period: • Aspiration • Venous thromboembolism • Surgical infection	ME	FEx
AT_PO 1.3	Discuss the reasons for and potential implications of with-holding or continuing regular medications in the perioperative period	ME	FEx
AT_PO 1.4	Discuss the role of prehabilitation.	ME	FEx
AT_PO 1.4a	Describe the impact of nutritional status on patient outcomes.	ME	FEx
AT_PO 1.5	Discuss the role and indications for high-carbohydrate pre-operative drinks, enteral feeding, and parenteral nutrition.	ME	FEx
AT_PO 1.6	Discuss the concepts of the Perioperative Surgical Home (POSH) and Enhanced Recovery After Surgery (ERAS).	ME	FEx
AT_PO 1.7	Discuss the principles of Choosing Wisely. Apply the ANZCA Choosing Wisely recommendations in the peri-operative period	ME	FEx, CEX
Intraoperative			
AT_PO 1.8	Describe the legal and ethical considerations of determining mental capacity (also refer to ethical issues such as prevention of futile medical care and legal issues such as persons responsible for decision making within ANZCA Roles in Practice, *Professionalism*)	ME	FEx
AT_PO 1.9	Explain how patients requiring emergency surgery may differ from those presenting for elective surgery in terms of physiology, psychology, and preparation	ME	FEx

Code	Learning outcome	Role	Assessment
2. Medical expert – skills			
AT_PO 2.1	Use a targeted patient history, focused examination and relevant investigations to inform a tailored anaesthetic management plan	ME	FEx, M-CEX
AT_PO 2.2	Use both functional assessment and risk scoring systems to quantify individual patient risk, inform the consent process and guide decision making in the perioperative period.	ME	M-CEX
AT_PO 2.3	Participate in pre-admission clinic sessions (V) (refer to College professional document: *PS07 Recommendations for the Pre-Anaesthesia Consultation*	ME	CEX, CbD
AT_PO 2.4	Assess the severity of, perioperative risk, and initiate perioperative management in low severity and stable cases, for the following conditions: • Congenital heart disease • Pulmonary hypertension • Cardiac and/or lung transplantation	ME	M-CEX
AT_PO 2.5	Identify patients requiring consultation with other medical specialists and healthcare workers in the perioperative period in order to manage and optimise those patients.	ME	M_CEX, CbD

AT_PO 2.6	Assess the severity of, and provide perioperative care for patients with a range of medical conditions, consulting and managing collaboratively when appropriate. **Respiratory disorders** • Respiratory infection • Chronic obstructive airways disease • Obstructive sleep apnoea • Pulmonary embolus • Asthma • Restrictive lung disease **Cardiovascular disorders** • Ischaemic heart disease • Congestive cardiac failure • Arrhythmias and conduction abnormalities • Pacemakers/AICDs/mechanical assist devices • Hypertension and blood pressure disorders • Endocarditis, myocarditis • Valvular heart disease • Peripheral vascular disease • Cardiomyopathy • Thromboembolism **Haematological disorders** • Coagulopathy and other disorders of coagulation **Renal and fluid and electrolyte disorders** • Electrolyte abnormality • Acid base abnormalities • Acute renal impairment • Chronic renal impairment • Kidney failure requiring dialysis **Metabolic and endocrine disorders** • Diabetes • Morbid obesity • Porphyria • Carcinoid disease and syndrome • Disorders of calcium metabolism • Phaeochromocytoma • Adrenal disease • Chronic steroid use/dependence • Thyroid disease **Neurological and neuromuscular disorders** • Transient ischaemic attacks and stroke • Parkinson's disease • Epilepsy • Myasthenia gravis and myasthenic syndrome • Pseudocholinesterase deficiency • Muscular dystrophies, myopathies and myotonias • Multiple sclerosis • Spinal cord injury • Cerebral palsy	ME	M-CEX, CbD
Postoperative			
AT_PO 2.7	Use physiological scoring systems to warn of perioperative deterioration and institute strategies to manage the deteriorating patient.	ME	M-CEX, CbD
AT_PO 2.8	Assess patient hydration and institute appropriate fluid management plans in the perioperative period.	ME	M-CEX, CbD

Code	Learning outcome	Role	Assessment
AT_PO 2.9	Identify patients at risk of, and employ strategies to prevent, detect and manage the following conditions which may occur in response to surgery: Respiratory disorders • Pneumonia • Adult Respiratory Distress Syndrome Cardiovascular disorders • Myocardial infarction • Myocardial injury after non-cardiac surgery • Arrhythmia Renal and fluid and electrolyte disorders • Acute kidney injury • Urinary tract infection Gastrointestinal disorders • Paralytic ileus • Gastrointestinal bleed • Anastomotic breakdown Neurological and neuromuscular disorders • Postoperative delirium • Delayed neurocognitive recovery • Postoperative neurocognitive disorder • Stroke Surgical Site • Wound infection, superficial and deep • Wound dehiscence • Haemorrhage Other • Systemic Inflammatory Response Syndrome	ME	M-CEX, CbD
AT_PO 2.10	Identify patients requiring admission to intensive care, high dependency units, or similar monitored units, and refer as needed	ME	M-CEX, CbD
AT_PO 2.11	Formulate comprehensive and safe postoperative patient management plans including, but not limited to: • analgesia • oxygen therapy • frequency and nature of observations • antibiotic prescription • thromboprophylaxis • glycemic control • fluid therapy	ME	CbD
AT_PO 2.12	Describe the methods used to investigate a suspected anaphylactic reaction including blood, intradermal, and skin prick testing and recommendations around the appropriate timing for those investigations.	ME	FEx, CbD

Code	Learning outcome	Role	Assessment
AT_PO 2.13	Discuss postoperative outcome measures including: • 30-day mortality • Disability • Hospital readmission rate • Length of stay • Quality of life	ME	FEx

2.3.5 Regional and local anaesthesia

By the completion of advanced training, the trainee will be competent in performing spinal and lumbar epidural blocks on patients who are anatomically difficult and to perform and manage neural blockade in medically complex patients. This will require recall of knowledge of the related basic sciences and equipment and the further development of clinical knowledge, skills and professional attributes necessary for the safe performance of regional anaesthesia as listed in basic training.

By the end of the advanced training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
AT_RA 1.1	For the blocks listed below, describe: 1. The relevant anatomy 2. The indications and contraindications, risks and benefits and possible complications 3. The appropriate patient positioning identification of anatomical landmarks and the performance of the block **Central neuraxial blocks** • Spinal blocks • Lumbar epidural blocks • Thoracic epidural blocks • Caudal blocks **Major nerve/plexus blocks** • Brachial plexus – interscalene, supraclavicular, infraclavicular, axillary approaches. • Lumbar plexus block – femoral, 3in1, fascia iliaca approaches • Sciatic nerve block • Paravertebral block – thoracic and lumbar **Minor nerve blocks** • Supra-orbital, infraorbital, mental and occipital nerve blocks • Superficial and deep cervical plexus blocks • Intercostal nerve block • Inguinal block • Transversus abdominus plane block • Penile block • Peripheral blocks of the upper limb including wrist and digital blocks • Peripheral blocks of the lower limb including ankle block • IVRA (Bier's block)	ME	FEx
AT_RA 1.2	Evaluate the effectiveness of local anaesthesia infusion administered via surgically placed catheters	ME	FEx
AT_RA 1.3	Discuss when extending the use of continuous infusion techniques into the postoperative period may be appropriate.	ME	FEx
AT_RA 1.4	Discuss the appropriate use of anxiolytics, sedatives and analgesics to supplement regional anaesthesia	ME	FEx

Code	Learning outcome	Role	Assessment
AT_RA 1.5	Describe post-anaesthesia instructions for patients who have undergone regional anaesthesia	ME	FEx
AT_RA 1.6	Discuss the management of local anaesthetic toxicity (refer to the endorsed AAGBI Safety Guideline *Management of Severe Local Anaesthetic Toxicity*)	ME	FEx
AT_RA 1.7	Describe the use of a nerve stimulator to identify appropriate needle location	ME	FEx
AT_RA 1.8	Describe the selection and performance of regional techniques, taking account of patient factors, co-morbidities and surgical procedure	ME	FEx
AT_RA 1.9	Discuss the investigation and management of patients who have developed complications as a result of the use of regional techniques	ME	FEx
2. Medical expert – skills			
AT_RA 2.1	When performing regional anaesthesia the trainee should comply with the recommendations contained in college professional document *PS03: guidelines for the management of major regional anaesthesia*	ME	M-DOPS
AT_RA 2.2	Use ultrasound to image the anatomy and facilitate block performance		
AT_RA 2.3	Perform a plexus block on an upper limb	ME	M-DOPS
AT_RA 2.4	Perform a plexus block on a lower limb	ME	M-DOPS
AT_RA 2.5	Provide anaesthesia/analgesia for the upper limb including shoulder, using regional techniques (V)	ME	CEX, CbD
AT_RA 2.6	Provide anaesthesia/analgesia for the thorax, abdomen or pelvis using central neuraxial or other regional techniques (V)	ME	CEX, CbD
AT_RA 2.7	Provide anaesthesia/analgesia for the hip using central neuraxial or other regional techniques	ME	CEX, CbD
AT_RA 2.8	Provide anaesthesia/analgesia for the knee using central neuraxial or other regional techniques	ME	CEX, CbD
AT_RA 2.9	Provide anaesthesia/analgesia for the lower limb using central neuraxial or other regional techniques (V)	ME	CEX, CbD
AT_RA 2.10	Perform central neuraxial blocks on anatomically difficult patients and in patients with significant co-morbidities.	ME	DOPS
AT_RA 2.11	Manage common complications of a central neuraxial block such as nausea, hypotension and bradycardia	ME	CEX, CbD

2.3.6 Resuscitation, trauma and crisis management

By the completion of advanced training, the trainee will be able to participate as a key multidisciplinary team member in the initial assessment and resuscitation of trauma patients and patients with life threatening medical and surgical conditions. They will be able to lead the management of life-threatening crises that may be encountered in the course of their practice.

By the end of the advanced training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
AT_RT 1.1	Where the following problems occur in association with anaesthesia and sedation, the trainee will be able to: 1. Discuss potential causes and their relative frequency 2. Evaluate severity, potential consequences and the need for treatment 3. Select treatment appropriate to the severity of the condition 4. Describe the clinical evaluation and both the initial and definitive management • Dyspnoea • Hypoxia • Hypocapnoea/hypocarbia • Hypercapnoea/hypercarbia • Tachycardia • Bradycardia • Hypotension • Hypertension • High airway pressures • Oliguria/anuria • Failure to wake from anaesthesia (also refer to the *General anaesthesia and sedation* clinical fundamental) • Tension pneumothorax • Massive haemoptysis • Local anaesthetic toxicity (also refer to the *Regional and local anaesthesia* clinical fundamental and the endorsed AAGBI Safety Guideline *Management of Severe Local Anaesthetic Toxicity*) • Malignant hyperthermia • Gas embolism • Fat embolism • Raised intracranial pressure • Coagulopathy in association with surgery or trauma	ME	FEx

Code	Learning outcome	Role	Assessment
AT_RT 1.2	Describe the clinical features and resuscitative management of patients with: • Ischaemic and haemorrhagic stroke • Prolonged seizures • Rhabdomyolysis • Pulmonary embolism • Haematemesis and melaena • Thyroid storm • Addisonian crisis • Diabetic ketoacidosis • Hyperosmolar, hyperglycaemic state • Hypo-osmolar states • Severe electrolyte disturbances • Severe acid base disturbance • Acute drug intoxication	ME	FEx
Trauma			
AT_RT 1.3	Discuss the effects of age, body mass index (BMI) and concurrent medication on the presentation and management of patients with severe multi-trauma.	ME	FEx
AT_RT 1.4	Discuss the differential diagnosis of shock in the trauma patient	ME	FEx
AT_RT 1.5	Discuss pain management in the multi-trauma patient	ME	FEx
AT_RT 1.6	Describe the role of diagnostic ultrasound in the initial assessment of the trauma patient.	ME	FEx
AT_RT 1.7	Discuss the diagnosis and management of life-threatening haemorrhage in the multi-trauma patient and in particular haemorrhage due to: • Chest trauma • Abdominal trauma • Pelvic trauma • Major vascular injury	ME	FEx
AT_RT 1.8	Outline the indications for emergency resuscitative thoracotomy	ME	FEx
AT_RT 1.9	Discuss the diagnosis and management of cardiac tamponade in the trauma patient	ME	FEx
AT_RT 1.10	Discuss the differential diagnosis of hypoxia in the trauma patient	ME	FEx
AT_RT 1.11	Discuss the initial diagnosis and management of: • Pneumothorax • Flail chest • Pulmonary contusion • Traumatic aortic disruption • Tracheobronchial injury	ME	FEx

Code	Learning outcome	Role	Assessment
AT_RT 1.12	Discuss the initial assessment and management of: • Acute traumatic brain injury • Unstable spinal injury including clearing the cervical spine • Acute spinal cord injury and 'neurogenic' shock	ME	FEx
AT_RT 1.13	Describe the rationale for and methods of immobilisation of: • Pelvic fractures • Long bone fractures	ME	FEx
AT_RT 1.14	Describe problems associated with crush injury	ME	FEx
AT_RT 1.15	Describe the clinical features and outline the management of compartment syndrome	ME	FEx
AT_RT 1.16	Describe the initial assessment and management of the patient with severe burn injury including: • Fluid management • Pain management • Inhalational injury (also refer to the *Airway management* clinical fundamental) • Carbon monoxide poisoning	ME	FEx
AT_RT 1.17	Describe the initial assessment and management of the patient who has experienced: • Electrocution • Drowning and near drowning • Envenomation • Severe hypothermia	ME	FEx
AT_RT 1.18	Outline the process for arranging a patient transfer	ME	FEx
AT_RT 1.19	Discuss requirements for the safe transfer of critically ill patients (also refer to the *Safety and quality in anaesthetic practice* clinical fundamental and professional document *PS52*: *Guidelines for Transport of Critically Ill Patient*s)	ME	FEx
AT_RT 1.20	Contrast the challenges, difficulties and limitations of transferring patients by road or air	ME	FEx

Code	Learning outcome	Role	Assessment
2. Medical expert – skills			

AT_RT 2.1	Manage the following life-threatening conditions particularly occurring in the perioperative period:
	• Cardiac arrest
	• Respiratory arrest
	• Shock:
	  ○ Hypovolaemic
	  ○ Distributive
	  ○ Cardiogenic
	  ○ Obstructive
	• Cardiac tamponade
	• Acute myocardial ischaemia
	• Acute pulmonary oedema
	• Arrhythmias causing haemodynamic compromise
	• Anaphylaxis
	• Aspiration of gastric contents
	• Severe bronchospasm
	• Pneumothorax
	• Tension pneumothorax
		ME	M-CbD, EMAC

AT_RT 2.2	Demonstrate the primary and secondary survey of the trauma patient.	ME	EMST, DOPS
AT_RT 2.3	Interpret imaging relevant to the primary survey.	ME	EMST, CbD, FEx
AT_RT 2.4	Diagnose and manage the following conditions when they occur in association with anaesthesia or sedation: • Dyspnoea • Hypoxia • Hypocapnoea/hypocarbia • Hypercapnoea/hypercarbia • Tachycardia • Bradycardia • Hypotension • Hypertension • High airway pressures • Oliguria/anuria • Failure to wake from anaesthesia (also refer to the *General anaesthesia and sedation* clinical fundamental) • Tension pneumothorax • Massive haemoptysis • Local anaesthetic toxicity (also refer to the *Regional and local anaesthesia* clinical fundamental) • Malignant hyperthermia • Pulmonary embolism • Gas embolism • Fat embolism • Raised intracranial pressure • Coagulopathy in association with surgery or trauma	ME	CEX, M-CbD
AT_RT 2.5	Demonstrate proficiency in advanced life support	ME	ALS
AT_RT 2.6	Participate as a trauma team member for the initial assessment and resuscitation of a multi-trauma case (V)	ME	M-CbD, EMST

2.3.7 Safety and quality in anaesthetic practice

By the completion of advanced training, the trainee will demonstrate a commitment to patient safety and to the ethical and collegial care of patients and others in the workplace. This includes incorporating the principles of continuous quality improvement into their practice and ensuring safe practice in the dynamic and complex environments in which they work.

By the end of the advanced training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
AT_SQ 1.1	Define the characteristics of quality provision of anaesthesia services (safe, effective, efficient, timely, patient-centred) and discuss the processes of quality assurance and quality improvement (refer to College professional document: *PS58 Guidelines on Quality Assurance in Anaesthesia)* and their application to anaesthesia practice and College professional document: *PS08 Statement on the Assistant for the Anaesthetist (PILOT)*	ME	FEx
AT_SQ 1.2	Outline the process for responding to patient complaints in their own institution	ME	CPRQ, FEx
AT_SQ 1.3	Discuss how patient complaints provide an opportunity to improve the quality of anaesthesia care	ME	FEx
AT_SQ 1.4	Discuss the non-technical skills required for safe anaesthesia practice	ME	FEx
AT_SQ 1.5	Evaluate the College guidelines and recommendations for standards of safe anaesthetic practice contained in the following professional documents and evaluate their application in clinical situations appropriate for their practice. • *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations* • *PS54 Statement on the Minimum Safety Requirements for Anaesthetic Machines and Workstations for Clinical Practice* • *PS58 Guidelines on Quality Assurance in Anaesthesia* • *PS8 Guidelines on the Assistant for the Anaesthetist* • *PS15 Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery* • *PS51 Guidelines for the Safe Administration of Injectable Drugs in Anaesthesia* • *PS52*: *Guidelines for Transport of Critically Ill Patients* • Endorsed guideline: *WHO Surgical Safety Checklist Australian and New Zealand edition* • *PS28 Guidelines on Infection Control in Anaesthesia* • *PS60 Guidelines on the Perioperative Management of Patients with Suspected or Proven Hypersensitivity to Chlorhexidine*	ME	FEx

Code	Learning outcome	Role	Assessment
AT_SQ 1.5a	Discuss criteria for safe discharge of patients from the recovery room	ME	FEx
AT_SQ 1.6	Discuss the safety of methods used to manipulate the body temperature of patients during anaesthesia and sedation, including active warming and cooling	ME	FEx
AT_SQ 1.7	Use tourniquets safely and discuss the hazards associated with their use	ME	FEx, CEX
AT_SQ 1.8	Evaluate measures to minimise the risk of injury or complications (including pressure injury) resulting from the following patient positions: • Supine • Trendelenberg and reverse trendelenberg • Lateral • Lithotomy • Prone • Beach chair • Sitting	ME	FEx
AT_SQ 1.9	Describe the management of injuries sustained during anaesthetic care, for example, peripheral nerve injury, eye injury	ME	FEx
AT_SQ 1.10	Discuss the safety precautions and equipment requirements necessary for providing anaesthesia and sedation in the MRI suite	ME	FEx
Scientific enquiry			
AT_SQ 1.11	Describe the stages in the design of a clinical trial including: • Research question and hypothesis • Literature review • Statistical advice • Ideal study protocol to minimise the risk of bias and to achieve optimum power of the study • Ethical issues and informed consent • Data collection and processing	ME	FEx, SRA
AT_SQ 1.12	Explain the following concepts in statistics: • Distribution of data • Frequency distributions • Measures of central tendency • Dispersion of data • Selection and application of non-parametric and parametric tests in statistical inference	ME	FEx, SRA
AT_SQ 1.13	Explain the principles of errors of statistical inference and describe techniques to minimise such errors through study design	ME	FEx, SRA

Code	Learning outcome	Role	Assessment
AT_SQ 1.14	Explain sources of bias and confounding in medical research and methods available to reduce such bias	ME	FEx, SRA
AT_SQ 1.15	Describe the various statistical methods used to estimate risk	ME	FEx
AT_SQ 1.16	Describe the features of evidence-based medicine including levels of evidence, meta-analysis and systematic review	ME	FEx
AT_SQ 1.17	Describe the role of ethics committees and outline the process involved in obtaining ethics committee approval for a research project	ME	FEx, SRA

Section Three

Specialised Study Units

The specialised study units define the further specialised knowledge and skills required for the anaesthetic management of patients in specific contexts. They are:

3.1 Cardiac surgery and interventional cardiology
3.2 General surgical, urological, gynaecological and endoscopic procedures
3.3 Head and neck, ear nose and throat, dental surgery and electro-convulsive therapy
3.4 Intensive care
3.5 Neurosurgery and neuroradiology
3.6 Obstetric anaesthesia and analgesia
3.7 Ophthalmic procedures
3.8 Orthopaedic surgery
3.9 Paediatric anaesthesia
3.10 Plastic, reconstructive and burns surgery
3.11 Thoracic surgery
3.12 Vascular surgery and interventional radiology

As trainees focus their attention on the completion of specialised study units during basic and advanced training, they will be applying the knowledge and skills attained while working through the clinical fundamentals.

Volume of practice and assessment requirements for each of the specialised study units are detailed at the start of each unit. In addition, trainees are required to select and complete a minimum of six case-based discussions (CbDs) from the specialised study units, two of which must be done in basic training and four in advanced training.

3.1 Cardiac surgery and interventional cardiology

By the completion of this specialised study unit trainees will be able to provide anaesthesia for interventional cardiology and non-bypass cardiac surgery of moderate complexity.

Knowledge-based learning outcomes related to anaesthesia for more complex cardiac surgery in this unit will provide a foundation for those wishing to gain further experience and skills in cardiac anaesthesia.

The basic sciences relevant to cardiac anaesthesia and perioperative cardiovascular medicine are covered in the *Perioperative medicine* clinical fundamental. Outcomes related to the management of acute cardiac decompensation are covered in the *Resuscitation, trauma and crisis management* clinical fundamental.

Many topic areas particularly relevant to this specialised study unit are covered in the *Perioperative medicine* clinical fundamental.

Workplace-based assessment requirements

There are no mandatory assessments required to finish this specialised study unit. Trainees may select a case relevant to this specialised study unit to complete one of the six required specialised study unit case-based discussions during the combination of basic and advanced training, or they may choose to complete one or more alternate workplace-based assessments from this specialised study unit as one of the 'non- specified' workplace-based assessments identified in their core study unit requirements.

Assessment name	Area of focus	Assessment	No.
SSU CbD	Trainees may select a case encountered in their clinical practice, which is applicable to this specialised study unit *	CbD	-

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

6. Volume of practice cases and/or procedures

Case/procedure	Inclusions or exclusions	VOP
Cardiac surgery and interventional cardiology procedures	Minimum 11 involving use of cardiopulmonary bypass May include: • Acute coronary stenting • EP ablation procedures	20
Simple cardiological procedures	May include: • Cardioversion • Pacemaker check • TOE	10
Total minimum VOP		**30**

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
SS_CS 1.1	Discuss the physiology of hypothermia and deep hypothermic cardiac arrest	ME	FEx
SS_CS 1.2	Evaluate means of estimating cardiac output	ME	FEx
Cardiac surgery and cardiopulmonary bypass			
SS_CS 1.3	Describe pharmacological and non-pharmacological strategies to relieve anxiety in patients presenting for cardiac surgery	ME	FEx
SS_CS 1.3a	Describe the anatomy of the heart and great vessels, particularly in relationship to the use of ultrasound imaging	ME	FEx
SS_CS 1.4	Discuss the perioperative assessment of: • Myocardial ischaemia • Cardiac rhythm • Filling status • Left ventricular systolic and diastolic function • Right ventricular function and pulmonary artery pressure • Valve pathology • Shunts	ME	FEx
SS_CS 1.5	Outline the basic surgical steps involved in the following cardiac procedures: • Coronary artery bypass both on and off pump • Aortic and mitral valve replacement • Repair of aortic dissection	ME	FEx
SS_CS 1.6	Describe the initial medical management of acute thoracic aortic dissection (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental) and outline the principles of providing anaesthesia for surgical repair	ME	FEx
SS_CS 1.7	Describe an appropriate anaesthetic technique for the following cardiac surgical procedures including haemodynamic goals: • Coronary artery bypass • Aortic and mitral valve replacement	ME	FEx
SS_CS 1.8	List indications for application of external defibrillation/pacing pads prior to surgery	ME	FEx
SS_CS 1.9	Describe the use of internal defibrillation	ME	FEx
SS_CS 1.10	Describe the types of cardiac pacing including transvenous, external and epicardial pacing	ME	FEx
SS_CS 1.11	Outline principles of programming cardiac pacemakers	ME	FEx

Code	Learning outcome	Role	Assessment
SS_CS 1.12	Outline pacing modes and the terminology and abbreviations commonly used	ME	FEx
SS_CS 1.13	Describe the method of insertion of a pulmonary artery catheter, describe the waveforms obtained (also refer to the *Intensive Care Medicine* specialised study unit)	ME	FEx
SS_CS 1.14	Discuss the interpretation of the data obtained from PAC and other cardiac output measurement devices	ME	FEx
SS_CS 1.15	Outline the specific issues associated with 're-do' cardiac surgery	ME	FEx
SS_CS 1.16	Outline the indications for cardiopulmonary bypass and ECMO in non-cardiac surgery procedures	ME	FEx
SS_CS 1.17	Outline the issues related to the care of patients undergoing cardiopulmonary bypass, including: • Maintenance of anaesthesia during this period • Intraoperative myocardial protection • Potential neurocognitive effects and cerebral protection • Implications of aortic disease for aortic cannulation • Anticoagulation during cardiopulmonary bypass and point-of-care and laboratory methods of monitoring anticoagulation • Use of antifibrinolytics • Management of protamine reactions • Reperfusion injury and ischaemic preconditioning • Haematological and inflammatory effects of cardiopulmonary bypass • Steps to take to safely initiate and wean from bypass	ME	FEx
SS_CS 1.18	Describe an approach to the patient with heparin resistance, heparin induced thrombocytopenia and thrombosis (HITTS) and heparin induced thrombocytopaenia (HITS)	ME	FEx
SS_CS 1.19	Outline strategies for the management of the patient who is difficult to wean from bypass	ME	FEx
SS_CS 1.20	Discuss factors influencing duration of postoperative ventilation following cardiac surgery	ME	FEx
SS_CS 1.21	Discuss the role of 'fast-track' cardiac surgery and principles of anaesthesia and intensive care unit management for 'fast track' surgery	ME	FEx
SS_CS 1.22	Outline the routine and emergent postoperative management of cardiosurgical patients in the intensive care unit	ME	FEx
SS_CS 1.23	Outline the common complications presenting in the early postoperative period in cardiac surgical patients and their management	ME	FEx

Code	Learning outcome	Role	Assessment
Echocardiography			
SS_CS 1.24	Outline a basic haemodynamic assessment using TOE or TTE	ME	FEx
SS_CS 1.25	Discuss the role of echocardiography in assessing the haemodynamically unstable patient	ME	FEx
Interventional cardiology			
SS_CS 1.26	Describe the initial medical management of the patient with acute myocardial infarction and cardiogenic shock and outline the principles of providing anaesthesia for acute revascularisation (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental)	ME	FEx
SS_CS 1.27	Outline the major complications associated with interventional cardiology procedures, their presenting features and initial management	ME	FEx
SS_CS 1.28	Outline principles of intra-aortic balloon counterpulsation	ME	FEx
2. Medical expert – skills			
SS_CS 2.1	Assess the patient presenting for cardiac surgery (also refer to the *Perioperative medicine* clinical fundamental) including: • Determination of functional status • Perioperative risk stratification • Indications for and interpretation of echo, angiogram, and radionuclide imaging reports • Identifying patients requiring further investigation and optimisation	ME	CEX, CbD
SS_CS 2.2	Provide anaesthesia for cardiac surgery with level 1 supervision (V)	ME	CEX, CbD
SS_CS 2.3	Provide safe anaesthesia for simple cardiology procedures such as: • Cardioversion (V) • Checking of pacemakers and defibrillators (V) • Transoesophageal echocardiogram (V)	ME	CEX, CbD
SS_CS 2.4	Provide safe anaesthesia care for patients undergoing a range of interventional cardiology procedures. These may include: • Electrophysiological studies, radiofrequency and cryoablation for arrhythmias (V) • Pacemaker and defibrillator insertion (V) • Elective and urgent coronary artery stenting (V) • Insertion of percutaneous closure devices (V) • Percutaneous valve replacement and valvuloplasty (V)	ME	CEX, CbD

Application of the ANZCA Roles in Practice to the cardiac surgery and interventional cardiology specialised study unit	
Experience and/or learning opportunity	**Role**
Informing patients about likely perioperative experiences including, placement of invasive monitoring, emergence from anaesthesia and weaning from ventilation.	CM
Identifying patients in need of medical optimisation through multidisciplinary perioperative management prior to cardiac procedures and engaging appropriate team members for this.	CL
Safely hand over cardiac surgical patients to intensive care. Refer to College professional document *PS52*: Guidelines for *Transport of Critically ill Patients*	CL
Discussing cost effectiveness of perioperative transoesophageal echocardiography services.	LM
Identifying opportunities for secondary prevention with respect to cardiac disease and providing appropriate advice to patients	HA
Providing ongoing vigilance and care for the patient on cardiopulmonary bypass. Refer to College professional document: *PS27 Guidelines for Major Extracorporeal Perfusion*	HA
Discussing the ethical issues involved and strategies to resolve professionally disputed decisions concerning the management of the cardiac patient particularly around the appropriateness of procedures	PF

3.2 General surgical, urological, gynaecological and endoscopic procedures

By completion of this specialised study unit the trainee will be able to provide anaesthesia for patients presenting for general surgical, urological, gynaecological and endoscopic procedures. The learning outcomes cover acute and elective procedures and surgical pathology.

Learning outcomes related to the initial resuscitation and management of the acutely unstable surgical patient, are covered in the *Resuscitation, trauma and crisis management* ANZCA Clinical Fundamental.

Many topics particularly relevant to this specialised study unit are covered in the *General anaesthesia and sedation* and *Safety and quality in anaesthetic practice* clinical fundamentals.

Workplace-based assessment requirements

Trainees must complete four mandatory mini-clinical evaluation exercise (mini-CEX) assessments to finish this specialised study unit. In addition, trainees may select two cases relevant to this specialised study unit to complete two of the six required specialised study unit non-specified case-based discussion assessments.

Assessment name	Area of focus	Assessment	No.
General, urological, gynaecological, endoscopic anaesthesia	Provide anaesthesia or sedation for a patient having a general, urological, gynaecological or endoscopic procedure	M-CEX GG1	4
SSU CbD	Trainees may select two cases encountered in their clinical practice, which are applicable to this specialised study unit *	CbD	-

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select cases for discussion.

Volume of practice cases and/or procedures

Case/procedure	Inclusions or exclusions	VOP
Emergency laparotomy	May include: • Bleeding, not including trauma-related • Trauma • Bowel obstruction • Organ perforation	25
Elective major upper abdominal surgery	May include: • Adrenalectomy • Bariatric surgery • Biliary surgery • Gastrectomy • Liver resection • Nephrectomy • Oesophageal surgery • Pancreatectomy/Whipples' procedure • Splenectomy	10
Elective major lower abdominal and pelvic surgery	May include: • Abdominal hysterectomy • Colorectal surgery • Cystectomy • Open prostatectomy	15
Endoscopic urological surgery	Must include: • Minimum five (5) TURPs May include: • TURBT • Ureteroscopy • PCNL	20
Major per-vaginal surgery	May include: • Vaginal hysterectomy	5
Breast surgery	n/a	5
Upper GI endoscopy	Must include: • Minimum one emergent gastroscopy for bleeding • Minimum one ERCP	2
Total minimum VOP		**82**

By the end of this specialised study unit, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Medical expert – knowledge			
Clinical science			
SS_GG 1.1	For the following discuss the key clinical features which influence anaesthetic management. (Also refer to the *Perioperative medicine* clinical fundamental): • Bowel disease • Disease of the oesophagus • Disease of the stomach • Gallbladder disease • Liver disease • Disease of the spleen • Renal and urinary tract disease • Pancreatic disease • Adrenal disease • Gynaecological disorders • Breast disease	ME	FEx
SS_GG 1.2	Discuss the physiological changes associated with pneumoperitoneum and management of those changes	ME	FEx
SS_GG 1.3	Outline the differential diagnosis of the acute abdomen and the implications for anaesthetic management of the different causes	ME	FEx
SS_GG 1.4	Outline the consequences of prolonged vomiting, bowel obstruction and malabsorption syndromes	ME	FEx
SS_GG 1.5	Outline the anatomical modification that results from common gastrointestinal operations and the potential pathophysiological consequences	ME	FEx
Code	**Learning outcome**	**Role**	**Assessment**
Surgery and endoscopy			
SS_GG 1.6	Discuss the surgical requirements and implications for anaesthetic management of patients undergoing the following elective general surgery, urological, gynaecological and endoscopic procedures: • Major open abdominal surgery • Major open urological surgery • Major gynaecological operations • Minor general, urological and gynaecological surgery • Breast surgery • Laparoscopic surgery • Endoscopic procedures • Lithotripsy • Treatment for infertility	ME	FEx
SS_GG 1.7	Discuss perioperative analgesia and fluid therapy options for elective general surgery, urological, gynaecological and endoscopic procedures, including strategies for 'fast track' recovery programs for major abdominal surgery	ME	FEx

Code	Learning outcome	Role	Assessment
SS_GG 1.8	Discuss the surgical requirements and implications for anaesthetic management of patients undergoing the following emergency general surgery, urological, gynaecological and endoscopic procedures: • Minor general, urological and gynaecological procedures • Major laparotomy and laparoscopy • Diagnostic laparoscopy • Gastroscopy • Ureteroscopy	ME	FEx
SS_GG 1.9	For patients undergoing the following complex operations, discuss the specific anaesthetic management, including options for perioperative analgesia and perioperative fluid therapy: • Renal transplant • Partial hepatectomy • Surgery for major liver trauma • Oesophagectomy • Pancreatectomy • Adrenalectomy, including phaeochromocytoma • Resection of carcinoid tumour • Bariatric surgery • Breast reconstruction (also refer to the *Plastics, reconstructive and burns surgery* specialised study unit) • Surgery for gynaecological and urological malignancy • Major bowel resection, pelvic exenteration etc	ME	FEx
SS_GG 1.10	Discuss the diagnosis and management of the possible complications of surgical procedures including (also refer to the *Resuscitation, trauma and crisis management* specialised study unit): • Venous air embolus • Rapid, life-threatening bleeding, including management of severe coagulopathy • Aspiration • Cardiovascular responses to insufflation of the peritoneal cavity • Sepsis • Hypo-osmolar syndromes • Reperfusion of ischaemic organs • Acid base imbalance, temperature control, positioning injuries	ME	FEx
SS_GG 1.11	Describe the provision of anaesthetic care for organ procurement in a donor declared brain dead	ME	FEx

Code	Learning outcome	Role	Assessment
2. Medical expert – skills			
SS_GG 2.1	Provide anaesthesia for breast surgery, including mastectomy (V)	ME	CbD, M-CEX
SS_GG 2.2	Provide anaesthesia for upper gastrointestinal endoscopy, including PEG insertion, ERCP, and emergency gastroscopy for upper gastrointestinal bleeding (V)	ME	CbD, M-CEX
SS_GG 2.3	Provide anaesthesia for patients having upper abdominal laparoscopic surgery, for example, fundoplication, cholecystectomy, nephrectomy, bariatric surgery (V)	ME	CbD, M-CEX
SS_GG 2.4	Provide anaesthesia for patients requiring major upper abdominal surgery, for example, gastrectomy, fundoplication, cholecystectomy, splenectomy, nephrectomy (V)	ME	CbD, M-CEX
SS_GG 2.5	Provide anaesthesia for patients requiring major lower abdominal and pelvic surgery, for example, colectomy, abdomino-perineal resection, cystectomy, hysterectomy, prostatectomy (V)	ME	CbD, M-CEX
SS_GG 2.6	Provide anaesthesia for patients having minor laparoscopic surgery, for example, diagnostic laparoscopy, oophorectomy, endometrial ablation, assisted hysterectomy and colectomy	ME	CbD, M-CEX
SS_GG 2.7	Provide anaesthesia for abdominal wall, perineal and percutaneous surgery, for example, percutaneous nephrolithotripsy, and procedures on the vagina, scrotum, anal/peri-anal/natal cleft/penis and hernia repairs	ME	CbD, M-CEX
SS_GG 2.8	Provide anaesthesia and sedation for colonoscopy and per-rectal procedures	ME	CbD, M-CEX
SS_GG 2.9	Provide anaesthesia for endoscopic urological surgery, for example, cystoscopy, prostatic resection, and ureteroscopic surgery, bladder resection (V)	ME	CbD, M-CEX
SS_GG 2.10	Provide anaesthesia for patients requiring major per-vaginal surgery, for example, hysterectomy, vaginal repair (V)	ME	CbD, M-CEX
SS_GG 2.11	Provide anaesthesia for patients requiring emergency laparotomy, including for, but not limited to, presumed bleeding, perforation, ischaemia, infection, inflammation (V)	ME	CbD, M-CEX
SS_GG 2.12	Provide anaesthesia for patients requiring emergency abdominal and pelvic surgery, for example, appendicectomy, ectopic pregnancy, bowel obstruction, nephrolithiasis (V)	ME	CbD, M-CEX

Application of the ANZCA Roles in Practice to the general surgical, urological, gynaecological and endoscopic procedures specialised study unit	
Experience and/or learning opportunity	**Role**
Communicating compassionately and effectively with patients in situations causing particular anxiety and distress, for example: • Surgery for cancer particularly if the tumour may be inoperable • Surgery that may result in a stoma • Surgery where there is a high risk of perioperative death • Miscarriage	CM
Identifying patient and procedural sub-groups where collaborative care is particularly important, for example: • Removal of endocrine tumours • Upper endoscopy where the airway is shared • Postoperative surgical complications such as haemorrhage.	CL
Managing lists requiring the rapid turnover of short cases, for example: • Cystoscopies • Minor gynaecological cases	LM
Ensuring adequate resources and staffing for the provision of anaesthesia and sedation in the endoscopy suite (refer to College documents: *PS09: Guidelines on Sedation and/or Analgesia for Diagnostic and Interventional Medical, Dental or Surgical Procedures* and*; PS 55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations)*	LM
Promoting cancer screening	HA
Outlining the legal and ethical considerations of organ procurement and transplantation	PF
Discussing the professional considerations involved in providing care for a patient undergoing breast surgery	PF

3.3 Head and neck, ear, nose and throat, dental surgery and electro-convulsive therapy

By completion of this specialised study unit the trainee will be able to provide anaesthesia for patients undergoing head and neck, ear, nose and throat or dental surgery and also for electro-convulsive therapy (ECT). They will understand and be able to manage the unique issues involved with the shared airway or limited access to the patient's airway. This unit overlaps with the *Plastics, reconstructive and burns surgery* specialised study unit.

Many topic areas particularly relevant to this specialised study unit are also covered in the Airway *management* clinical fundamental.

Workplace-based assessment requirements

Trainees must complete two mandatory mini-clinical evaluation exercise (mini-CEX) assessments to finish this specialised study unit. In addition, trainees may select a case relevant to this specialised study unit to complete one of the six required specialised study unit non-specified case-based discussion assessments.

Assessment name	Focus of assessment	Assessment	No.
Ear, nose and throat anaesthesia airway surgery	Provide anaesthesia for a patient having airway surgery	M-CEX HN1	1
Head and neck anaesthesia	Pre-operative assessment (may be part of the preoperative assessment mini-CEX for perioperative medicine) Trainees may choose to combine this assessment with the pre-operative assessment mini-CEX for the *Perioperative medicine* clinical fundamental for their current level of training, **either** basic **or** advanced, if the patient has a multisystem disease or multiple co-morbidities respectively. Trainees may conduct a pre-operative assessment for one patient, however this must be logged as two separate WBAs with specific feedback for each area of focus provided	M-CEX HN2	1
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this SSU *	CbD	-

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

Volume of practice cases and/or procedures

Case/procedure	Inclusions or exclusions	VOP
Airway surgery	Tonsillectomy and/or adenoidectomy	10
	May include: • Laser airway surgery • Microlaryngoscopy • Removal of foreign bodies from upper or lower airways • Tracheostomy	10
Head and neck surgery	Minimum ONE of each of the following types of surgery: • Nasal surgery • Thyroidectomy/parathyroidectomy • Myringoplasty/middle ear surgery • Neck dissection	20
Dental surgery	n/a	10
ORIF mandible	n/a	1
Electro-convulsive therapy	n/a	10
Total minimum VOP		**61**

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
Head and neck and ear nose and throat			
SS_HN 1.1	Describe the anatomy and innervation of the face, external ear, neck, nasal passages, pharynx and larynx with reference to the performance of regional or topical anaesthesia for head, neck or ear nose and throat procedures.	ME	FEx
SS_HN 1.2	Describe the indications for and features of special tracheal tubes used in ear nose and throat surgery, for example those used for: • Microlaryngeal surgery • Laser surgery • Laryngectomy	ME	FEx
SS_HN 1.3	Describe the equipment used for emergency and elective jet ventilation	ME	FEx
SS_HN 1.4	Describe the nature and biological effects of lasers commonly used in ear nose and throat	ME	FEx
SS_HN 1.5	Describe the common co-morbid disease and patient factors encountered in patients having head, neck and ear nose and throat procedures	ME	FEx
SS_HN 1.6	Describe the effects of previous surgery or radiation on the airway (also refer to the *Airway management* clinical fundamental)	ME	FEx
SS_HN 1.7	Discuss the surgical requirements and the anaesthetic management of patients requiring common elective ear nose and throat procedures including: • Septo-rhinoplasty • Functional endoscopic sinus surgery (FESS) • Tonsillectomy and/or adenoidectomy • Microlaryngoscopy • Panendoscopy • Insertion of grommets • Myringoplasty or other middle ear surgery • Mastoidectomy • Laryngectomy or pharyngo-laryngectomy • Parotidectomy • Neck dissection • Tracheostomy	ME	FEx

Code	Learning outcome	Role	Assessment
SS_HN 1.8	Discuss the surgical requirements and the anaesthetic management of patients requiring emergency ear nose and throat procedures including: • Reduction of fractured nose • Removal of inhaled foreign body • Removal of foreign body from the oesophagus or pharynx • Surgical management for obstructing laryngeal lesions (also refer to the *Airway management* clinical fundamental) • Drainage of oro-pharyngeal cysts or abscess, including quinsy	ME	FEx
SS_HN 1.9	Outline the principles of anaesthetic management for awake tracheostomy	ME	FEx
SS_HN 1.10	Discuss the precautions, possible complications and implications for anaesthetic management associated with the use of lasers in ear nose and throat surgery	ME	FEx
SS_HN 1.11	Evaluate the use of jet ventilation as a technique for managing the airway and ventilation in patients having ear nose and throat procedures	ME	FEx
SS_HN 1.12	Discuss the anaesthetic management of patients requiring thyroid or parathyroid surgery. In particular: • Use, effects and complications of thyroid hormones or anti-thyroid drugs used to stabilise patients perioperatively (also refer to the *Perioperative medicine* clinical fundamental) • The effects and management of hyper and hypo-calcaemia • Potential airway management issues and their assessment including in the patient with a retrosternal goitre (also refer to the *Airway management* clinical fundamental) • Surgical positioning and the implications for patient protection and access • Airway, surgical and endocrine complications in the perioperative period and their management	ME	FEx
SS_HN 1.13	Discuss the implications of use of local anaesthetics and vasoconstrictive agents in head and neck surgery	ME	FEx
SS_HN 1.14	Evaluate the use, safety and methods of providing induced hypotension to minimise blood loss and improve surgical operating conditions during ear nose and throat, head and neck surgery (also refer to the *Plastic, Reconstructive and burns surgery* specialised study unit*)*	ME	FEx
SS_HN 1.15	Evaluate methods for the smooth emergence and/or extubation of patients to minimise bleeding following ear nose and throat and head and neck procedures	ME	FEx
SS_HN 1.16	Discuss the indications, method and implications for anaesthetic management of monitoring facial nerve function intraoperatively	ME	FEx

Code	Learning outcome	Role	Assessment
SS_HN 1.17	Discuss the clinical features and management of postoperative haemorrhage following head and neck and ear nose and throat surgery, particularly post tonsillectomy haemorrhage (also refer to the *Airway management* and *Resuscitation, trauma and crisis management* clinical fundamentals and the *Paediatric anaesthesia* specialised study unit)	ME	FEx
SS_HN 1.18	Describe the risks and management of airway fire	ME	FEx
Dental/maxillofacial surgery			
SS_HN 1.19	Describe the innervation of the teeth and regional blocks used for dental procedures	ME	FEx
SS_HN 1.20	Outline the types of facial, maxillary and mandibular fractures and their surgical management	ME	FEx
SS_HN 1.21	Discuss the anaesthetic management of patients requiring surgical fixation of facial, maxillary and mandibular fractures	ME	FEx
SS_HN 1.22	Discuss the anaesthetic management of patients requiring maxillary and mandibular osteotomies	ME	FEx
SS_HN 1.23	Describe the indications for and method of managing the airway during maxillo-facial surgery with a nasal endotracheal tube	ME	FEx
SS_HN 1.24	Discuss the anaesthetic management of patients requiring dental procedures including those with: • Intellectual impairment • Disorders of haemostasis	ME	FEx
SS_HN 1.25	Describe the assessment and potential progression of dental sepsis and evaluate the anaesthetic management of patients with dental abscesses and Ludwig's angina (also refer to the *Airway management* clinical fundamental)	ME	FEx
Electro-convulsive therapy			
SS_HN 1.26	Describe the evidence supporting the use of electro-convulsive therapy for managing depression	ME	FEx
SS_HN 1.27	Describe the physiological response to electro-convulsive therapy	ME	FEx
2. Medical expert – skills			
SS_HN 2.1	Provide anaesthesia for patients undergoing airway surgery, for example: • Tonsillectomy and /or adenoidectomy • Microlaryngoscopy • Airway laser surgery • Laryngoscopy, bronchoscopy, oesophagogoscopy (panendoscopy) (V)	ME	CbD, M-CEX

Code	Learning outcome	Role	Assessment
SS_HN 2.2	Provide anaesthesia for patients undergoing head and neck surgery, for example: • Nasal surgery, for example, septo-rhinoplasty, FESS • Myringoplasty or other middle ear surgery • Mastoidectomy • Neck dissection • Thyroidectomy/parathyroidectomy • Parotidectomy (V)	ME	CbD, M-CEX
SS_HN 2.3	Provide anaesthesia for patients undergoing dental restoration and/or extractions (V)	ME	CbD, M-CEX
SS_HN 2.4	Provide anaesthesia for patients undergoing open reduction and internal fixation of a fractured mandible (V)	ME	CbD, M-CEX
SS_HN 2.5	Provide safe anaesthesia care for patients undergoing electro-convulsive therapy (V)	ME	CbD, CEX

Application of the ANZCA Roles in Practice to the Head and neck, ear nose and throat, dental surgery and electro-convulsive therapy specialised study unit	
Experience and/or learning opportunity	**Role**
Communicating with patients who have impaired hearing or an inability to speak and adapting communication accordingly	CM
Communicating with patients with intellectual impairment and their family/carers	CM
Reassuring and supporting patients who undergo awake anaesthesia and airway management	CM
Communicating with and directing other team members during complex airway management procedures	CL
Working effectively with surgeons when there is shared access to the airway	CL
Ensuring the safe use of throat packs	CL
Discussing the requirements for the safe provision of general anaesthesia and sedation for dental procedures and electro-convulsive therapy in non-hospital locations (refer to College professional document: *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations)*	LM
Promoting the importance of dental health and the need for timely treatment of dental sepsis	HA
Communicating the risks of smoking and benefits of cessation	HA
Promoting safe use of laser during airway surgery	HA
Teaching surgical colleagues about anaesthetic issues, their management and the need for collaboration particularly where there is shared or limited access to the airway	SC
Consideration of the legal requirements and ethical issues involved in anaesthetising patients for electro-convulsive therapy	PF

3.4 Intensive care

By the completion of this specialised study unit the trainee, in collaboration with intensive care specialists, will be able to provide safe care for patients in a peripheral adult intensive care units presenting with medical and surgical illness. In particular the trainee should be able to provide continuing management of critical illness and surgical, procedural or anaesthetic complications encountered by anaesthetists. They will be able to manage the ongoing resuscitation and stabilisation of patients who require transfer to more specialised intensive care units.

Knowledge-based learning outcomes related to complex intensive care medicine will provide a foundation for those wishing to gain further experience and skills intensive care.

Learning outcomes regarding the resuscitation, stabilisation and transport of critically ill children are covered in the *Paediatric anaesthesia* specialised study unit.

Many topic areas particularly relevant to this specialised study unit are also covered in the *Resuscitation, trauma and crisis management* and *Perioperative medicine* ANZCA Clinical Fundamentals.

Workplace-based assessment requirements

Trainees must complete one mandatory multi-source feedback assessment to finish this specialised study unit.

Assessment name	Area of focus	Assessment	No.
ICU feedback	General performance in intensive care	M- MsF IC1	1

Trainees are not required to meet the workplace-based assessment (WBA) run rate that applies at the time that they undertake one or more placements in intensive care. However, it is advisable to continue to complete workplace-based assessments where possible, particularly on cases or procedures that are relevant to the intensive care setting.

Please note that trainees must still complete the minimum number of WBAs required in each training period, irrespective of how much time they spend in intensive care medicine.

Volume of practice cases and/or procedures

A minimum of 13 weeks clinical experience, which may include up to two weeks of leave, is required for this specialised study unit.

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
General care of the patient in intensive care			
SS_IC 1.1	Discuss the importance of setting therapeutic goals for admission to intensive care	ME	FEx
SS_IC 1.2	Outline estimation of nutritional requirements and prescribe nutritional support	ME	FEx
SS_IC 1.3	Outline the complications associated with enteral and parenteral nutritional support	ME	FEx
SS_IC 1.4	Discuss the provision of analgesia and sedation for critically ill patients	ME	FEx
SS_IC 1.5	Describe the effect of critical illness on the pharmacokinetics and pharmacodynamics of sedative and analgesic agents	ME	FEx
SS_IC 1.6	Describe weaning protocols of sedative and analgesic agents and strategies to prevent withdrawal phenomena	ME	FEx
SS_IC 1.7	Evaluate the use of muscle relaxants in the critically ill patient	ME	FEx
SS_IC 1.8	Outline the reasons why critically ill patients are particularly at risk of acquiring nosocomial infections	ME	FEx
SS_IC 1.9	Describe standard precautions as applied to critically ill patients	ME	FEx
SS_IC 1.10	Outline a scoring system to assess severity of illness and discuss the utility of such scoring systems	ME	FEx
SS_IC 1.11	Outline the long-term complications of prolonged intensive care admission	ME	FEx
SS_IC 1.12	Describe the features of patients who may be suitable organ donors	ME	FEx
SS_IC 1.13	Outline the management of the brain-dead patient awaiting organ donation	ME	FEx
SS_IC 1.14	Describe the principles of safe intra and inter-hospital transfer of critically ill patients professional document: *PS52*: *Guidelines for Transport of Critically Ill Patients* (also refer to the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	FEx

Code	Learning outcome	Role	Assessment
Sepsis and multi-organ dysfunction			
SS_IC 1.15	Define sepsis, severe sepsis and systemic inflammatory response syndrome (SIRS)	ME	FEx
SS_IC 1.16	Outline the pathophysiology of SIRS and sepsis and severe sepsis	ME	FEx
SS_IC 1.17	Describe the mechanisms of organ dysfunction in severe sepsis	ME	FEx
SS_IC 1.18	Outline the investigation and management of the patient with severe sepsis	ME	FEx
SS_IC 1.19	Discuss goal directed therapy of sepsis (also refer to the *Perioperative medicine* clinical fundamental)	ME	FEx
SS_IC 1.20	Broadly classify antimicrobial agents according to their mode of action and spectrum of activity	ME	FEx
SS_IC 1.21	Describe the adverse effects of antimicrobial agents in the intensive care patient	ME	FEx
SS_IC 1.22	Discuss the role of prophylaxis in preventing infection in the intensive care patient	ME	FEx
SS_IC 1.23	Describe a rational approach to prescribing antimicrobial treatment in severe sepsis	ME	FEx
Acute circulatory failure and cardiovascular disorders (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental)			
SS_IC 1.24	Describe the clinical features of the shocked patient and the clinical features differentiating the causes of shock	ME	FEx
SS_IC 1.25	Describe the pathophysiological consequences of shock	ME	FEx
SS_IC 1.26	Outline the clinical use of indicators of tissue oxygenation	ME	FEx
SS_IC 1.27	Interpret blood gas analysis in the shocked patient	ME	FEx
SS_IC 1.28	Discuss methods of monitoring cardiac output and optimisation of fluid therapy in the intensive care patient	ME	FEx
SS_IC 1.29	Discuss the treatment of shock according to its cause and the role of goal directed therapy	ME	FEx
SS_IC 1.30	Discuss the role of fluid therapy in the shocked patient	ME	FEx
SS_IC 1.31	Describe the investigation and management of the patient with acute myocardial infarction and cardiogenic shock	ME	FEx
SS_IC 1.32	Discuss the investigation and management of myocardial contusion	ME	FEx
SS_IC 1.33	Outline the intensive care management of traumatic aortic injury	ME	FEx

Code	Learning outcome	Role	Assessment
SS_IC 1.34	Describe the diagnosis and medical management of acute thoracic aortic dissection (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental and the *Cardiac surgery and interventional cardiology* specialised study unit)	ME	FEx
SS_IC 1.35	Outline the management of heart failure in the intensive care setting	ME	FEx
SS_IC 1.36	Discuss the use of vasopressors, inotropic and lusitropic agents in the intensive care setting	ME	FEx
SS_IC 1.37	Outline the management of cardiac arrhythmias in the intensive care patient	ME	FEx
SS_IC 1.38	Outline the pathophysiology of and describe the investigations and management of pulmonary embolic disorders	ME	FEx
SS_IC 1.39	Outline the indications for and principles of use of intra aortic balloon pumps and ventricular assist devices in the intensive care setting	ME	FEx
SS_IC 1.40	Critically evaluate the resuscitative management of patients in cardiac arrest (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental)	ME	FEx
Respiratory failure and intensive care of respiratory disorders (also refer to the *Resuscitation, trauma and crisis management* and *Perioperative medicine* clinical fundamentals)			
SS_IC 1.41	Define respiratory failure and differentiate between types of respiratory failure	ME	FEx
SS_IC 1.42	Discuss the differences between acute and chronic respiratory failure and the implications for management	ME	FEx
SS_IC 1.43	Interpret blood gas analysis, CXR and pulmonary function tests in respiratory failure	ME	FEx
SS_IC 1.44	Describe the pathophysiology of acute lung injury (ALI) and acute respiratory distress syndrome (ARDS) and outline the intensive care management of these	ME	FEx
SS_IC 1.45	Describe the pathophysiology and management of pulmonary oedema	ME	FEx
SS_IC 1.46	Discuss the intensive care management of chest trauma including pulmonary contusions, chest wall injuries and haemorrhage	ME	FEx
SS_IC 1.47	Describe the pathophysiology and management of fat embolism syndrome	ME	FEx
SS_IC 1.48	Describe the pathophysiology and management of acute severe asthma	ME	FEx
SS_IC 1.49	Describe the management of acute exacerbations of COPD	ME	FEx

Code	Learning outcome	Role	Assessment
SS_IC 1.50	Outline the management of pneumonia in the intensive care setting	ME	FEx
SS_IC 1.51	Describe the prevention and management of ventilator associated pneumonia	ME	FEx
SS_IC 1.52	Discuss the investigation and management of postoperative respiratory failure	ME	FEx
SS_IC 1.53	Describe methods of and indications for providing ventilatory assistance in respiratory failure including the place of non-invasive ventilation	ME	FEx
SS_IC 1.54	Evaluate ventilation strategies and non-ventilator therapies to optimise oxygenation and ventilation and minimise lung injury	ME	FEx
SS_IC 1.55	Discuss the complications of ventilation and the strategies to minimise ventilator-induced lung injury including the ventilation of patients with ARDS	ME	FEx
SS_IC 1.56	Discuss the interpretation of blood gas analysis and the use of this to guide respiratory support	ME	FEx
SS_IC 1.57	Discuss the assessment and management of extubation in patients who have been intubated for airway obstruction, for example, epiglottitis, angioneurotic oedema, Ludwig's angina	ME	FEx
SS_IC 1.58	Describe the indications for, timing and subsequent management of tracheotomies, including common complications, in the critically ill patient	ME	FEx
SS_IC 1.59	Describe the procedure, contraindications and possible complications of percutaneous dilatation tracheotomy	ME	FEx
SS_IC 1.60	Discuss the issues associated with the long-term ventilation of patients with chronic neuromuscular disorders and outline the factors important in making the decision to initiate assisted ventilation in these patients	ME	FEx
SS_IC 1.61	Discuss the available strategies for weaning patients from ventilatory support and discuss the timing and particular issues with different patient groups	ME	FEx
SS_IC 1.62	Outline the indications for the use of ECMO in respiratory failure and outline the principles of delivery of ECMO	ME	FEx
SS_IC 1.63	Outline the indications for hyperbaric oxygen therapy in the critically ill patient and the problems associated with providing this treatment	ME	FEx
SS_IC 1.64	Critically evaluate the resuscitative management of patients in respiratory arrest	ME	FEx
SS_IC 1.65	Discuss the initiation of ventilation and management of patients on ventilators in the intensive care setting	ME	FEx

Code	Learning outcome	Role	Assessment
SS_IC 1.66	Discuss the initiation of non-invasive ventilation and management of patients receiving non-invasive ventilation in the intensive care setting	ME	FEx
Renal and fluid and electrolyte disorders			
SS_IC 1.67	Describe the pathophysiology, investigation and management of acute renal failure	ME	FEx
SS_IC 1.68	Discuss strategies to prevent acute renal failure in the critically ill patient	ME	FEx
SS_IC 1.69	Describe the clinical situations where rhabdomyolysis is likely to occur and discuss the diagnosis and management of acute rhabdomyolysis	ME	FEx
SS_IC 1.70	Describe methods of providing renal replacement therapy in the patient with acute renal failure	ME	FEx
SS_IC 1.71	Discuss the aetiology, diagnosis and management of fluid and electrolyte disturbances in the critically ill patient (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental)	ME	FEx
SS_IC 1.72	Discuss the clinical management of acid-base disturbances in critically ill patients	ME	FEx
SS_IC 1.73	Outline the principles of postoperative care of the renal transplant recipient	ME	FEx
Metabolic and endocrine disorders			
SS_IC 1.74	Describe the metabolic response to trauma and critical illness	ME	FEx
SS_IC 1.75	Outline the intensive care management of severe hypothermia	ME	FEx
SS_IC 1.76	Discuss the intensive care management of malignant hyperthermia and neuroleptic malignant syndrome	ME	FEx
SS_IC 1.77	Discuss the management of endocrine emergencies, including thyroid storm, adrenocortical insufficiency, diabetic ketoacidosis and hyperglycaemic non-ketotic coma	ME	FEx
Neurological and neuromuscular disorders			
SS_IC 1.78	Outline the diagnosis and management of persistent vegetative state	ME	FEx
SS_IC 1.79	Discuss the clinical diagnosis of brain death and the confirmatory investigations involved	ME	FEx
SS_IC 1.80	Discuss the determinants and control of: • Intracranial and intraspinal pressure • Cerebral blood flow • Spinal cord perfusion	ME	FEx
SS_IC 1.81	Discuss the principles of intracranial pressure monitoring	ME	FEx

Code	Learning outcome	Role	Assessment
SS_IC 1.82	Outline the pathophysiology, investigation and management of delirium in the intensive care patient	ME	FEx
SS_IC 1.83	Discuss the management of the patient with neurological deterioration due to ischaemic and haemorrhagic stroke and subarachnoid haemorrhage	ME	FEx
SS_IC 1.84	Discuss the management of cerebral vasospasm	ME	FEx
SS_IC 1.85	Outline the investigation and management of encephalitis and meningitis	ME	FEx
SS_IC 1.86	Discuss the intensive care management of: • Raised intracranial pressure • Acute traumatic brain injury • Prolonged seizures • Acute spinal cord injury	ME	FEx
SS_IC 1.87	Outline the principles of management of: • Hemiplegia, paraplegia, quadriplegia. • Postoperative neurosurgical patients • Diabetes insipidus • Cerebral salt wasting	ME	FEx
SS_IC 1.88	Outline the pathophysiology and indications for intensive care management for patients with: • Tetanus • Botulism • Guillain-Barre syndrome • Myasthenia gravis • Myotonias and muscular dystrophies	ME	FEx
SS_IC 1.89	Discuss the investigation and management of the critical care patient who wakes with neurological impairment	ME	FEx
Gastrointestinal disorders			
SS_IC 1.90	Discuss the management of life-threatening GIT haemorrhage	ME	FEx
SS_IC 1.91	Outline the diagnosis and management of oesophageal perforation	ME	FEx
SS_IC 1.92	Outline the management of acute and acute on chronic liver failure including the indications for transplantation	ME	FEx
SS_IC 1.93	Outline the diagnosis and management of acute pancreatitis	ME	FEx
SS_IC 1.94	Outline the intensive care unit management of the patient with life-threatening abdominal conditions including: • Abdominal sepsis • Ischemic, perforated or obstructed gut • Major abdominal trauma	ME	FEx
SS_IC 1.95	Discuss the intensive care management of patients who have undergone major abdominal surgery	ME	FEx

Code	Learning outcome	Role	Assessment
Haematological and oncological disorders			
SS_IC 1.96	Outline the management of oncology emergencies: • Due to primary disease, for example vena cava obstruction, acute cord compression, pericardial effusion • Secondary to treatment, for example, graft versus host disease, immune suppression	ME	FEx
SS_IC 1.97	Outline an approach to the management of the intensive care patient with coagulopathy including disseminated intravascular coagulation	ME	FEx
SS_IC 1.98	Outline the appropriate use of anticoagulants in patients in the intensive care setting including prevention and management of venous and arterial thrombosis and thromboembolism	ME	FEx
SS_IC 1.99	Outline the investigation and management of anaemia and thrombocytopaenia in intensive care	ME	FEx
SS_IC 1.100	Discuss the rational use of blood products in the intensive care setting	ME	FEx
SS_IC 1.101	Discuss the investigation and management of transfusion reactions	ME	FEx
Environmental injuries			
SS_IC 1.102	Outline the intensive care management of: • Electrocution • Burns • Near drowning • Envenomation • Drug overdose • Corrosive ingestion • Altitude sickness • Decompression syndromes	ME	FEx
Intensive care of the obstetric patient (also refer to the *Obstetric anaesthesia and analgesia* specialised study unit)			
SS_IC 1.103	Outline the specific requirements of managing the obstetric patient in intensive care, including maintenance of foetal viability, for example, in the patient with cardiovascular failure, respiratory failure, or intracranial haemorrhage	ME	FEx
SS_IC 1.104	Explain the differences in basic and advanced life support in the pregnant patient (also refer to the *Obstetric anaesthesia and analgesia* specialised study unit)	ME	FEx
SS_IC 1.105	Discuss the intensive care management of severe pre-eclampsia and eclampsia	ME	FEx
SS_IC 1.106	Discuss the intensive care management of post-partum haemorrhage and amniotic fluid embolism	ME	FEx

Application of the ANZCA Roles in Practice to the Intensive care medicine specialised study unit	
Experience and/or learning opportunity	**Role**
Understanding the psychological and emotional impact of the intensive care environment on patients and their families	CM
Communicating effectively with the intubated patient	CM
Communicating effectively with the families of patients in intensive care	CM
Developing a shared plan of care with patients and families in intensive care	CM
Dealing appropriately with issues related to death and dying, for example: • Treatment limitation • Brain death and organ donation	CM
Demonstrating respect and understanding of the role of other team members in intensive care	CL
Participating in or leading a ward round in the intensive care unit	CL
Handing over to other carers within and outside intensive care	CL
Describing the collaboration necessary to facilitate organ retrieval	CL
Co-ordinating the transfer of a patient to or from the intensive care unit	CL
Outlining the role of the intensive care unit within the wider geographical region and the mechanism for organising transfer of patients to another unit when required	LM
Allocating the available bed, staffing, equipment and physical resources effectively	LM
Outlining roles an intensive care unit may provide within a hospital, including postoperative care for complex/high-risk patients, patient arrest/resuscitation situations, outreach and education	LM
Facilitating the learning of patients/families, students and other health professionals in intensive care and through intensive care unit outreach activities	SC
Participating in quality assurance processes in intensive care, for example, monitoring hospital acquired infections	SC
Describing the particular stressors that exist in intensive care and how these might be dealt with	PF
Outlining the ethical and legal issues particular to end-of-life care in the intensive care environment (refer to College professional document: *PS38 Statement Relating to the Relief of Pain and Suffering and End of Life Decisions)*	PF

3.5 Neurosurgery and neuroradiology

By completion of this specialised study unit trainees will be able to provide anaesthesia for patients requiring neurosurgical and interventional neuroradiology procedures of moderate complexity.

Knowledge-based learning outcomes related to anaesthesia for more complex neurosurgery in this unit will provide a foundation for those wishing to gain further experience and skills in neuroanaesthesia.

This specialised study unit also includes the perioperative care of patients with neurotrauma. Learning outcomes related to the initial resuscitation and management of neurotrauma patients are covered in the *Resuscitation, trauma and crisis management* clinical fundamental.

Workplace-based assessment requirements

Trainees must complete three mandatory mini-clinical evaluation exercise (mini-CEX) assessments to finish this specialised study unit. In addition, trainees may select a case relevant to this specialised study unit to complete one of the six required specialised study unit non-specified case-based discussion (CbD) assessments.

Assessment name	Area of focus	Assessment	No.
Neuroanaesthesia - head	Anaesthesia for neurosurgery involving the head	M-CEX NS1	2
Neuroanaesthesia - any	Anaesthesia for neurosurgery, may include spinal surgery	M-CEX NS2	1
SSU CbD	Trainees may select a case encountered in their clinical practice, which is applicable to this specialised study unit *	CbD	-

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

Volume of practice cases and/or procedures

Case/procedure	Inclusions or exclusions	VOP
Neurosurgical and neuroradiological procedures	Must include: • Minimum 15 craniotomies May include: • Burr hole procedures • Interventional neuroradiological procedures for intracranial vascular pathology • Shunt procedures Excludes: • Surgery for spinal pathology	25
Spinal surgery	n/a	10
Total minimum VOP		**35**

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
2. Medical expert – knowledge			
Anatomy			
SS_NS 1.1	Describe the basic anatomy of the skull, brain, ventricular system, meninges, spinal cord and vertebral column of relevance to anaesthesia	ME	FEx
SS_NS 1.2	Describe the blood supply of the brain and spinal cord	ME	FEx
SS_NS 1.3	Describe the anatomy relevant to providing local anaesthesia for awake craniotomy	ME	FEx
Pathophysiology			
SS_NS 1.4	Outline the changes to cerebral blood flow control and cerebral perfusion pressure in patients with intracranial pathology	ME	FEx
SS_NS 1.5	Explain the effect of fluid and electrolyte disturbances on brain function	ME	FEx
SS_NS 1.6	Outline the grading of subarachnoid haemorrhage severity	ME	FEx
SS_NS 1.7	Outline the radiological features of common acute neurosurgical conditions	ME	FEx
SS_NS 1.8	Discuss pharmacologic and non-pharmacologic methods to manipulate intracranial pressure	ME	FEx
SS_NS 1.9	Outline methods to reduce secondary injury and limit disability in traumatic brain injury and intracranial haemorrhage	ME	FEx
SS_NS 1.10	Describe the anaesthetic implications of spinal cord trauma	ME	FEx
SS_NS 1.11	Discuss the pathophysiology of pituitary tumours, including the implications of endocrine disorders such as acromegaly, Cushings syndrome, pan-hypopituitarism	ME	FEx
SS_NS 1.12	Describe the mechanism and management of disorders of sodium control detected after neurosurgery	ME	FEx
SS_NS 1.13	Outline the criteria for the diagnosis of brain stem death	ME	FEx
Pharmacology			
SS_NS 1.14	Evaluate the effects of anaesthetic agents on brain and spinal cord physiology including metabolism, blood flow, intracranial and intraspinal pressure	ME	FEx
SS_NS 1.15	Discuss the possible complications of sedative/hypnotic and analgesic agents in neurosurgical patients	ME	FEx
SS_NS 1.16	Describe the pharmacology and clinical utility of antiepileptic and prophylactic therapy in neurosurgical patients	ME	FEx

Code	Learning outcome	Role	Assessment
SS_NS 1.17	Describe the pharmacology and clinical utility of corticosteroids in neurosurgical patients	ME	FEx
SS_NS 1.18	Discuss the pharmacology and clinical utility of pharmacological agents for prophylaxis and treatment of cerebral vasospasm associated with subarachnoid haemorrhage	ME	FEx
Monitoring			
SS_NS 1.19	Discuss methods to monitor cerebral blood flow including transcranial Doppler	ME	FEx
SS_NS 1.20	Describe methods of intracranial pressure monitoring	ME	FEx
SS_NS 1.21	Outline the principles of electrophysiological monitoring (electroencephalogram/sensory and motor evoked potentials) and the implication of neuromuscular blockade	ME	FEx
Clinical neuroanaesthesia			
SS_NS 1.22	Discuss the implications for anaesthesia of the positions used for neurosurgery	ME	FEx
SS_NS 1.23	Discuss the risks associated with patient positioning for neurosurgical procedures and the methods of risk minimisation	ME	FEx
SS_NS 1.24	Describe the typical presentation and natural history of the different types of intracranial haemorrhage	ME	FEx
SS_NS 1.25	Discuss the acute resuscitation and management of patients with intracranial/subarachnoid haemorrhage (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental and the *intensive care* specialised study unit)	ME	FEx
SS_NS 1.26	Discuss the anaesthetic management of patients requiring the following neurosurgical procedures: • Clot retrieval for stroke • Craniotomy for intracranial tumour • Craniotomy for intracranial aneurysm or haemorrhage (acute and chronic) • Insertion of intracranial pressure monitors • Interventional neuroradiology for acute intracranial bleed • Interventional neuroradiology for stable intracranial vascular pathology • Spinal surgery (cervical, thoracic, lumbar) • Spinal fluid shunt procedures	ME	FEx

Code	Learning outcome	Role	Assessment
SS_NS 1.27	Discuss the anaesthetic management of patients requiring intervention for the following: • Non-neurosurgical trauma in patients with concurrent traumatic brain injury • Traumatic brain injury • Intracranial vascular malformations • Vestibular schwannoma • Trigeminal neuralgia • Pituitary tumours • Epilepsy and movement disorders (including awake craniotomy and deep brain stimulation) • Meningomyelocoele • Cranial vault pathology	ME	FEx
SS_NS 1.28	Discuss the complications of neurosurgical procedures including: • Air embolism • Rapid, life threatening bleeding • Cerebral ischaemia (Also refer to the *Resuscitation, trauma and crisis management* and *perioperative medicine* clinical fundamentals)	ME	FEx
2. Medical expert – skills			
SS_NS 2.1	Assess level of consciousness according to Glasgow Coma Score	ME	CEX
SS_NS 2.2	Perform a basic neurological examination for assessment of neurological deficits	ME	FEx CEX
SS_NS 2.3	Manage a patient with a suspected unstable cervical spine	ME	CbD, CEX
SS_NS 2.4	Provide anaesthesia for patients requiring a craniotomy, for example, for intracranial tumour, aneurysm or haemorrhage, with supervision level >/=2 (V)	ME	CbD, M-CEX
SS_NS 2.5	Provide anaesthesia for patients requiring a burr hole and subdural drainage, with supervision level >/=2 (V)	ME	CbD, M-CEX
SS_NS 2.6	Provide anaesthesia for patients requiring interventional neuroradiology for intracranial vascular pathology, with supervision level >/=2 (V)	ME	CbD, M-CEX
SS_NS 2.7	Provide anaesthesia for patients requiring spinal surgery, supervision level >/=2 (V)	ME	CbD, M-CEX
SS_NS 2.8	Provide anaesthesia for patients requiring spinal fluid shunt procedures, with supervision level >/=2	ME	CbD, M-CEX

Application of the ANZCA Roles in Practice to the neurosurgery and neuroradiology specialised study unit	
Experience and/or learning opportunity	**Role**
Communicating with patients with impaired level of consciousness or neurological injury	CM
Communicating with a patient having awake craniotomy	CM
Communicating effectively with post-anaesthetic care unit staff regarding ongoing neurological assessment and care	CM
Collaborating with surgeons and radiologists in planning the timing of neurosurgical care and of critical intraoperative or procedural events	CL
Considering the impact of neurological deficits on patient outcome and future requirements for health care	LM
Outlining the resources required to manage the perioperative care of a neurosurgical patient including transport, radiology and intensive care	LM
Outlining the resources required for provision of anaesthesia in an acute interventional neuroradiological procedure (refer to professional document *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations*)	LM
Outlining the precautions to minimise transmission of prion diseases during neurosurgery	HA
Outlining the socio-economic impact of brain injury on the patient, their carers, family and the community	HA
Critically appraising current literature regarding the efficacy of hypothermia in the management of secondary brain injury	SC
Critically evaluating the evidence for anaesthetic agent selection for intraoperative management of head injury patients	SC
Working in a calm and considered manner during neurosurgical crises, for example, when a cerebral aneurysm has ruptured intra-operatively	PF

3.6 Obstetric anaesthesia and analgesia

By the completion of this study unit trainees will be able to provide safe general and regional anaesthesia and labour analgesia for obstetric patients. Trainees will be able to work as part of a multi-disciplinary team to care for obstetric patients and participate in neonatal resuscitation.

Many topics particularly relevant to this specialised study unit are covered in the *Regional and local anaesthesia* and *Pain medicine* ANZCA Clinical Fundamentals.

Workplace-based Assessment requirements

Trainees must complete two mandatory mini-clinical evaluation exercise (mini-CEX), two mandatory direct observation of procedural skills (M-DOPS) and one case-based discussion (CbD) assessment to finish this specialised study unit. In addition, trainees may select an obstetric **emergency or complication case** to complete one of the six required specialised study unit non-specified case-based discussion assessments.

Assessment name	Area of focus	Assessment type	No.
Obstetric anaesthesia for LSCS	Provide anaesthesia for LSCS	M-CEX OB1	1
Obstetric anaesthesia	Provide anaesthesia to an obstetric patient for either an obstetric or non-obstetric procedure	M-CEX OB2	1
Obstetric labour epidural	Epidural for labour	M-DOPS OB1	1
Obstetric LSCS spinal/epidural/CSE	Spinal/epidural for LSCS	M-DOPS OB2	1
Obstetric general anaesthesia LSCS	General anaesthesia LSCS	M-CbD OB1	1
SSU CbD	Trainees may select a case of an ***obstetric emergency or complication*** encountered in their clinical practice, which is applicable to this specialised study unit *	CbD OB2	-

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

Volume of practice cases and/or procedures

Case/procedure	Inclusions or exclusions	VOP
Caesarean section	Must include: Minimum five cases under general anaesthesia Minimum five cases requiring epidural top-up	50
Epidural for labour analgesia	n/a *May be counted toward the target for lumbar epidurals for the Regional and local anaesthesia clinical fundamental*	50
Management of postpartum complications	n/a	5
Care of the newborn following delivery	Includes routine care of a baby following vaginal or caesarean section delivery.	5
Total minimum VOP		**110**

Courses

In addition to the WBA and VOP requirements, trainees are required to complete a neonatal resuscitation (NNR) course or equivalent – for more information and standard refer to Handbook for Training.

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert - knowledge			
Obstetric physiology and pharmacology			
SS_OB 1.1	Describe the physiological changes and their implications for anaesthesia that occur during pregnancy, labour and delivery, in particular the respiratory, cardiovascular, haematological and gastrointestinal changes.	ME	PEx
SS_OB 1.2	Outline the reference ranges for physiological and biochemical variables in pregnancy	ME	PEx
SS_OB 1.3	Describe the transition from foetal to neonatal circulation and the establishment of ventilation	ME	PEx
SS_OB 1.4	Describe the utero-placental circulation and the principles of placental physiology as related to placental gas exchange and regulation of placental blood flow	ME	PEx
SS_OB 1.5	Describe the mechanism and consequences of aorto-caval compression in pregnancy	ME	PEx
SS_OB 1.6	Describe the changes in the anatomy of the maternal airway and their impact on airway management during anaesthesia	ME	PEx
SS_OB 1.7	Describe the changes in the anatomy of the maternal vertebral column, the spinal cord and meninges relevant to the performance of a central neuraxial block including epidural, spinal and combined spinal-epidural, with appropriate surface markings (also refer to the *Regional and local anaesthesia* clinical fundamental)	ME	PEx
SS_OB 1.8	Describe the anatomy and physiology of pain in labour and childbirth	ME	PEx
SS_OB 1.9	Describe the influence of pregnancy on the pharmacokinetics and pharmacodynamics of drugs commonly used in anaesthesia and analgesia	ME	PEx
SS_OB 1.10	Describe the pharmacology of oxytocic agents with special reference to oxytocin derivatives, ergot derivatives and prostaglandins	ME	PEx
SS_OB 1.11	Describe the pharmacology of tocolytic agents with particular reference to beta 2 agonists, calcium antagonists, magnesium, inhalational anaesthetics, nitrates and NSAIDS	ME	PEx
SS_OB 1.12	Describe the pharmacology of agents used for the treatment of pre-eclampsia including magnesium, hydralazine and labetalol	ME	PEx
SS_OB 1.13	Explain the factors that influence the transfer of drugs across the placenta to the foetus	ME	PEx
SS_OB 1.14	Outline the potential effects on the foetus and neonate of drugs administered during pregnancy	ME	PEx

Code	Learning outcome	Role	Assessment
SS_OB 1.15	Outline the potential effects on the neonate of drug administration in association with lactation	ME	PEx
Clinical obstetric anaesthesia			
SS_OB 1.16	Describe the pre-anaesthetic assessment of a pregnant woman	ME	FEx
SS_OB 1.17	Describe the role of aspiration prophylaxis in pregnant women undergoing surgery	ME	FEx
SS_OB 1.18	Outline the indications for referral of the high-risk pregnant woman to more specialised centres of obstetric care	ME	FEx
SS_OB 1.19	Describe the anaesthetic management of early pregnancy conditions such as molar pregnancy, termination, ectopic pregnancy, miscarriage and septic abortion (also refer to the *General anaesthesia and sedation* clinical fundamental)	ME	FEx
SS_OB 1.20	Describe the mechanisms and progress of normal labour	ME	FEx
SS_OB 1.21	Describe the clinical methods used for foetal monitoring in labour	ME	FEx
SS_OB 1.22	Evaluate the analgesic options for labour and delivery	ME	FEx
SS_OB 1.23	Describe the selection of agents and route of administration in providing neuraxial analgesia for labour and delivery	ME	FEx
SS_OB 1.24	Discuss the role of combined spinal epidural analgesia in labour	ME	FEx
SS_OB 1.25	Describe the urgency of emergency delivery with regard to the threat to maternal or foetal wellbeing, in accordance with established guidelines, for example, RANZCOG College *Statement C-Obs 14 Categorisation of urgency for caesarean section*	ME	FEx
SS_OB 1.26	Evaluate the role of epidural, spinal, and combined spinal epidural techniques for caesarean birth	ME	FEx
SS_OB 1.27	Evaluate methods to treat hypotension associated with neuraxial blockade for caesarean birth	ME	FEx
SS_OB 1.28	Discuss the management of significant complications of neuraxial analgesia and anaesthesia in childbirth, for example: • Post-dural puncture headache • Total spinal	ME	FEx
SS_OB 1.29	Discuss the management of suboptimal block including conversion to general anaesthesia for caesarean birth	ME	FEx
SS_OB 1.30	Evaluate the role of, options for and particular problems with providing general anaesthesia for elective and emergency caesarean birth	ME	FEx

Code	Learning outcome	Role	Assessment
SS_OB 1.31	Describe the prevention of venous thromboembolism in the pregnant woman	ME	FEx
SS_OB 1.32	Discuss measures to minimise the risk of injury from positioning the pregnant patient during anaesthesia	ME	FEx
SS_OB 1.33	Evaluate methods for providing postoperative analgesia after caesarean birth	ME	FEx
SS_OB 1.34	Discuss the anaesthetic management of problems that may arise with labour and delivery, including the following situations: • Vaginal birth after caesarean (VBAC) • Uterine rupture • Multiple gestation • Breech • Assisted vaginal birth • Premature labour • Cord prolapse • Abnormal placental implantation • Antepartum haemorrhage • Post partum haemorrhage • Shoulder dystocia • Foetal death in utero	ME	FEx
SS_OB 1.35	Discuss the pathophysiology and anaesthetic management of the following medical conditions particular to pregnancy: • Hypertensive disorders of pregnancy/preeclampsia • HELLP syndrome • Eclampsia • Peripartum cardiomyopathy • Gestational diabetes • Acute fatty liver of pregnancy • Cholestasis associated with pregnancy • Rhesus iso immunisation	ME	FEx
SS_OB 1.36	Discuss the pathophysiology and anaesthetic management of co-existing maternal conditions as described in the *Perioperative medicine Clinical Fundamental*, in particular: • Morbid obesity • Cardiac disease • Substance abuse • Psychiatric conditions	ME	FEx
SS_OB 1.37	Discuss the implications of vertebral column abnormalities and intra-cranial pathology on provision of neuraxial blockade in pregnancy	ME	FEx
SS_OB 1.38	Discuss the implications of drugs modifying haemostasis on the provision of neuraxial blockade in pregnancy	ME	FEx
SS_OB 1.39	Discuss the differences in basic and advanced life support in the pregnant woman	ME	FEx

Code	Learning outcome	Role	Assessment
SS_OB 1.40	Discuss the diagnosis and management of maternal collapse, including: • Thromboembolism • Amniotic fluid embolism • Air embolism • Anaphylaxis • Local anaesthetic toxicity (refer to the endorsed AAGBI Safety Guideline *Management of Severe Local Anaesthetic Toxicity*) • High spinal • Massive haemorrhage • Eclampsia	ME	FEx
SS_OB 1.41	Discuss the diagnosis and management of neurological deficits in women after neuraxial blockade and delivery	ME	FEx
SS_OB 1.42	Discuss intrauterine resuscitation of the at-risk foetus	ME	FEx
SS_OB 1.43	Describe the unique aspects of management of resuscitation of the pregnant trauma patient including: • Optimally positioning to avoid aorto-caval compression • Altered maternal physiological responses • Maternal resuscitation as the first priority, representing best care of both the woman and the foetus • The need for early obstetric involvement and foetal monitoring • High possibility of placental abruption and uterine rupture • The need to give Rh immunoglobulin therapy to all Rhesus negative mothers • The place of perimortem caesarean birth • The clinical indicators and subsequent management implications of non-accidental injury in pregnancy	ME	FEx
SS_OB 1.44	Discuss the unique aspects of management of anaesthesia for the pregnant woman having non-obstetric surgery	ME	FEx
SS_OB 1.45	Outline the main causes of maternal mortality in Australasia and discuss methods to reduce maternal mortality	ME	FEx
2. Medical expert – skills			
SS_OB 2.1	Provide neuraxial analgesia for labour and delivery (V)	ME	M-CEX, M-DOPS
SS_OB 2.2	Provide neuraxial anaesthesia for caesarean birth (V)	ME	M-DOPS, M-CEX
SS_OB 2.3	Manage the common complications of neuraxial blockade for caesarean birth, for example: • Hypotension • Nausea and vomiting • Bradycardia • Itch		CEX, CbD, DOPS

Code	Learning outcome	Role	Assessment
SS_OB 2.4	Convert epidural analgesia to anaesthesia for caesarean birth (V)	ME	CEX, CbD
SS_OB 2.5	Perform general anaesthesia for caesarean birth (V)	ME	CEX, M-CbD
SS_OB 2.6	Provide anaesthesia for management of postpartum complications (V)	ME	CEX, CbD
SS_OB 2.7	Demonstrate basic and advanced life support of a newborn	ME	NNR
SS_OB 2.8	Participate in the care of the newborn after delivery (V)	ME	CbD

Application of the ANZCA Roles in Practice to the obstetric anaesthesia and analgesia specialised study unit	
Experience and/or learning opportunity	**Role**
Establishing rapport and trust with the pregnant woman and their support person and developing a shared birth plan	CM
Obtaining informed consent in labour for anaesthesia interventions appreciating the dynamic nature of consent and consumer expectations	CM
Taking a targeted history and performing relevant examination particularly in emergency situations	CM
Communicating with women and couples experiencing disappointment and grief	CM
Participating in the multidisciplinary management of a complicated obstetric case	CL
Recognising and respecting the role and responsibility of midwives	CL
Applying the guidelines and recommendations for standards of safe practice contained in *WPI 14 Joint RANZCOG/ANZCA Position Statement on the Provision of Obstetric Anaesthesia and Analgesia Services*	LM
Promoting prompt relief of pain in childbirth when requested	HA
Attending health promotion and disease prevention information sessions regarding antenatal care, diet and smoking cessation	HA
Participating in clinical audit, critical incident monitoring and morbidity and mortality reviews in obstetric anaesthesia	SC
Becoming involved in antenatal education, teaching of medical students and midwives	SC
Balancing respect for women's and consumer group preferences and safety in obstetric care	PF
Discussing complex ethical situations that may occur in obstetric anaesthesia, for example, maternal/foetal conflict, termination of pregnancy and describing avenues to address such issues	PF

3.7 Ophthalmic procedures

By completion of this specialised study unit the trainee will be able to provide sedation and general and regional anaesthesia for ophthalmic procedures.

Topic areas particularly relevant to this specialised study unit are also covered in the *Regional and local anaesthesia* Clinical Fundamental.

Workplace-based assessment requirements

There are no mandatory assessments required to finish this specialised study unit but a trainee may choose to complete one or more workplace-based assessments from this specialised study unit as one of the non- specified workplace-based assessments identified in their core study unit requirements.

Volume of practice cases and/or procedures

Case/procedure	Inclusions or exclusions	VOP
Ophthalmic surgery	Must include 10 under regional eye block Can include eye blocks performed by a surgeon.	20
Total minimum VOP		**20**

By the end of this specialised study unit, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Medical expert – knowledge			
SS_OP 1.1	Describe the anatomy of the eye and the contents of the orbit with reference to the performance of regional eye blocks and their complications	ME	FEx
SS_OP 1.2	Describe the determinates of ocular perfusion and intra-ocular pressure	ME	FEx
SS_OP 1.3	Describe the eye reflexes (oculo-cardiac, oculo-respiratory, oculo-emetic) and their management during eye procedures	ME	FEx
SS_OP 1.4	Discuss the selection of local anaesthetic solutions for regional and topical eye blocks	ME	FEx
SS_OP 1.5	Discuss the use of adjuvant drugs for regional eye blocks and in particular Hyalase	ME	FEx
SS_OP 1.6	Outline the anaesthetic implications of the perioperative use of drugs by eye surgeons; in particular topical local anaesthetic agents, vasoconstrictors, mydriatics, miotics, and intraocular pressure-reducing agents	ME	FEx
SS_OP 1.7	Describe the common co-morbid disease and patient factors encountered in patients having ophthalmic procedures (also refer to the *Paediatric anaesthesia* specialised study unit)	ME	FEx
SS_OP 1.8	Discuss the surgical requirements and implications for anaesthetic management of patients having surgery for: • Cataracts • Glaucoma • Retinal detachment • Penetrating eye injury • Enucleation for infection or tumour • Examination under anaesthesia • Strabismus • Blocked nasolacrimal duct • Extraocular procedures (also refer to the *Plastics, reconstructive and burns surgery* specialised study unit)	ME	FEx
SS_OP 1.9	Discuss the specific anaesthetic requirements for emergency eye surgery and in particular the patient with a penetrating eye injury	ME	FEx
SS_OP 1.10	Discuss the implications for anaesthesia of the intra-ocular injection of gas	ME	FEx
SS_OP 1.11	Describe and compare regional blocks used for eye procedures, their possible complications and management including: • Subtenon block • Peri-bulbar block • Retrobulbar block	ME	FEx

Code	Learning outcome	Role	Assessment
SS_OP 1.12	Describe the methods used to decrease or prevent a rise in intra-ocular pressure following a peri-bulbar block	ME	FEx
SS_OP 1.13	Discuss how patient factors and co-morbid conditions influence choice of anaesthesia for eye surgery in particular: • Anticoagulation status • Ability to lie flat • Ability to cooperate • Axial length of the globe	ME	FEx
SS_OP 1.14	Outline the issues to be considered in providing appropriate pre-operative care for patients having eye surgery	ME	FEx
SS_OP 1.15	Describe sedation techniques for eye procedures	ME	FEx
SS_OP 1.16	Discuss strategies to convert from regional to general anaesthesia during an eye procedure	ME	FEx
SS_OP 1.17	Describe the patient and staff precautions required when using laser during eye surgery (also refer to the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	FEx
2. Medical expert – skills			
SS_OP 2.1	Perform a regional technique to provide anaesthesia for intra-ocular surgery	ME	DOPS
SS_OP 2.2	Provide anaesthesia for patients requiring intra and extra-ocular procedures, for example cataract, retinal detachment or strabismus surgery (V)	ME	CEX, CbD

Application of the ANZCA Roles in Practice to the Ophthalmic procedures specialised study unit	
Experience and/or learning opportunity	**Role**
Appreciating the particular anxiety surrounding loss of vision and blindness in patients having eye surgery	CM
Positioning of the patient for surgery where there are problems limiting the patient's ability to lie supine	CL
Efficiently and safely managing the rapid turnover of high-volume lists, particularly where regional techniques are used	LM
Ensuring comfort for awake elderly patients having eye procedures	HA
Promoting relevant routine health checks for diabetes, glaucoma and hypertension	HA
Ensuring staff safety when laser is used for eye surgery	HA
Ensuring appropriate discharge support is in place for patients with limited vision	HA
Discussing the ethical considerations specifically associated with learning to perform eye blocks	SC
Ensuring that the patient environment is managed sensitively when surgery is performed under local anaesthesia	PF

3.8 Orthopaedic surgery

By the completion of this specialised study unit trainees will be able to provide anaesthesia for patients requiring orthopaedic procedures.

The initial resuscitation and management of orthopaedic trauma is covered in the *Resuscitation, trauma and crisis management* clinical fundamental.

Many topic areas particularly relevant to this specialised study unit are covered in the *Regional and local anaesthesia, Pain medicine and Safety and quality in anaesthetic practice* clinical fundamentals.

Learning outcomes related to spinal surgery (other than scoliosis) are covered in the *Neurosurgery and neuroradiology* specialised study unit.

Workplace-based assessment requirements

Trainees must complete two mandatory mini clinical evaluation exercise (mini-CEX) assessments to finish this specialised study unit. In addition, trainees may select a case relevant to this specialised study unit to complete one of the six required specialised study unit non-specified case-based discussion (CbD) assessments.

Assessment name	Area of focus	Assessment	No.
Orthopaedic anaesthesia	Provide anaesthesia for an orthopaedic case	M- CEX OR1	2
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this specialised study unit *	CbD	-

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

Volume of practice cases and/or procedures

Case/procedure	Inclusions or exclusions	VOP
Hip fracture surgery	n/a	25
Internal fixation long bones	n/a	10
Hip arthroplasty, elective	Must include minimum one hip revision	10
Knee arthroplasty	n/a	10
Shoulder surgery	May include shoulder arthroscopy	3
Arthroscopy	May include shoulder surgery	5
Total minimum VOP		**63**

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
Orthopaedic trauma			
SS_OR 1.1	Describe the rationale for and outline initial methods of fracture immobilisation and analgesia in patients awaiting definitive surgery for major trauma, including: • Pelvic fractures • Long bone fractures • Spinal fractures	ME	FEx
SS_OR 1.2	Discuss the initial assessment and management of (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental): • Unstable spinal injury including clearing the cervical spine • Acute spinal cord injury and 'neurogenic' shock	ME	FEx
SS_OR 1.3	Discuss the management of patients requiring anaesthesia for: • Pelvic fractures • Shoulder girdle fractures • Long bone fractures • Distal limb fractures • Reduction and fixation of spinal fractures	ME	FEx
SS_OR 1.4	In the trauma patient undergoing orthopaedic surgery, discuss the management of the following potential complications: • Cemented implant syndrome • Haemorrhage • Massive transfusion • Crush injury • Compartment syndrome • Re-perfusion injury • Fat embolism syndrome	ME	FEx
SS_OR 1.5	Discuss the diagnosis and prevention of chronic pain in musculo-skeletal trauma	ME	FEx
SS_OR 1.6	Outline the implication of neuro-vascular compromise of a limb or compound fractures for timing of surgery	ME	FEx
SS_OR 1.7	Discuss the assessment and anaesthetic management of the elderly patient with a hip fracture	ME	FEx
SS_OR 1.8	Describe the indicators of non-accidental injury and outline an appropriate course of action when non-accidental injury is suspected	ME	FEx
SS_OR 1.9	Evaluate the selection and use of thrombo-prophylaxis and antibiotic prophylaxis in orthopaedic trauma surgery	ME	FEx

Code	Learning outcome	Role	Assessment
Elective and non-traumatic emergency orthopaedic surgery			
SS_OR 1.10	Describe the common co-morbid disease and patient factors encountered in patients having elective orthopaedic procedures (also refer to the *Paediatric anaesthesia* specialised study unit and the *Perioperative medicine* clinical fundamental)	ME	FEx
SS_OR 1.11	Discuss the management of patients requiring anaesthesia for: • Joint replacement • Joint arthroscopy • Shoulder surgery • Ligament, peripheral nerve and/or artery repair, tendon • Lengthening or transfer • Compartment syndrome • Dislocated joint, including prosthesis • Joint infections • Pathological fractures	ME	FEx
SS_OR 1.12	Outline the common comorbidities associated with scoliosis and the anaesthetic management of patients having scoliosis correction surgery	ME	FEx
SS_OR 1.13	Discuss the implications of age and comorbidities in the perioperative plan of patients presenting for arthroplasty	ME	FEx
SS_OR 1.14	Discuss the diagnosis and management of the possible complications of orthopaedic surgery including (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental): • Cemented implant syndrome • Fat embolism syndrome • Pulmonary embolism • Compartment syndrome • Major blood loss • Neurological injury • Chronic and persistent pain	ME	FEx
SS_OR 1.15	Discuss the safe use of tourniquets for orthopaedic procedures (also refer to the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	FEx
SS_OR 1.16	Discuss the choice and timing of antibiotic prophylaxis for orthopaedic patients	ME	FEx
SS_OR 1.17	Discuss the use of thrombo-prophylaxis for orthopaedic patients especially joint replacement (also refer to the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	FEx
SS_OR 1.18	Discuss the perioperative management of patients on therapeutic anticoagulation requiring anaesthesia for orthopaedic procedures (also refer to the *Perioperative medicine* clinical fundamental)	ME	FEx

Code	Learning outcome	Role	Assessment
SS_OR 1.19	Evaluate methods to reduce intra-operative and postoperative blood loss and minimise the need for blood transfusion during or following orthopaedic procedures	ME	FEx
SS_OR 1.20	Describe the methods of spinal cord monitoring during spinal surgery	ME	FEx
SS_OR 1.21	Discuss the use of NSAIDs in orthopaedics (also refer to the *Pain medicine* clinical fundamental)	ME	FEx
SS_OR 1.22	Discuss the implications of the use of the beach-chair position for shoulder surgery	ME	FEx`
SS_OR 1.23	Discuss the implications of patients presenting with arthritis (osteoarthritis, rheumatoid arthritis or ankylosing spondylitis) (also refer to the *Perioperative medicine* clinical fundamental)	ME	FEx
SS_OR 1.24	Discuss implications of morbidly obese patients presenting for major orthopaedic surgery. For example: • Airway management • Risk of postoperative pulmonary complications • Monitoring • Intravenous access • Regional anaesthesia/analgesia • Systemic analgesia • Early mobilisation	ME	FEx
SS_OR 1.25	Discuss the options available for acute and subacute pain management following major orthopaedic surgery. For example: • Advantages and disadvantages of regional anaesthesia • Advantages and disadvantages of regional analgesia • Therapies to manage persistent post-surgical pain (neuropathic or nociceptive)	ME	FEx
2. Medical expert – skills			
SS_OR 2.1	Provide anaesthesia for patients requiring surgery for hip fracture (V)	ME	CbD, M-CEX
SS_OR 2.2	Provide anaesthesia for patients requiring internal fixation of long bone fractures with supervision level >/=2 (V)	ME	CbD, M-CEX
SS_OR 2.3	Provide anaesthesia for patients requiring fracture fixation with supervision level >/=2 (V)	ME	CbD, M-CEX
SS_OR 2.4	Provide anaesthesia for patients requiring arthroscopy with supervision level >/=2 (V)	ME	CbD, M-CEX
SS_OR 2.5	Provide anaesthesia for patients requiring knee replacement with supervision level >/=2 (V)	ME	CbD, M-CEX
SS_OR 2.6	Provide anaesthesia for patients requiring hip replacement with supervision level >/=2 (V)	ME	CbD, M-CEX
SS_OR 2.7	Provide anaesthesia for patients requiring shoulder surgery with supervision level >/=2 (V)	ME	CbD, M-CEX

Application of the ANZCA Roles in Practice to the Orthopaedic surgery specialised study unit	
Experience and/or learning opportunity	**Role**
Communicating with the frail elderly or demented patient	CM
Participating in multidisciplinary optimisation of elderly orthopaedic for surgery	CL
Co-ordinating movement of patients with spinal precautions	CL
Facilitating the efficient running of emergency orthopaedic lists	LM
Ensuring staff and patient protection from x-ray exposure	HA
Ensuring pain from fractures is minimised on moving and positioning prior to anaesthesia	HA
Discussing the ethical issues involved and strategies to resolve professionally disputed decisions concerning orthopaedic procedures in elderly patients with significant co-morbidities	PF

3.9 Paediatric anaesthesia

By the completion of this specialised study unit trainees will be able to independently provide anaesthesia and sedation for surgery of moderate complexity for children over two years of age without significant co-morbidities. They will be able to act as a member of a multidisciplinary team for the initial resuscitation, stabilisation and transfer of critically ill children and provide acute pain management for children.

Knowledge based outcomes relating to providing anaesthesia for younger children, children with significant co-morbidities and children having more complex procedures will provide a foundation for those wishing to gain further experience and skills in paediatric anaesthesia.

All the clinical fundamentals are applied to paediatric anaesthesia in this specialised study unit.

Workplace-based Assessment requirements

Trainees must complete three mandatory mini clinical evaluation exercise (mini-CEX) and two mandatory direct observation of procedural skills (M-DOPS) to finish this specialised study unit. In addition, trainees may select a case relevant to this specialised study unit to complete one of the six required specialised study unit non-specified case-based discussion (CbD) assessments.

Assessment name	Area of focus	Assessment	No.
Paediatric pre-assessment	Pre-assessment of paediatric patients	M-CEX PA1	1
Paediatric anaesthesia and IV	Anaesthetising paediatric patients, including induction (gas or IV) and securing venous access	M-CEX PA2	2
Paediatric inguinal surgery Block	Block for inguinal or penile surgery	M-DOPS PA1	1
Paediatric < 2 BMVent	Face mask ventilation <2 years	M-DOPS PA2	1
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this specialised study unit *	CbD	-

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

Volume of practice cases and/or procedures

Case/procedure and inclusions or exclusions	VOP
Age <16 years which must include: • Minimum 20 where age is <2 years • Minimum 20 where age is ≥ 2 years < 6 years	150

These cases should include a minimum of:
• 20 minor emergencies cases
• 20 minor elective procedures not including shared airway cases
• 10 medical imaging procedures (for example, CT or MRI)
• 20 shared airway procedures which may include:
  • Tonsillectomy,
  • Dental extraction,
  • Removal of inhaled foreign body	

Total minimum VOP for any age <16 years	**150**

N.B. This experience relates to providing anaesthesia for the specified procedures and not to participating in similar procedures where they may be carried out in the intensive care setting

Courses

In addition to the WBA and VOP requirements, trainees are required to complete a paediatric life support (PLS) course or equivalent – for more information and standard refer to Handbook for Training.

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
Airway management			
SS_PA 1.1	Describe the anatomy of the neonatal airway, how this changes with growth and development and the implications for airway management	ME	PEx
SS_PA 1.2	Describe airway and ventilatory equipment specific for paediatric patients, including: • Estimation of ETT size based on age • Accurate placement of ETT including fixation techniques • Issues relating to use of cuffed tubes in paediatrics • Breathing circuits	ME	FEx
SS_PA 1.3	Describe how preoxygenation and rapid sequence induction may be modified in children	ME	FEx
SS_PA 1.4	Describe how positioning for direct laryngoscopy differs in children	ME	FEx
SS_PA 1.5	Describe how techniques for endotracheal intubation differ in neonates and children	ME	FEx
SS_PA 1.6	Discuss indications for nasal intubation	ME	FEx
SS_PA 1.7	Describe the clinical features associated with a difficult airway, including those of syndromes and congenital abnormalities such as Pierre Robin, mucopolysaccaridoses and Treacher Collins	ME	FEx
SS_PA 1.8	Discuss the clinical features, possible causes, and management of perioperative upper airway obstruction including laryngospasm	ME	FEx
SS_PA 1.9	Describe the clinical features of children with critical airway obstruction and outline a management plan for the child with critical airway obstruction.	ME	FEx
SS_PA 1.10	Describe a technique for fibre optic intubation in children	ME	FEx
SS_PA 1.11	Discuss the principles of mechanical ventilation in paediatric patients, including selection of appropriate modes of ventilation, normal volumes and pressures, and the role of PEEP	ME	FEx
Pain medicine			
SS_PA 1.12	Describe the principles of the assessment of acute pain in children including the difficulties, relevance of functional assessment and the use of paediatric pain scales	ME	FEx
SS_PA 1.13	Discuss the importance of psychological and social factors in the presentation and management of acute pain in children	ME	FEx

Code	Learning outcome	Role	Assessment
SS_PA 1.14	Discuss the particular requirements for acute pain management in day-case anaesthesia	ME	FEx
SS_PA 1.15	Discuss the factors which influence the choice of mode of delivery of parenteral opioids in acute pain management (patient controlled anaesthesia, continuous infusion and prn prescription) in children	ME	FEx
SS_PA 1.16	Outline clinical situations where regional infusion techniques may be of benefit for management of acute pain in paediatric patients (also refer to the *Regional and local anaesthesia* clinical fundamental)	ME	FEx
SS_PA 1.17	Describe appropriate prescription, set up, and monitoring of patient controlled anaesthesia (PCA) and parenteral opioid infusions for paediatric patients with acute pain	ME	FEx
SS_PA 1.18	Outline the risks and appropriate monitoring of neonates receiving parenteral opioids	ME	FEx
SS_PA 1.19	Outline a plan to transition paediatric patients with acute pain from parenteral to oral analgesic therapies	ME	FEx
SS_PA 1.20	Formulate a plan for acute pain management that shows integrated knowledge of the interaction of analgesic agents, patient factors and the aetiology of pain	ME	FEx, CbD
Perioperative medicine – physiology			
SS_PA 1.21	Describe the foetal circulation	ME	PEx
SS_PA 1.22	Describe the circulatory and respiratory changes that occur at birth	ME	PEx
SS_PA 1.23	Define the thermoneutral zone, describe temperature regulation in the neonate and the physiological responses to lowered and raised environmental temperature, the effects of anaesthesia on these responses and how this changes with growth and development	ME	PEx
SS_PA 1.24	Describe the physiology of the cardiovascular, respiratory, renal and neurological systems in the neonate and the changes that occur with growth and development and the implications of this for anaesthetic care	ME	PEx
SS_PA 1.25	Describe the composition of body fluids in the neonate and explain the changes that occur with growth and development	ME	PEx
SS_PA 1.26	Describe glucose homeostasis in the neonate and explain the changes that occur with growth and development	ME	PEx
SS_PA 1.27	Describe vital signs for children of different ages	ME	PEx
Perioperative medicine – clinical			
SS_PA 1.28	Define and use terms that describe paediatric age and development	ME	FEx

Code	Learning outcome	Role	Assessment
SS_PA 1.29	Outline the implications of the developmental stage of children for their anaesthetic care	ME	FEx
SS_PA 1.30	Discuss the clinical features and implications for anaesthetic care of the following medical conditions: • Prematurity and the problems of ex-premature infants • Asthma • Sleep apnoea • Cystic fibrosis • Quinsy • Croup • Epiglottitis • Down syndrome • Cerebral palsy • Autism • Obesity • Diabetes	ME	FEx
SS_PA 1.31	Outline the clinical features and implications for anaesthetic care of the following medical conditions: • Muscular dystrophies • Congenital heart disease, including shunts, Fontan circulation and tetralogy of Fallot • Mediastinal mass	ME	FEx
SS_PA 1.32	Describe the preoperative preparation of children and their parents in the preoperative consultation	ME	FEx
SS_PA 1.33	Describe the assessment and management of a child with URTI or other intercurrent medical illness in the preoperative period	ME	FEx
SS_PA 1.34	Describe the assessment and management of a child with an undiagnosed murmur detected in the preoperative assessment	ME	FEx
Resuscitation, trauma and crisis management			
SS_PA 1.35	Describe the clinical features helpful in recognising the critically ill child	ME	FEx
SS_PA 1.36	Describe the aetiology of cardiac arrest in paediatric patients, both in the peri-anaesthetic and non-anaesthetic setting	ME	FEx
SS_PA 1.37	Discuss the assessment of blood loss in children	ME	FEx
SS_PA 1.38	Describe a fluid resuscitation regimen for acute blood loss appropriate for children	ME	FEx
SS_PA 1.39	Discuss the assessment and management of dehydration	ME	FEx
SS_PA 1.40	Outline an approach to obtaining vascular access in the shocked paediatric patient	ME	FEx

Code	Learning outcome	Role	Assessment
SS_PA 1.41	Discuss the diagnosis and resuscitative management of children with the following life threatening conditions: • Cardiac arrest • Respiratory arrest • Shock • Anaphylaxis • Sepsis, including meningococcal sepsis • Aspiration of gastric contents • Severe bronchospasm • Post-tonsillectomy haemorrhage • Gas embolism • Fat embolism • Raised intracranial pressure • Local anaesthetic toxicity • Malignant hyperthermia • Coagulopathy • Severe electrolyte and acid-base disturbances	ME	FEx
SS_PA 1.42	Describe the principles of safe intra- and inter-hospital transport of critically ill neonates and children (also refer to the *Safety and quality in anaesthetic practice* clinical fundamental and College professional document *PS52*: *Guidelines for Transport of Critically Ill Patients*)	ME	FEx
SS_PA 1.43	Outline special preparations in the emergency department prior to the arrival of a paediatric trauma patient	ME	FEx
SS_PA 1.44	Outline the use of the Broselow tape in paediatric trauma	ME	FEx
SS_PA 1.45	Describe traumatic injury patterns in children that differ from adults, including spinal cord injury without radiological abnormality (SCIWORA) and tension pneumothorax	ME	FEx
SS_PA 1.46	Describe indicators of non-accidental injury in paediatric populations and outline an appropriate course of action when non-accidental injury is suspected	ME	FEx
SS_PA 1.47	Describe the initial assessment and management of the child with severe burn injury including (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental): • Fluid management • Pain management • Diagnosis and management of inhalational injury (also refer to the *Airway management* clinical fundamental) • Diagnosis and management of carbon monoxide poisoning	ME	FEx
SS_PA 1.48	Describe the initial assessment and management of the child who has experienced (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental): • Electrocution • Drowning and near drowning • Envenomation • Severe hypothermia	ME	FEx

Code	Learning outcome	Role	Assessment
General anaesthesia and sedation			
SS_PA 1.49	Describe methods to optimise the environment during the induction of anaesthesia in children	ME	FEx
SS_PA 1.50	Describe methods to minimise the anxiety of children and their parents during induction of anaesthesia	ME	FEx
SS_PA 1.51	Discuss the advantages and disadvantages of parental presence at induction of anaesthesia	ME	FEx
General anaesthesia and sedation - clinical and applied pharmacology			
SS_PA 1.52	Describe how the pharmacokinetics of drugs commonly used in anaesthesia in neonates and children differ from adults and the implications for anaesthesia	ME	PEx
SS_PA 1.53	Describe the changes in the pharmacodynamics of volatile agents, analgesics, opioids and neuromuscular blocking agents in the neonate and the changes that occur with growth and development and the implications for anaesthesia	ME	PEx
SS_PA 1.54	Describe the pharmacology of agents used for premedication in children, including midazolam, clonidine and ketamine	ME	PEx
SS_PA 1.55	Describe the pharmacology of topical anaesthesia agents and their use for cannulation and venepuncture	ME	FEx
SS_PA 1.56	Discuss the use of TIVA and target controlled infusions in children	ME	FEx
SS_PA 1.57	Discuss the effects of anaesthesia on the developing brain	ME	FEx
SS_PA 1.58	Describe fasting guidelines used in paediatric anaesthesia and their basis	ME	FEx
SS_PA 1.59	Discuss the use of preoperative sedative premedication in children, including selection of patients, choice of drug, and appropriate route, dosing and timing	ME	FEx
SS_PA 1.60	Evaluate the role of pharmacologic and non-pharmacologic preoperative preparation of children of different ages	ME	FEx
SS_PA 1.61	Discuss the prevention and management of postoperative delirium	ME	FEx
General anaesthesia and sedation - physiology			
SS_PA 1.62	Discuss the physiological effects of pneumoperitoneum in children	ME	FEx
SS_PA 1.63	Discuss temperature maintenance in the anaesthetised child	ME	FEx
General anaesthesia and sedation - vascular access			
SS_PA 1.64	Describe the anatomy, including ultrasonic anatomy, of the peripheral venous system relevant to performing intravenous cannulation in children	ME	FEx

Code	Learning outcome	Role	Assessment
SS_PA 1.65	Outline measures to minimise patient discomfort and to improve success with intravenous cannulation in children	ME	FEx
SS_PA 1.66	Outline the differences in central venous cannulation between children and adults	ME	FEx
SS_PA 1.67	Evaluate the prevention and management of postoperative nausea and vomiting in children	ME	FEx
General anaesthesia and sedation - fluid therapy and monitoring skills			
SS_PA 1.68	Calculate intravenous fluid requirements and choose intravenous fluid therapy appropriate to the clinical situation for children	ME	FEx
SS_PA 1.69	Discuss the methods available for monitoring depth of anaesthesia and sedation and their utility in neonates and children	ME	FEx
General anaesthesia and sedation - anaesthesia for specific procedures			
SS_PA 1.70	Discuss the anaesthetic management of children requiring more complex shared airway procedures, for example, cleft lip and palate, laryngoscopy, oesophagoscopy, removal of airway foreign body	ME	FEx
SS_PA 1.71	Discuss the anaesthetic management of children requiring neurosurgical procedures of moderate complexity, for example, VP shunt, burr hole for subdural/extradural haematoma	ME	FEx
SS_PA 1.72	Outline the general principles of anaesthetic management of children requiring major neurosurgery, for example, craniotomy for tumour	ME	FEx
SS_PA 1.73	Discuss the anaesthetic management of children with penetrating eye injury	ME	FEx
SS_PA 1.74	Outline the general principles of anaesthetic management of children requiring major abdominal surgery, for example, fundoplication	ME	FEx
SS_PA 1.75	Discuss anaesthesia for laparotomy for trauma in children	ME	FEx
SS_PA 1.76	Discuss the anaesthetic management of infants having pyloromyotomy	ME	FEx
SS_PA 1.77	Discuss the anaesthetic management of neonatal hernia repair	ME	FEx
SS_PA 1.78	Outline the principles of anaesthetic management of neonates and infants requiring major surgery, for example, necrotising enterocolitis	ME	FEx

Code	Learning outcome	Role	Assessment
Regional anaesthesia			
SS_PA 1.79	Describe the difference in pharmacokinetics of local anaesthetic agents in neonates and children from adults and the implications for regional blockade	ME	PEx
SS_PA 1.80	Describe the maximum safe doses of local anaesthetic agents in different age groups	ME	PEx
SS_PA 1.81	Describe the anatomy of the neonatal spine and spinal cord and how this changes with growth and development and the implications for neural blockade	ME	FEx
SS_PA 1.82	Outline the physiology of nerve conduction in neonates and children	ME	FEx
SS_PA 1.83	Outline the assessment of the adequacy of a regional technique in neonates and children	ME	FEx
SS_PA 1.84	Describe the physiological response to a central neuraxial block in neonates and children	ME	FEx
SS_PA 1.85	Describe the use of adjuvant agents to enhance the quality or extend duration of peripheral or neuraxial block in neonates and children	ME	FEx
SS_PA 1.86	Describe the pharmacokinetics of drugs administered in the epidural and subarachnoid space in neonates and children	ME	FEx
SS_PA 1.87	Describe how the use of ultrasound imaging differs between adults, children and neonates	ME	FEx
SS_PA 1.88	Describe the methods used for checking for inadvertent intravenous and intraneural administration of local anaesthetic, particularly with caudal anaesthesia	ME	FEx
SS_PA 1.89	Outline factors influencing dose and choice of anaesthetic agents for spinal anaesthesia and epidural anaesthesia/analgesia in neonates and children	ME	FEx
SS_PA 1.90	Describe post-anaesthesia instructions for patients who have undergone regional anaesthesia with a plan for postoperative analgesia and surveillance for neurological injury	ME	FEx
SS_PA 1.91	Describe the recognition, investigation and management of complications of regional techniques in neonates and children	ME	FEx
SS_PA 1.92	Outline the differences in performance of spinal and epidural anaesthesia and major plexus blocks in neonates and children compared with adults	ME	FEx

Code	Learning outcome	Role	Assessment
SS_PA 1.93	For the following blocks commonly performed in paediatric anaesthesia: 1. Describe the anatomy relevant to block performance and complications 2. Discuss the indications and contraindications, risks and benefits. 3. Describe the appropriate patient positioning, anatomical landmarks and insertion techniques and methods to minimise risk of complication • Ilioinguinal • Femoral • Fascia iliaca • Penile • TAP • Caudal epidural	ME	FEx
Safety and quality			
SS_PA 1.94	Describe the ANZCA requirements for non-specialist paediatric hospitals providing paediatric anaesthesia and the principles to be considered in formulating protocols and making decisions regarding the transfer of a child to a tertiary centre (refer to College professional document: *PS29 Statement on Anaesthesia Care of Children in Healthcare Facilities Without Dedicated Paediatric Facilities*	ME	FEx
SS_PA 1.95	Discuss requirements for postoperative monitoring in neonates and ex-premature infants	ME	FEx
SS_PA 1.96	Discuss the safety of methods of manipulating body temperature during anaesthesia and sedation, including active warming and cooling of infants and children	ME	FEx
SS_PA 1.97	Discuss the safety precautions and equipment requirements when providing anaesthesia and sedation in the MRI suite (also refer to the *Safety and quality in anaesthetic practice* clinical fundamental and to College professional document: *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations*)	ME	FEx
2. Medical expert – skills			
SS_PA 2.1	Perform effective face-mask ventilation in neonates and children	ME	M-DOPS
SS_PA 2.2	Perform manoeuvres to relieve airway obstruction in children including chin lift, jaw thrust, oral and nasal airway insertion (choice of appropriate size), and application of CPAP	ME	M-DOPS
SS_PA 2.3	Perform pre-anaesthetic assessment and formulate an appropriate anaesthetic plan for children who are to undergo procedures requiring anaesthesia	ME	M-CEX, CbD
SS_PA 2.4	Insert a supraglottic airway such as the LMA of appropriate size for weight	ME	DOPS, M-CEX

Code	Learning outcome	Role	Assessment
SS_PA 2.5	Perform endotracheal intubation in infants and children	ME	DOPS, M-CEX
SS_PA 2.6	Perform nasal intubation in children	ME	DOPS
SS_PA 2.7	Select appropriate ventilation strategies for the anaesthetised child	ME	CEX
SS_PA 2.8	Demonstrate advanced life support in children consistent with Australian Resuscitation Council/New Zealand Resuscitation Council guidelines	ME	PLS
SS_PA 2.9	Demonstrate intraosseous cannulation	ME	DOPS
SS_PA 2.10	Perform gaseous induction and intravenous induction in children	ME	DOPS, M-CEX
SS_PA 2.11	Perform venous cannulation in infants	ME	DOPS, M-CEX
SS_PA 2.12	Safely anaesthetise children over the age of two years and under the age of 16 years with distant supervision (V)	ME	CEX, CbD
SS_PA 2.13	Safely anaesthetise children under the age of two years with level 1 or 2 supervision (V)	ME	CEX, CbD
SS_PA 2.15	Provide anaesthesia for minor/moderate emergency surgery, for example, appendicectomy, scrotal exploration, closed and open fracture reductions, drainage of abscess, suture of lacerations, treatment of dental abscess (V)	ME	CbD, M-CEX
SS_PA 2.16	Provide anaesthesia for minor/moderate elective surgery, for example, hernia repair, orchidopexy, hypospadias, insertion of grommets, myringoplasty, mastoidectomy, circumcision, hypospadias repair, squint repair (V)	ME	CbD, M-CEX
SS_PA 2.17	Provide anaesthesia for shared airway procedures, for example, tonsillectomy and adenoidectomy, bronchoscopy, gastroscopy, division of tongue tie, dental restorations and extractions (V)	ME	CbD, M-CEX
SS_PA 2.18	Provide anaesthesia for medical and imaging procedures, for example, CVC insertion, lumbar puncture, bone marrow aspiration, MRI and CT scan (V)	ME	CbD, M-CEX
SS_PA 2.19	Perform a regional block to provide analgesia for penile and/or inguinal surgery	ME	M-DOPS

Application of the ANZCA Roles in Practice to the Paediatric anaesthesia specialised study unit	
Experience and/or learning opportunity	**Role**
Communicating with children and their parents at a level which they can each understand using age appropriate language and non-threatening body language	CM
Communicating with intellectually disabled children and children with behavioural disturbances.	CM
Involving parents/carers in perioperative management plans for children	CM
Using various communication strategies to optimise induction of anaesthesia in children	CM
Communicating with parents/carers and child following an adverse event	CM
Working collaboratively with other team members to prepare children for theatre, facilitate anaesthesia and recovery, and to manage postoperative pain	CL
Identifying groups where increased emphasis on collaborative care and planning is particularly important, for example, children with special needs, and consulting with other health professionals as required	LM
Outlining the unique attributes of a paediatric acute pain service	LM
Prioritising tasks in anaesthesia care for children, taking into consideration the age of the child/children	LM
Discussing the advantages and disadvantages of caring for children in a predominantly adult based institution verses a dedicated paediatric facility	LML
Promoting health with the child and/or parents/carers during anaesthesia care, particularly with regard to passive smoking, diet, dental care, and immunisation	HA
Providing age appropriate choice to children about aspects of their anaesthetic care and pain management	HA
Obtaining consent from/for a paediatric patient, taking into consideration legal and ethical issues and how they differ according to the jurisdiction (refer to College professional document: *PS26 Guidelines on Consent for Anaesthesia or Sedation)*	PF
Reflecting on and discussing with supervisors the ethical issues involved in paediatric care including: • Managing children who refuse to cooperate with treatment • Managing a situation where a parent refuses to co-operate with clinically important advised care • The licensing of medication for use in children and 'off-license' use • Management of the terminally ill child • Autonomy in the adolescent patient and their ability to give or refuse consent	PF

Application of the ANZCA Roles in Practice to the Paediatric anaesthesia specialised study unit	
Respecting the special responsibility given to them by parents/caregivers when entrusting children into their care	PF
Identifying and notifying relevant authorities/agencies of the child at risk	PF
Teaching skills in paediatric anaesthesia particularly airway management, intravenous access and resuscitation	SC
Participating in clinical audit, critical incident monitoring and morbidity and mortality reviews in paediatric anaesthesia	SC

3.10 Plastic, reconstructive and burns surgery

By the completion of this specialised study unit the trainee will have the knowledge necessary to provide anaesthesia for patients having plastic, reconstructive and burns surgery.

Learning outcomes related to the initial resuscitation of acute major burns are covered in the *Resuscitation, trauma and crisis management* clinical fundamental. Paediatric burns are covered in the *Paediatric anaesthesia* specialised study unit.

This specialised study unit overlaps significantly with the *Head and neck, ear, nose and throat, dental surgery and electro-convulsive therapy specialised study unit and the Paediatric anaesthesia specialised study unit. Hand surgery is covered in the Orthopaedic surgery specialised study unit.*

Workplace-based assessment requirements

There are no workplace-based assessment or volume of practice requirements for this specialised study unit. Credit for this unit will be given at the successful completion of the advanced training period.

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
Plastic and reconstructive surgery			
SS_PB 1.1	Describe the physiological principles relevant to optimising blood flow to tissue flaps, including: • Oxygen transport and delivery • Determinants and control of cardiac output • Physics of blood flow • Determinants and regulation of blood flow through the various components of the vasculature • Autonomic nervous system control of systemic vascular • Resistance and redistribution of blood volume • The integrated cardiovascular responses to anaesthesia and a central neuraxial block • The physiological mechanisms controlling and regulating body temperature and the effects of anaesthesia	ME	FEx
SS_PB 1.2	Describe the different types of tissue flaps and the implications for flap survival	ME	FEx
SS_PB 1.3	Discuss the issues involved with and the anaesthetic management of patients having surgery for tissue flaps. Including: • Optimising conditions for flap survival • Prolonged anaesthesia • Limited access to the patient • Potential for major occult blood loss over a period of time	ME	FEx
Code	**Learning outcome**	**Role**	**Assessment**

SS_PB 1.4	Describe the common co-morbid disease and patient factors encountered in patients having plastic or reconstructive surgical procedures	ME	FEx
SS_PB 1.5	Discuss the surgical requirements and implications for the perioperative anaesthetic management of patients having: • Removal of multiple skin lesions • Cosmetic surgery • Split skin graft • Full thickness graft • Resection or debridement of tissue (minor and major)	ME	FEx
SS_PB 1.6	Discuss pain management for patients undergoing plastic surgery	ME	FEx
SS_PB 1.7	Evaluate the use, safety and methods of providing induced hypotension to minimise blood loss and improve surgical operating conditions during dissection and extensive excision of tissue (also refer to the *Head and neck, ear, nose and throat, dental surgery and electro-convulsive therapy* specialised study unit)	ME	FEx
Burns			
SS_PB 1.8	Describe the pathophysiology of burns and the multisystem effects commonly encountered in these patients	ME	FEx
SS_PB 1.9	Discuss temperature homeostasis in burns patients and the implications of hypothermia in this group	ME	FEx
SS_PB 1.10	Evaluate warming measures used to maintain the temperature of burns patients intra-operatively	ME	FEx
SS_PB 1.11	Discuss the methods of managing the metabolic effects of burns in the perioperative period	ME	FEx
SS_PB 1.12	Discuss the problems associated with monitoring and venous cannulation in burns patients and their management	ME	FEx
SS_PB 1.13	Discuss the implications for the perioperative anaesthetic management of patients with the following burn injuries: • Airway and facial burns (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental) • Respiratory burns (also refer to the *Airway management* clinical fundamental and the *Intensive care medicine* specialised study unit) • Electrical burns • Chemical burns • Associated trauma	ME	FEx
SS_PB 1.14	Discuss the methods of minimising or managing blood loss during the debridement of burns	ME	FEx
SS_PB 1.15	Discuss the perioperative assessment and management of fluid status and blood transfusion requirements for the burns patient	ME	FEx
Code	**Learning outcome**	**Role**	**Assessment**

SS_PB 1.16	Outline infection control in burns patients and the prevention of secondary sepsis	ME	FEx
SS_PB 1.17	Outline the methods and materials used to provide temporary and long term coverage of burns	ME	FEx
SS_PB 1.18	Discuss the specific pain issues encountered in the burns patient and their management (also refer to the *Pain medicine* clinical fundamental)	ME	FEx
SS_PB 1.19	Discuss the risk of a hyperkalaemic crisis in burns patients	ME	FEx
SS_PB 1.20	Describe the anaesthetic issues and the management of patients returning for scar revision following burns, especially for neck and facial scarring (also refer to the *Airway management* clinical fundamental)	ME	FEx

Application of the ANZCA Roles in Practice to the Plastic, reconstructive and burns surgery specialised study unit	
Experience and/or learning opportunity	**Role**
Contributing to the emotional support of patients with severe burns, cosmetic disfigurement or diagnosis of cancer	CM
Providing reassurance and support to patients having minor plastic surgical procedures performed under local anaesthesia (refer to College professional document: *PS37 Guidelines for Health Practitioners Administering Local Anaesthesia)*	CM
Managing the multiple, and potentially conflicting, requirements of different surgical teams operating on the same patient	CL
Providing an intra-operative handover during long procedures (refer to College professional document: *PS53 Statement on the Handover Responsibilities of the Anaesthetist)*	CL
Organising relief for themselves and other members of the anaesthetic team during prolonged cases or cases done in the hot and humid environment of the burns theatre (refer to College professional document: *PS53 Statement on the Handover Responsibilities of the Anaesthetist)*	LM
Organising the working environment to optimise access, monitoring and equipment positioning where access to the patient may be limited	LM
Advising patients of the benefits of smoking cessation for wound healing (refer to College professional document: *PS12 Guidelines on Smoking as Related to the Perioperative Period)*	HA
Ensuring that surgeons limit their use of local anaesthetic to safe doses	HA
Ensuring the careful handling of patients with skin grafts on transfer to prevent disruption of these grafts	HA
Evaluating methods of improving graft survival in free flap surgery	SC
Evaluating fluid management strategies in patients with burns	SC
Reflecting on their own responses toward patients who are disfigured and how this affects care	PF

3.11 Thoracic surgery

By completion of this specialised study unit, trainees will be able to provide anaesthesia for patients requiring thoracic surgery of moderate complexity, including open thoracic and thoracoscopic surgical procedures that may be required for emergent patient care.

Knowledge based learning outcomes related to anaesthesia for more complex thoracic surgery in this unit, will provide a foundation for those wishing to gain further experience and skills in thoracic anaesthesia.

Learning outcomes related to the initial resuscitation and management of patients with thoracic trauma are covered in the *Resuscitation, trauma and crisis management* clinical fundamental.

Many topic areas particularly relevant to this specialised study unit are also covered in the *Perioperative medicine* and *Pain medicine* clinical fundamentals.

Workplace-based assessment requirements

Trainees must complete one mandatory mini clinical evaluation exercise (mini-CEX) and one mandatory direct observation of procedural skills (M-DOPS) assessment to finish this specialised study unit. In addition, trainees may select a case relevant to this specialised study unit to complete one of the six required specialised study unit non-specified case-based discussion (CbD) assessments.

Assessment name	Area of focus	Assessment	No.
Thoracic anaesthesia	Provide anaesthesia for a patient having thoracic surgery	M-CEX TS1	1
Thoracic DLT	Securing the airway with a double lumen tube, checking positioning and testing for lung isolation	M-DOPS TS1	1
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this specialised study unit *	CbD	-

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

Volume of practice cases and/or procedures

Case/procedure	Inclusions or exclusions	VOP
Thoracotomy and/or thoracoscopy	Excludes: • Cardiac surgery • Sternotomy cases	10
Bronchoscopy	Must involve care of patients undergoing this procedure, with proceduralists from any specialty.	5
Total minimum VOP		**15**

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
Anatomy			
SS_TS 1.1	Describe the anatomy of the: • Tracheobronchial tree including endoscopic anatomy to level of lobar bronchi • Lung lobes and segments including common variations that may occur in these structures • Thorax, including the pleura and its surface anatomy • Innervation of the chest wall of relevance to the performance of regional blockade for thoracic surgery and chest trauma	ME	FEx
Physiology			
SS_TS 1.2	Describe the changes in lung physiology and the implications for anaesthesia management which occur with: • Lateral decubitus positioning • Open thorax • One lung ventilation	ME	FEx
SS_TS 1.3	Discuss the physiology of hypoxic pulmonary vasoconstriction, including the effect of anaesthetic agents and the implications for anaesthesia management	ME	FEx
SS_TS 1.4	Discuss the pathophysiology of pulmonary hypertension and methods available to the anaesthetist to manipulate pulmonary vascular resistance and pulmonary artery pressures	ME	FEx
SS_TS 1.5	Discuss the pathophysiology of chronic obstructive pulmonary disease and the strategies available for artificial ventilation to minimise gas trapping	ME	FEx
Preoperative assessment			
SS_TS 1.6	Discuss the assessment of patients with mediastinal masses for surgical procedures including the assessment of severity of vascular and respiratory obstruction and the implications for anaesthesia management	ME	FEx
Anaesthesia for thoracic surgery			
SS_TS 1.7	Describe the techniques used to position patients for thoracic surgery and to minimise risk of postoperative position-related injury	ME	FEx
SS_TS 1.8	Describe the indications and contraindications for one-lung ventilation	ME	FEx

Code	Learning outcome	Role	Assessment
SS_TS 1.9	Describe the different methods available to perform lung isolation including the use of double-lumen tubes, bronchial blockers, single lumen tubes and Univent tubes and the rationale for selecting different methods in different situations (refer to the *Paediatric anaesthesia* specialised study unit for issues specifically pertaining to paediatric patients)	ME	FEx
SS_TS 1.10	Discuss the complications of double lumen ETT and the management of intraoperative problems associated with their use	ME	FEx
SS_TS 1.11	Discuss the management of hypoxaemia during one-lung ventilation	ME	FEx
SS_TS 1.12	Discuss the anaesthetic management of the following endobronchial procedures: • Flexible bronchoscopy • Diagnostic bronchoscopy • Bronchoalveolar lavage • Bronchoscopic ultrasound and biopsy • Placement of endobronchial stent • Rigid bronchoscopy • Spontaneous versus jet ventilation • Removal of foreign body in airway • Laser of endobronchial tumour	ME	FEx

SS_TS 1.13	Discuss the anaesthetic management of the following procedures:
	• Surgery for mediastinal mass
	• Thymectomy, particularly the perioperative management of myasthenia gravis (also refer to the *Perioperative medicine* clinical fundamental)
	• Mediastinoscopy
	• Thoracoscopy and thoracotomy for:
	  ○ Pleurodesis
	  ○ Bleeding
	  ○ Bronchopleural fistula
		ME	FEx

SS_TS 1.14	Outline the anaesthetic management of the following procedures: • Lobectomy • Pneumonectomy • Drainage of lung abscess • Drainage of empyema and decortication of lung • Lung volume reduction surgery • Giant bullous emphysema resection • Thoracoscopic sympathectomy (also refer to the *Vascular surgery and interventional radiology* specialised study unit)	ME	FEx
SS_TS 1.15	Identify pain management issues specific to thoracic surgery and critically evaluate analgesic options for patients having thoracic surgery	ME	FEx
SS_TS 1.16	Identify fluid management issues specific to thoracic surgery and discuss fluid management of the patient having lung resection	ME	FEx

Code	Learning outcome	Role	Assessment
SS_TS 1.17	Discuss the management of chest drains and pleural drainage systems in the postoperative period	ME	FEx
SS_TS 1.18	Compare the anaesthetic management of thoracoscopic and open approaches for thoracic surgery	ME	FEx
SS_TS 1.19	Outline the specific issues for perioperative management of patients for pneumonectomy	ME	FEx
SS_TS 1.20	Outline the critical times during thoracic procedures that will impact on anaesthesia management, including airway ligation and manipulation of pulmonary vasculature	ME	FEx
SS_TS 1.21	Outline the management of the following postoperative complications associated with thoracic surgery: • Bleeding (airway, lung or pleural cavity) • Pneumothorax • Arrythmias • Bronchopleural fistulae • Nerve damage • Pulmonary torsion • Cardiac herniation	ME	FEx
Thoracic trauma			
SS_TS 1.22	Discuss the diagnosis and management of: • Pneumothorax/tension pneumothorax • Haemothorax • Flail chest • Rib/sternal fractures • Pulmonary contusion • Traumatic aortic disruption • Tracheobronchial injury, bronchopleural fistula In particular: • Evaluate methods of analgesia for rib/sternal fractures • Outline indications for thoracotomy in the management of chest trauma	ME	FEx
SS_TS 1.23	Discuss the management of respiratory failure associated with chest trauma and the place of non-invasive ventilation	ME	FEx
SS_TS 1.24	Discuss the management of chest drains and pleural drainage systems for thoracic trauma	ME	FEx
2. Medical expert – skills			
SS_TS 2.1	Assess the patient presenting for thoracic surgery including: • Determination of functional status • Indications for arterial blood gas analysis, lung function testing, chest CT and MRI • Identifying patients requiring further investigation and optimisation (Also refer to the *Perioperative medicine* clinical fundamental)	ME	CEX, CbD

Code	Learning outcome	Role	Assessment
SS_TS 2.2	Assess perioperative risk prior to lobectomy and pneumonectomy on a specific patient including the assessment of: • Respiratory mechanics • Cardiopulmonary reserve • Lung parenchymal function • Methods for prediction of postoperative lung function	ME	CEX
SS_TS 2.3	Demonstrate the set up for anaesthesia with the rigid bronchoscope including delivery of anaesthesia drugs and methods of ventilation	ME	CEX
SS_TS 2.4	Select the correct size and side of double lumen ETT and place it to provide lung isolation for a patient, including the use of clinical and endoscopic methods to confirm tube placement	ME	M-DOPS
SS_TS 2.5	Demonstrate pleural drainage via needle and chest drain insertion (also refer to the Resuscitation, trauma and crisis management clinical fundamental)	ME	DOPS
SS_TS 2.6	Provide anaesthesia for patients requiring bronchoscopy (V)	ME	CbD, M-CEX
SS_TS 2.7	Provide anaesthesia for patients requiring thoracoscopy (V)	ME	CbD, M-CEX
SS_TS 2.8	Provide anaesthesia for patients requiring thoracotomy (V)	ME	CbD, M-CEX

Application of the ANZCA Roles in Practice to the Thoracic surgery specialised study unit	
Experience and/or learning opportunity	**Role**
Communicating with patients with a diagnosis of lung cancer and their families (including significant others, carers and/or friends)	CM
Providing information to patients undergoing thoracic procedures, concerning the risks for limitation of activity and reduced quality of life postoperatively	CM
Providing information to patients about the various pain management techniques available for use after thoracic procedures	CM
Participate in multidisciplinary preoperative assessment and optimisation of patients for thoracic procedures	CL
Identifying stages of thoracic surgical procedures where close collaboration is required, for example, management of one lung ventilation	CL
Identifying additional personnel and equipment which may be urgently required during thoracic surgical cases, for example, for use of cell saver or cardiopulmonary bypass	CL
Effectively hand over care and work with multi-disciplinary team members in the postoperative period to provide the best outcome for patients having thoracic surgery (refer to College professional document: *PS53 Statement on the Handover Responsibilities of the Anaesthetist)*	CL
Identifying opportunities for secondary prevention and optimisation prior to surgery with respect to respiratory disease, particularly smoking cessation	HA
Outlining the measures required to minimise infection risk for patients and staff in cases where tuberculosis and other airborne infectious agents may be involved (refer to College professional document: *PS28 Guidelines on Infection Control in Anaesthesia)*	HA
Educating team members about anaesthesia issues specific to thoracic surgery including the need for close collaboration during one-lung ventilation and manipulation of intra-thoracic structures.	SC
Critically evaluate the efficacy of different intra and postoperative pain management techniques	SC
Monitoring and managing risk where exposure to infectious disease may occur (for example, tuberculosis) (refer to College professional document: *PS28 Guidelines on Infection Control in Anaesthesia)*	PF

3.12 Vascular surgery and interventional radiology

By the completion of this specialised study unit trainees will be able to provide anaesthesia for patients requiring vascular surgery and interventional radiological procedures.

Learning outcomes related to the initial resuscitation and management of patients with vascular trauma and rupture or dissection of the aorta, are covered in the *Resuscitation, trauma and crisis management* clinical fundamental.

Many topic areas particularly relevant to this specialised study unit are covered in the *Perioperative medicine*, *Pain medicine* and *Safety and quality in anaesthetic practice* clinical fundamentals.

Workplace-based assessment requirements

Trainees must complete two mandatory mini clinical evaluation exercise (mini-CEX) assessments to finish this specialised study unit. In addition, trainees may select a case relevant to this specialised study unit to complete one of the six required specialised study unit non-specified case-based discussion assessments.

Assessment name	Area of focus	Assessment	No.
Vascular anaesthesia Revascularisation	Provide anaesthesia for a patient undergoing a revascularisation procedure	M-CEX VS1	1
Vascular anaesthesia	Provide anaesthesia for a vascular case	M-CEX VS2	1
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this specialised study unit *	CbD	-

*Trainees should refer to the learning outcomes within this specialised study uni identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

Volume of practice cases and/or procedures

Case/procedure	Inclusions or exclusions	VOP
Vascular surgery or interventional radiological procedures	Must include: • Minimum or 2 carotid endarterectomy • 3 abdominal aortic surgery (open or endoluminal, elective or acute)	25
Total minimum VOP		**25**

By the end of this specialised study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
Preoperative assessment			
SS_VS 1.1	Outline the pathophysiology of peripheral vascular disease including common co-morbidities	ME	FEx
SS_VS 1.2	Discuss the perioperative management of the following co-morbidities in the patient presenting for vascular surgery including perioperative risk assessment and risk reduction (also refer to the *Perioperative medicine* clinical fundamental): • Ischaemic heart disease • Cardiac failure • Arrhythmia • Hypertension • Diabetes mellitus • Chronic obstructive airways disease • Renal failure	ME	FEx
SS_VS 1.3	Describe the impact of vascular disease on: • Wound dehiscence and infection • Positioning injury • Perioperative myocardial ischaemia • Perioperative stroke • Perioperative renal failure	ME	FEx
Anaesthesia for vascular surgery			
SS_VS 1.4	Discuss the surgical requirements and implications for anaesthetic management of patients having elective surgery for: • Peripheral arterial occlusive disease • Carotid artery stenosis • Aortic and aorto-iliac disease • Vascular access for haemodialysis • Thorascopic sympathectomy	ME	FEx
SS_VS 1.5	Discuss options for postoperative analgesia and perioperative fluid therapy for these procedures	ME	FEx
SS_VS 1.6	Evaluate the risks and benefits of regional anaesthesia and analgesia in vascular surgery	ME	FEx
SS_VS 1.7	Discuss the perioperative management, including postoperative analgesia and perioperative fluid management of patients having an emergency vascular procedure for the following: • Ruptured aortic aneurysm • Aortic dissection • Major vessel occlusion • Limb ischaemia • Limb amputation • Arterial laceration	ME	FEx

Code	Learning outcome	Role	Assessment
SS_VS 1.8	Discuss methods to minimise blood loss and transfusion requirements in aortic surgery	ME	FEx
SS_VS 1.9	Describe the pathophysiology and implications for anaesthesia management of: • Aortic cross clamping and unclamping at various levels • Prolonged limb or gut ischaemia • Carotid clamping and unclamping	ME	FEx
SS_VS 1.10	Discuss the prevention, diagnosis and management of intra-operative complications associated with vascular surgery including (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental): • Major haemorrhage • Bradycardia associated with carotid artery surgery • Cerebral ischaemia associated with carotid artery clamping • Reperfusion syndromes • Spinal cord ischaemia • Acute renal impairment • Myocardial ischaemia • Acute arrhythmia • Stroke • Thromboembolism	ME	FEx
SS_VS 1.11	Discuss strategies for spinal cord protection in aortic surgery	ME	FEx
SS_VS 1.12	Discuss the diagnosis and management of postoperative complications associated with vascular surgery including (also refer to the *Resuscitation, trauma and crisis management* specialised study unit): • Haemorrhage • Perioperative stroke • Myocardial ischaemia • Limb ischaemia • Rhabdomyolysis • Post-amputation pain	ME	FEx
SS_VS 1.13	Outline recovery room complications specifically associated with carotid endarterectomy and discuss their management	ME	FEx
SS_VS 1.14	Discuss techniques used to monitor cerebral perfusion during carotid endarterectomy	ME	FEx
SS_VS 1.15	Describe a technique for performing carotid endarterectomy under regional anaesthesia and evaluate the role of regional anaesthesia for carotid endarterectomy	ME	FEx
Anaesthesia for Interventional Vascular Procedures			
SS_VS 1.16	Outline the implications for patient safety of the location of the interventional radiology service	ME	FEx

Code	Learning outcome	Role	Assessment
SS_VS 1.17	Discuss the procedural requirements and implications for anaesthetic management of patients having interventional radiological procedures including: • Vascular embolisation • Vascular stenting • Insertion of intravascular devices including aortic grafts • Radiological-guided biopsy under anaesthesia	ME	FEx
SS_VS 1.18	Discuss the diagnosis and management of complications associated with interventional radiological procedures including (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental and to College professional document: *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations*): • Reaction to intravenous contrast • Aortic occlusion • Acute renal impairment • Spinal cord ischaemia • High radiation dose • Haemorrhage	ME	FEx
SS_VS 1.19	Outline the advantages and disadvantages of interventional radiological procedures as compared with open procedures for management of: • Aortic aneurysm • Aortic dissection • Carotid artery stenosis	ME	FEx
2. Medical expert – skills			
SS_VS 2.1	Assess the patient presenting for vascular surgery (also refer to the *Perioperative medicine* clinical fundamental) including: • Determination of functional status • Assessing perioperative risk • Identifying patients requiring further investigation and optimisation	ME	CbD, CEX
SS_VS 2.2	Provide anaesthesia for patients requiring carotid endarterectomy (V)	ME	CbD, M-CEX
SS_VS 2.3	Provide anaesthesia for patients requiring open surgery for peripheral arterial occlusive disease (V)	ME	CbD, M-CEX
SS_VS 2.4	Provide anaesthesia for patients requiring limb amputation (V)	ME	CbD, M-CEX
SS_VS 2.5	Provide anaesthesia for patients requiring arterio-venous fistula formation (V)	ME	CbD, M-CEX
SS_VS 2.6	Provide anaesthesia for patients requiring abdominal aortic surgery (open or endoluminal, elective or acute) (V)	ME	CbD, M-CEX

Code	Learning outcome	Role	Assessment
SS_VS 2.7	Provide anaesthesia and /or sedation for patients undergoing interventional radiological procedures, for example: • Vascular embolisation • Vascular stenting • Insertion of intravascular devices including aortic grafts • Radiological-guided biopsy under anaesthesia (V) Refer to College professional document: *PS09 Guidelines on Sedation and/or Analgesia for Diagnostic and Interventional Medical, Dental or Surgical Procedures*	ME	CbD, M-CEX

Application of the ANZCA Roles in Practice to the Vascular surgery and interventional radiology specialised study unit	
Experience and/or learning opportunity	**Role**
Communicating with patients having limb amputation or major life threatening vascular surgery	CM
Communicating with patients having carotid endarterectomy under local anaesthesia	CM
Informing patients about to undergo vascular surgery of perioperative risks to inform them but minimise anxiety	CM
Collaboratively planning the perioperative management of the vascular surgical patient especially those patients requiring further pre-operative investigation, optimisation, or dialysis.	CL
Developing a collaborative plan for perioperative analgesia for the patient undergoing limb amputation.	CL
Outlining the resources required for provision of anaesthesia for an interventional vascular procedure in the radiology suite. Refer to College professional document *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations*	LM
Outlining the costs/benefits of endoluminal aortic grafting	LM
Identifying opportunities for secondary prevention with respect to vascular disease and providing appropriate advice to patients. Refer to College Professional document *PS12 Guidelines on Smoking as Related to the Perioperative Period*	HA
Ensuring staff and patient protection from radiation exposure	HA
Teaching non-anaesthetic trainees the safe insertion of central venous lines for haemodialysis	SC
Discussing the ethical and legal issues surrounding the decision to operate on or provide palliative care to a patient with a ruptured aortic aneurysm	PF

Section Four

PROVISIONAL FELLOWSHIP TRAINING

During provisional fellowship training Fellows will continue to develop across all ANZCA Roles in Practice, refining their capability to provide quality patient care. The primary goal of this training period is for trainees to demonstrate maturity in identifying and anticipating their learning needs and seeking appropriate opportunities to enhance their abilities, acknowledging their ongoing personal responsibility to maintain and improve their practice. Upon completion of this training period, Trainees are expected to demonstrate efficient and effective work practice at a consultant level, exhibiting broader leadership skills and a commitment to upholding the ethical and professional standards of the specialty.

There will be choice available as to development of special expertise in an ANZCA role or roles or in sub-specialised areas of practice. Trainees should develop a provisional fellowship year learning plan with individualised learning outcomes, to consolidate their previous experience and to enhance their professional aspirations.

A minimum of 10 weeks full time equivalent of the provisional fellowship year will be completed undertaking clinical work. This could be consolidating their clinical anaesthesia experience on a broad basis or in clinical work focused on any of the clinical fundamentals or specialised study units.

Provisional Fellows may also choose to focus on one or more of the ANZCA Roles in Practice rather than clinical work. They will have the opportunity to continue with research and scholarly activities commenced during the basic and advanced training periods. Provisional Fellows will complete a minimum of 4 weeks full time equivalent of their provisional fellowship training period undertaking clinical support activities related to any of the ANZCA Roles in Practice and not involving direct clinical care delivery, such as administration, research, audit or other clinical quality assurance activities, study in simulation, or working towards a qualification in education or management. Provisional Fellows must also complete an advanced life support (ALS) course or equivalent – for more information and standard refer to the Handbook for Training.

They will participate in the College's Continuing Professional Development (CPD) program and be actively involved in the teaching and assessment of junior colleagues. They must record CPD activities throughout their provisional fellowship training period and achieve pro-rata requirements. Refer to the ANZCA 2014 Continuing Professional Development Program Handbook.

Workplace-based assessment requirements

Focus of assessment	Assessment	No.
Negotiated as part of an approved provisional fellowship training program	CEX	Neg
Negotiated as part of an approved provisional fellowship training program	DOPS	Neg
Negotiated as part of an approved provisional fellowship training program	CbD	2*
ANZCA Roles in Practice	M-MsF PFT	1

Neg – number is dependent on the clinical environment

* Minimum number of assessments to be completed during this12-month training period. More may be required as part of negotiated assessment of a provisional fellowship training program.

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Appendix One – Training requirements for each training period

Introductory training (IT)

By the end of introductory training it is expected that a trainee should be able to anaesthetise safely low risk patients having low risk surgery.

Workplace-based assessment

The following workplace-based assessments must be completed for the initial assessment of anaesthetic competence (IAAC):

Clinical fundamental	Focus of assessment	Assessment	No.
Airway management	Airway intubation, RSI and extubation	M-DOPS AM1IT	1
	Bag/mask ventilation and insertion of LMA	M-DOPS AM2IT	1
Safety and quality in anaesthetic practice	Anaesthetic machine check	M-DOPS SQ1IT	1
Total DOPS			**3**
Airway management Perioperative medicine	Preoperative airway assessment (done as part of the preoperative assessment mini-CEX for perioperative medicine) Trainees may conduct a pre-operative assessment on one patient but assessors are asked to look at both their airway assessment skills and their other pre-operative assessment skills during this encounter.	M-CEX PO1IT	1
Pain medicine	Assessment and management of a patient in acute pain on a pain round	M-CEX PM1IT	1
Any clinical fundamental	Not specified – may select low-risk cases of low complexity encountered in their clinical practice*	CEX	4
Total mini-CEX			**6**
Any clinical fundamental and the ANZCA Roles in Practice	Various areas	M-MsF IT	1
Total MsF			**1**

Trainees should not start to complete workplace-based assessments associated with specialised study units until basic training.

Initial assessment of anaesthetic questions

The initial assessment of anaesthetic competence also requires the trainee to answer a selection of knowledge-based questions, which should be based on the learning outcomes in the introductory training core study unit identified by initial assessment of anaesthetic competence questions. This assessment is conducted by the supervisor of training or the introductory training tutor (ITT).

ANZCA Roles in Practice

The ANZCA Roles in Practice will be assessed as part of all the workplace-based assessments completed throughout introductory training. However, many areas requiring a longitudinal view of a trainee's performance will be assessed by a multi-source feedback (MsF). This will be completed at the end of introductory training and will inform the core unit review (CUR).

Volume of practice

Clinical fundamental	TP	Skill	VOP
Airway management	IT	Endotracheal intubation	20
Perioperative medicine	IT	Pre-admission clinic sessions with one to one supervision	2
Pain medicine	IT	Acute pain sessions with one to one supervision	2

Specialised study units

There are no specialised study units (SSUs) that must be completed by the end of introductory training, however, trainees may make some progress towards their specialised study unit volume of practice during introductory training. Specific progress in the specialised study units will depend on the clinical environment and nature of cases, procedures and surgery available during introductory training clinical placements. A summary of the volume of practice requirements for the specialised study units is in Appendix Five.

Courses

An advanced life support (ALS) course (or equivalent – for more information and standard refer to Handbook for Training), where competency in resuscitation and defibrillation is assessed, must be completed during introductory training or in the previous 52 weeks before completing introductory training.

A 'can't intubate, can't oxygenate' (CICO) course (or equivalent – for more information and standard refer to Handbook for Training) must be completed during introductory training as part of the IAAC.

Clinical placement reviews (CPR)

During introductory training, trainees must complete one planning and one feedback CPR for each clinical placement. The planning CPR must incorporate discussion of a trainee's clinical placement plan, outlining the learning opportunities expected and sought from the placement.

An interim review should normally occur part way through a placement if the placement is of 26 weeks duration or more, but may also occur at other times at the instigation of either the trainee or the SOT.

A feedback CPR at the end of the placement must be informed by the trainee's clinical placement plan and subsequent workplace-based assessments.

Core unit review (CUR) – minimum of one at the end of introductory training

A core unit review will be completed at the end of introductory training to assess the satisfactory completion of all requirements of introductory training and assess if the trainee is eligible to progress to basic training. This CUR may be repeated until all requirements of Introductory training are satisfactorily completed.

Basic training (BT)

By the end of basic training it is expected that a trainee should be able to anaesthetise patients safely with distant supervision where there is moderate complexity based on patient or surgical factors.

Workplace-based assessment

The following workplace-based assessments must be completed by the end of basic training:

Clinical fundamental/ specialised study unit	Focus of assessment	Assessment	No.
General anaesthesia and sedation	Central venous cannulation with the use of ultrasound guidance	M-DOPS GS1BT	1
General anaesthesia and sedation	Arterial cannulation	M-DOPS GS2BT	1
Airway management	Fibreoptic intubation	MS-DOPS AM2BT	1
Regional and local anaesthesia	Performance of a spinal block on a patient who is not anatomically difficult	M-DOPS RA1BT	1
Any specialised study unit	Select from any required M-DOPS identified in the specialised study units	M-DOPS	8*
Any clinical fundamental or specialised study unit	Not specified - may select procedures encountered in their clinical practice*	DOPS	
Total DOPS			**12**
Perioperative medicine	Pre-assessment of a patient with multi-system disease Trainees may choose to combine this with the pre-operative assessment mini-CEX for a patient having head and neck surgery to count towards the *Head and neck, ear, nose and throat, dental surgery and electro-convulsive therapy* SSU. Trainees may conduct a pre-operative assessment for one patient however this must be logged as two separate WBAs with specific feedback for each area of focus provided. If this assessment is combined with the mini-CEX on head and neck anaesthesia, the same cannot be done for the pre-assessment mini-CEX for Perioperative medicine during advanced training.	M-CEX PO1BT	1
Any specialised study unit	Select from any required M-CEX identified in the specialised study units	M-CEX	11*
Any clinical fundamental or specialised study unit	Not specified - may select cases of moderate complexity encountered in their clinical practice*	CEX	
Total mini-CEX			**12**
Clinical fundamental/ specialised study unit	**Focus of assessment**	**Assessment**	**No.**

Pain medicine	Assessment and management of a patient in acute pain on a pain round	M-CbD PM1BT	1
Resuscitation, trauma and crisis management	Discussion of their management of crises	M-CbD RT1BT	2
Any clinical fundamental or specialised study unit	Not specified - may select cases of moderate complexity encountered in their clinical practice*	CbD	3
Total CbD			**6**
Any clinical fundamental and the ANZCA Roles in Practice	Various areas	M-MsF BT	1
Total MsF			**1**

During each three-month period of basic training a trainee should complete a minimum of two direct observation of procedural skills (DOPS), two mini clinical evaluation exercise (mini-CEX) and one case-based discussion (CbD). These may be from the clinical fundamentals or specialised study units and may have either a specified or non-specified focus.

ANZCA Roles in Practice

The ANZCA Roles in Practice will be assessed as part of all the workplace-based assessments completed throughout basic training however many areas requiring a longitudinal view of a trainee's performance will be assessed by a multi-source feedback (MsF). This will be completed at the end of basic training and will inform the core unit review (CUR).

Volume of practice

The following volume of practice requirements are to be completed by the end of basic training.

Clinical fundamental	TP	Skill	VOP
Airway management	**IT or BT**	Use of different laryngoscopes to visualise the larynx. May include video laryngoscope, alternative blades	10
Regional and local anaesthesia	**Regional anaesthesia/analgesia**		
	IT or BT	Independent intra-operative management of a patient having a procedure performed solely under central neural blockade. ASA 1 or 2 patients, procedure of moderate complexity with distant supervision May be covered in volume of practice for central neuraxial blockade	1
Perioperative medicine	**BT**	Pre-admission clinic sessions with level 2 supervision	8
Pain medicine	**BT**	Acute pain sessions	18

Specialised study units

There are no specialised study units that must be completed by the end of basic training. However, it is expected that trainees will make good progress towards their specialised study unit requirements during basic training. Specific progress in the specialised study units will be dependent on the clinical environment and the types of cases, procedures and surgery available during basic training clinical placements. A summary of the workplace-based assessment and volume of practice requirements for the specialised study units is in Appendix Five.

Scholar role activities

Trainees must complete two of the five activities prior to the basic training core unit review. Trainees should make progress with scholar role activities and meetings to ensure that they are completed prior to the end of advanced training.

Exams

The primary examination is to be completed during basic training for progression to advanced training.

Courses

An advanced life support (ALS) course (or equivalent – for more information and standard refer to Handbook for Training), where competency in resuscitation and defibrillation is assessed, must be completed during basic training. This is done in addition to the ALS course requirement for introductory training.

A ‘can’t intubate, can’t oxygenate’ (CICO) course (or equivalent – for more information and standard refer to Handbook for Training) must be completed during basic training. This is done in addition to the CICO course requirement for introductory training.

An Effective Management of Anaesthetic Crises (EMAC) course must be completed during training, at any time after introductory training.

Specialised study unit reviews (SSUR)

The basic trainee must complete a specialised study unit review for any specialised study units that they complete during basic training. The number and type will be dependent on the clinical environment and nature of cases, procedures and surgery available during basic training clinical placements.

Clinical placement reviews (CPR)

During basic training, trainees must complete one planning and one feedback CPR for each clinical placement. The planning CPR must incorporate discussion of a trainee's clinical placement plan, outlining the learning opportunities expected and sought from the placement.

An interim review should normally occur part way through a placement if the placement is of 26 weeks duration or more, but may also occur at other times at the instigation of either the trainee or the SOT.

A feedback CPR at the end of the placement must be informed by the trainee's clinical placement plan and subsequent workplace-based assessments.

Core unit review (CUR) – minimum of one at the end of basic training (BT)

A core unit review will be completed at the end of basic training to assess the satisfactory completion of all requirements of basic training and the eligibility of the trainee to progress to advanced training. This core unit review may be repeated until all requirements of basic training are satisfactorily completed.

Advanced training (AT)

By the end of advanced training it is expected that a trainee should be able to anaesthetise safely ASA 1-4 patients having complex procedures with distant supervision.

Workplace-based assessment

The following workplace-based assessment requirements are to be completed by the end of advanced training:

Clinical fundamental/ specialised study unit	Focus of assessment	Assessment	No.
Regional and local anaesthesia	Performance of an upper limb plexus block	MS-DOPS RA1AT	1
Regional and local anaesthesia	Performance of a lower limb plexus block	MS-DOPS RA2AT	1
Any specialised study unit	Select from any required M-DOPS identified in the specialised study units	M-DOPS	6*
Any clinical fundamental or specialised study unit	Not specified – may select procedures encountered in their clinical practice*	DOPS	
Total DOPS			**8**
Perioperative medicine	Pre-assessment of a complex patient with multiple co-morbid diseases Trainees may choose to combine this with the pre-operative assessment mini-CEX for a patient having head and neck surgery to count towards the *Head and neck, ear, nose and throat, dental surgery and electro-convulsive therapy* SSU. Trainees may conduct a pre-operative assessment for one patient however this must be logged as two separate WBAs with specific feedback for each area of focus provided. If this assessment is combined with the mini-CEX on head and neck anaesthesia, the same cannot be done for the pre-assessment mini-CEX for Perioperative medicine during basic training.	M-CEX PO1AT	1
Any specialised study unit	Select from any required M-CEX identified in the specialised study units	M-CEX	15*
Any clinical fundamental or specialised study unit	Not specified – may select cases including those of high complexity encountered in their clinical practice*	CEX	
Total mini-CEX			**16**

Clinical fundamental/ specialised study unit	Focus of assessment	Assessment	No.
Pain medicine	Assessment and management of a patient with a complex pain issue, for example acute on chronic pain or history of intravenous drug use (IVDU), on a pain round	M-CbD PM1AT	1
Resuscitation, trauma and crisis management	Discussion of their management of crises	M-CbD RT1AT	2
Any clinical fundamental or specialised study unit	Not specified – may select cases including those of high complexity encountered in their clinical practice*	CbD	5
Total CbD			**8**
Any clinical fundamental and the ANZCA Roles in Practice	Various areas	M-MsF AT	1
Total MsF			**1**

During each three-month period of advanced training a trainee should complete a minimum of one direct observation of procedural skills (DOPS), two mini clinical evaluation exercise (mini-CEX) and one case-based discussion (CbD). These may be from the core study unit or the specialised study units and may be either compulsory, optional, with a specified focus or of the trainee/assessor's choosing.

ANZCA Roles in Practice

The ANZCA Roles in Practice will assessed as part of all the workplace-based assessments completed throughout advanced training however many areas requiring a longitudinal view of a trainee's performance will be assessed by a multi-source feedback (MsF). This will be completed at the end of advanced training and will inform the core unit review (CUR).

Volume of practice

The following volume of practice requirements are to be completed by the end of advanced training.

Clinical fundamental	TP	Skill	VOP
General anaesthesia and sedation	**IT, BT or AT**	Arterial cannulation	40
		Central venous cannulation	40
		Anaesthesia using TIVA	50
Airway management	**IT, BT or AT**	Nasal intubation	10
		Gaseous induction of general anaesthesia (in an adult)	5
		Awake fibreoptic bronchoscopy or intubation	5
Regional and local anaesthesia	***Central neuraxial blocks***		
	IT, BT or AT	Epidural – lumbar May include epidurals from obstetric specialised study unit	70
		Spinal Must include 30 non-obstetrics Note: Combined spinal epidural may count for volume of practice of both spinal and lumbar epidural	70

Clinical fundamental	TP	Skill	VOP
Regional and local anaesthesia	**Regional anaesthesia/analgesia**		
	IT, BT or AT	Upper limb Must include one anaesthesia/analgesia for shoulder pathology Must include minimum five brachial plexus blocks	10
		Thorax, abdomen or pelvis (non-neuraxial only)	5
		Knee Must be non-neuraxial	5
		Lower limb Must be non-neuraxial, not knee or hip	5
	IT, BT or AT	Hip Must be non-neuraxial	5
Pain medicine	**IT, BT or AT**	Management of patients with chronic pain May include managing acute pain for a patient with chronic pain, planning perioperative management for a patient with chronic pain, or consultation from a pain clinic.	20
		Provision of regional analgesia for the management of acute **or** chronic pain Must exclude obstetric pain	20
Resuscitation, trauma and crisis management	**IT, BT or AT**	Trauma team member for the initial assessment and resuscitation of a multi-trauma case *Note: EMST course* http://www.surgeons.org/ *(delivered by the Royal Australasian College of Surgeons) or equivalent (for example, ATLS) required if volume of practice is not met*	5
Perioperative medicine	**AT**	Pre-admission clinic sessions	10
Pain medicine	**AT**	Acute pain sessions	20

Scholar role activities

All trainees must complete the following scholar role activity by the end of advanced training, unless they have recognition of prior learning or an approved exemption. *Changes have been made to these activities for HEY 2017. Refer to the Handbook for training for more information.*

Scholar	Activities		
	BT or AT	Teach a skill (with evaluation, feedback and reflection)	1
		Facilitate a small group discussion or run a tutorial (with evaluation, feedback and reflection)	1
		Critically appraise a paper published in a peer-reviewed indexed journal for internal assessment	1
		Critically appraise a topic for internal evaluation and present it to the department	1
		Complete an audit and provide a written report for internal evaluation	1

Specialised study units

All specialised study units must be completed by the end of advanced training for progression to provisional fellowship training. A summary of the workplace-based assessment and volume of practice requirements for the specialised study units is in Appendix Five.

Exams

The final examination is to be completed during advanced training for progression to provisional fellowship training. This may be undertaken after 26 weeks (full-time equivalent) of advanced training.

Courses

An advanced life support (ALS) course (or equivalent – for more information and standard refer to Handbook for Training), where competency in resuscitation and defibrillation is assessed, must be completed during advanced training. This is done in addition to the ALS course requirement for introductory and basic training.

A ‘can’t intubate, can’t oxygenate’ (CICO) course (or equivalent – for more information and standard refer to Handbook for Training) must be completed during basic training. This is done in addition to the CICO course requirement for introductory and basic training.

An Effective Management of Anaesthetic Crises (EMAC) course must be completed at any time during advanced or provisional fellowship training, if not completed during basic training. If the EMAC course is completed, trainees will be exempt from the CICO course during that training period.

An Early Management of Severe Trauma (EMST) course http://www.surgeons.org/ (delivered by the Royal Australasian College of Surgeons) or equivalent (for example, Advanced Trauma Life Support, ATLS) must be completed if the volume of practice for the Resuscitation, trauma and crisis management clinical fundamental has not been completed.

Trainees who are trained instructors for EMAC, EMST, APLS, or ALS2 and are an instructor on a course during the training program will be given an exemption from the Teaching a Skill activity.

Specialised study unit reviews (SSUR) – minimum of 12 (one for each specialised study unit)

The advanced trainee must have completed a specialised study unit review for each specialised study unit by the end of advanced training to progress to provisional fellowship training.

Clinical placement reviews (CPR) – minimum of four during advanced training (AT)

During advanced training, trainees must complete one planning and one feedback CPR for each clinical placement. The planning CPR must incorporate discussion of a trainee's clinical placement plan, outlining the learning opportunities expected and sought from the placement.

An interim review should normally occur part way through a placement if the placement is of 26 weeks duration or more, but may also occur at other times at the instigation of either the trainee or the SOT.

A feedback CPR at the end of the placement must be informed by the trainee's clinical placement plan and subsequent workplace-based assessments.

Core unit review (CUR) – minimum of one at the end of advanced training (AT)

A core unit review will be completed at the end of advanced training to assess the satisfactory completion of all requirements for advanced training and the eligibility of the trainee to progress to provisional fellowship training. This core unit review may be repeated until all requirements of advanced training are satisfactorily completed.

Provisional fellowship training (PFT)

A consultant level of practice is expected by the end of provisional fellowship training.

A minimum of 10 weeks full time equivalent of the provisional fellowship year will be completed undertaking clinical work. This could be consolidating clinical anaesthesia experience on a broad basis or in clinical work focused on any of the clinical fundamentals or specialised study units.

Provisional Fellows will complete a minimum of 4 weeks full time equivalent of their provisional fellowship training period undertaking clinical support activities related to any of the ANZCA Roles in Practice and not involving direct clinical care delivery, such as administration, research, audit or other clinical quality assurance activities, study in simulation, or working towards a qualification in education or management.

Trainees who commence PFT from HEY 2019 are required to complete an Advanced Life Support (ALS) course (or equivalent – for more information and standard refer to Handbook for Training), where competency in resuscitation and defibrillation is assessed, during PFT.

Workplace-based assessment

Focus of Assessment	Assessment	No.
Negotiated as part of an approved PFT program	CEX	Neg
Negotiated as part of an approved PFT program	DOPS	Neg
Negotiated as part of an approved PFT program	M-CbD PFT	2*
ANZCA Roles in Practice various areas	M-MsF PFT	1

* Minimum number of assessments to be completed during this 12-month training period. More may be required as part of negotiated assessment of a provisional fellowship training plan.

The negotiated number of assessments is dependent on the clinical environment and should be negotiated as part of the provisional fellowship training plan.

ANZCA Roles in Practice

The ANZCA Roles in Practice will be assessed as part of all the workplace-based assessments completed throughout provisional fellowship training however many areas requiring a longitudinal view of a trainee's performance will be assessed by a multi-source feedback (MsF). This will be completed at the end of provisional fellowship training and will inform the provisional fellowship review (PFR).

Scholar Role Meetings

Role	TP	VOP	No.
Scholar/professional	**BT, AT or PFT**	Attend regional or greater conferences/meetings	Two
		Participate in existing quality assurance programs May include clinical audit, critical incident monitoring, morbidity and mortality meetings	20 quality assurance meetings

Enrolment in the ANZCA Continuing Professional Development (CPD) Program

Provisional Fellows are required to enrol in the ANZCA CPD program. They must record CPD activities throughout their provisional fellowship training period and achieve pro-rata requirements. Refer to the ANZCA 2014 Continuing Professional Development Program Handbook.

Clinical placement reviews (CPR) – minimum of two during provisional fellowship training (PFT)

During provisional fellowship training, trainees must complete one planning and one feedback CPR for each clinical placement. The planning CPR must incorporate discussion of a trainee's clinical placement plan, outlining the learning opportunities expected and sought from the placement.

An interim review should normally occur part way through a placement if the placement is of 26 weeks duration or more, but may also occur at other times at the instigation of either the trainee or the SOT.

A feedback CPR is required at the end of the placement unless the trainee is at the end of their provisional fellowship training. This must be informed by the trainee's clinical placement plan and subsequent workplace-based assessments.

Provisional fellowship review (PFR) – minimum of one at the end of provisional fellowship training (PFT)

A provisional fellowship review will be completed at the end of provisional fellowship training to assess the satisfactory completion of all requirements for provisional fellowship training. This may be repeated until all requirements of provisional fellowship training are satisfactorily completed.

Courses

An Effective Management of Anaesthetic Crises (EMAC) course must be completed by the end of provisional Fellowship training, if not completed during basic or advanced training

An Early Management of Severe Trauma (EMST) course http://www.surgeons.org/ (delivered by the Royal Australasian College of Surgeons) or equivalent (for example, ATLS) must be completed if the volume of practice for cases and procedures has not been completed for the Resuscitation, trauma and crisis management clinical fundamental during advanced training.

Appendix Two

Learning outcomes mapped to the primary examination

Code	Learning outcome	Role	Assessment
ANZCA Roles in Practice			
Medical Expert			
AR_ME 1.3	Apply knowledge of the clinical and biomedical sciences relevant to anaesthesia	ME	PEx
AR_ME 3.2	Demonstrate knowledge and understanding of the procedure including indications, contraindications, anatomy, technique side-effects and complications	ME	PEx
Airway management			
Introductory training			
IT_AM 1.1	Describe the basic structural anatomy of the upper airway including the larynx	ME	IAACQ, PEx
IT_AM 1.6	Outline the equipment required to be immediately available for basic airway management and the 'can't intubate, can't oxygenate' situation (refer to College professional document: *PS56 Guidelines on Equipment to Manage a Difficult Airway During Anaesthesia)*	ME	IAACQ, PEx
IT_AM 1.9	Describe preoxygenation, including its physiological basis	ME	IAACQ, PEx
Basic training			
BT_AM 1.1	Describe the anatomy of the upper airway, larynx and trachea, including its innervation and endoscopic appearance	ME	PEx
BT_AM 1.2	Describe the physiology of the airway including airway reflexes	ME	PEx
BT_AM 1.3	Describe the effect of anaesthetic agents and other drugs on airway reflexes	ME	PEx
BT_AM 1.4	Describe the physiological consequences of anaesthesia and patient positioning on the respiratory system and their management (also refer to the *General anaesthesia and sedation* clinical fundamental)	ME	PEx
BT_AM 1.19	Describe different modes of ventilation available on modern ventilators and their physiological consequences	ME	PEx

Code	Learning outcome	Role	Assessment
General anaesthesia and sedation			
Introductory training			
IT_GS 1.1	Outline the basic pharmacology of sedative/hypnotic agents (propofol, thiopentone, midazolam, ketamine), inhalational agents, opioids, muscle relaxants, reversal drugs and anti-emetic agents relevant to their clinical practice.	ME	IAACQ, PEx
IT_GS 1.5	Describe the chemical composition of crystalloids and colloids used in clinical practice and their effects when used in volume replacement	ME	IAACQ, PEx
IT_GS 1.8	Outline the physiological changes that occur with and the implications for anaesthetic management of pneumoperitoneum	ME	IAACQ, PEx
IT_GS 1.9	Outline the physiological changes that occur with and the implications for anaesthetic management of the following patient positions: • Supine • Trendelenberg and reverse trendelenberg • Lateral • Lithotomy • Prone (Also refer to the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	IAACQ, PEx
Basic training			
Pharmacodynamics			
BT_GS 1.1	Explain the concept of drug action with respect to: • Receptor theory • Enzyme interactions • Physico-chemical interactions	ME	PEx
BT_GS 1.2	Explain receptor activity with regard to: • Ionic fluxes • Second messengers and G proteins • Nucleic acid synthesis • Evidence for the presence of receptors • Regulation of receptor number and activity	ME	PEx
BT_GS 1.3	Define and explain dose-effect relationships of drugs with reference to: • Graded and quantal response • Therapeutic index • Potency and efficacy • Competitive and non-competitive antagonists • Partial agonists, mixed agonist-antagonists and inverse agonists • Additive and synergistic effects of drug combinations	ME	PEx
BT_GS 1.4	Describe efficacy and potency with reference to dose-response curves	ME	PEx

Code	Learning outcome	Role	Assessment
BT_GS 1.5	Explain the law of mass action and describe affinity and dissociation constants	ME	PEx
BT_GS 1.6	Describe the mechanisms of adverse drug effects	ME	PEx
Pharmacokinetics			
BT_GS 1.7	Explain the concept of pharmacokinetic modelling of single and multiple compartment models and define: • Half life • Clearance • Zero and first order kinetics • Volume of distribution • Bio-availability • Area under the plasma concentration time curve • Extraction ratio	ME	PEx
BT_GS 1.8	Describe absorption and factors that will influence it with reference to clinically utilised sites of administration	ME	PEx
BT_GS 1.9	Describe factors influencing the distribution of drugs (for example, protein binding, lipid solubility, pH, pKa) and their alteration in physiological and pathological disturbance	ME	PEx
BT_GS 1.10	Describe the mechanisms of drug clearance and how physiological and pathological disturbance may affect these	ME	PEx
BT_GS 1.11	Describe the mechanisms of non-hepatic and hepatic metabolism of drugs including: • Phase 1 and phase 2 reactions • Hepatic extraction ratio and its significance • First pass effect, enzyme induction and inhibition	ME	PEx
BT_GS 1.12	Explain and describe the clinical application of concepts related to intravenous and infusion kinetics including: • Effect-site and effect-site equilibration time • Concept of context sensitive half time • Calculation of loading and maintenance dosage regimens	ME	PEx
BT_GS 1.13	Explain clinical drug monitoring with regard to peak and trough concentrations, minimum therapeutic concentration and toxicity	ME	PEx
Variability in drug response			
BT_GS 1.14	Develop an understanding of variations in individual drug responses together with clinical application of this knowledge	ME	PEx
BT_GS 1.15	Define tachyphylaxis, tolerance, addiction, dependence and idiosyncrasy and describe mechanisms of tolerance	ME	PEx
BT_GS 1.16	Describe alterations to drug response due to physiological change with particular reference to the elderly	ME	PEx
BT_GS 1.17	Describe alterations to drug response due to pathological disturbance with particular reference to cardiac, respiratory, renal and hepatic disease	ME	PEx
BT_GS 1.19	Describe the mechanisms of drug interaction	ME	PEx

Code	Learning outcome	Role	Assessment
BT_GS 1.20	Describe and give examples of the clinical importance of pharmacogenetic variation, for example, atypical cholinesterase, codeine metabolism	ME	PEx
BT_GS 1.21	Describe and give examples of the clinical importance of isomerism	ME	PEx
BT_GS 1.22	Describe the mechanisms of action and potential adverse effects of buffers, anti-oxidants, anti-microbial and solubilising agents added to drugs	ME	PEx
Pharmacology of specific agents			
BT_GS 1.23	Describe the physical properties of inhalational agents, including the: • Principles of vaporisation of inhalational agents • Properties of an ideal inhalational anaesthetic agent • Structure-activity relationships of inhalational agents	ME	PEx
BT_GS 1.24	Describe the uptake, distribution and elimination of inhalational anaesthetic agents and the factors which influence induction and recovery from inhalational anaesthesia including the: • Concepts of partition coefficients, concentration effect and second gas effect • Relationships between inhaled and alveolar concentration • Significance of the distribution of cardiac output and tissue partition coefficients on uptake and distribution of volatile agents	ME	PEx
BT_GS 1.25	Describe the effects of inhalational agents on the cardiovascular, respiratory and central nervous systems	ME	PEx
BT_GS 1.26	Describe the toxicity of inhalational agents	ME	PEx
BT_GS 1.27	Describe the pharmacology of nitrous oxide	ME	PEx
BT_GS 1.28	Describe the comparative pharmacology of nitrous oxide, halothane, enflurane, isoflurane, desflurane, sevoflurane, xenon and ether	ME	PEx
BT_GS 1.29	Describe the physical properties of sedative/hypnotic agents, including: • Formulation • Properties of an ideal agent • Structure-activity relationships	ME	PEx
BT_GS 1.30	Describe and compare the pharmacokinetics of intravenous induction and sedative agents, the factors which affect recovery from intravenous anaesthesia and the clinical implications of these differences	ME	PEx
BT_GS 1.31	Describe and compare the pharmacodynamics of intravenous induction and sedative agents and in particular the effects on the cardiovascular, respiratory and central nervous systems	ME	PEx
BT_GS 1.32	Describe the adverse effects of individual induction, sedative and premedicant agents	ME	PEx

Code	Learning outcome	Role	Assessment
BT_GS 1.33	Describe how physiological and pathological disturbance can alter the pharmacology of intravenous anaesthetic agents	ME	PEx
BT_GS 1.34	Outline the pharmacology and clinical use of flumazenil	ME	PEx
BT_GS 1.35	Describe the physiology of the neuromuscular junction and the mechanism of action of neuromuscular blocking agents	ME	PEx
BT_GS 1.36	Describe the pharmacokinetics of neuromuscular blocking agents	ME	PEx
BT_GS 1.37	Describe the pharmacological differences between neuromuscular blocking agents and the clinical importance of these differences.	ME	PEx
BT_GS 1.38	Describe the adverse effects of neuromuscular blocking agents and factors that may modify responses to muscle relaxants	ME	PEx
BT_GS 1.39	Describe the reversal of neuromuscular blockade using anti-cholinesterase agents, anticholinergics and sugammadex and the physiological effects of reversal	ME	PEx
BT_GS 1.40	Describe the adverse effects of anticholinesterase agents	ME	PEx
BT_GS 1.41	Describe the clinical application of opioids to anaesthesia and sedation (also refer to the *Pain medicine* clinical fundamental)	ME	PEx
BT_GS 1.42	Describe the pharmacokinetics of intravenous opioids (also refer to the *Pain medicine* clinical fundamental)	ME	PEx
BT_GS 1.43	Outline the physiological basis of vomiting	ME	PEx
BT_GS 1.44	Describe the clinical pharmacology of dopamine antagonists, anti-cholinergic agents, serotonin antagonists, anti-histamines pro-kinetics and steroids relevant to premedication and the management of nausea and vomiting	ME	PEx
Integrated pharmacology for anaesthesia and sedation			
BT_GS 1.46	Discuss factors influencing choice of agents for: • Sedation • Induction and maintenance of anaesthesia • Muscle relaxation	ME	PEx
BT_GS 1.47	Discuss the indications for muscle relaxation in anaesthesia	ME	PEx
BT_GS 1.48	Describe the effects of anaesthetic agents on regional circulation	ME	PEx
BT_GS 1.49	Discuss proposed mechanisms of anaesthesia and the sites of action of anaesthetic agents including the physiology and pharmacology of neurotransmitters and their receptors (that is GABA, excitatory amino acids, acetylcholine, noradrenaline, dopamine and serotonin)	ME	PEx
BT_GS 1.50	Describe the concept and clinical application of MAC in relation to inhaled anaesthetic agents	ME	PEx

Code	Learning outcome	Role	Assessment
BT_GS 1.51	Describe the concept of depth of anaesthesia and how this may be monitored	ME	PEx
BT_GS 1.51a	Outline the aetiology of and measures to prevent intra-operative awareness under general anaesthesia	ME	PEx
BT_GS 1.52	Explain the principles involved in the electronic monitoring of depth of sedation and anaesthesia, including the use of EEG analysis	ME	PEx
BT_GS 1.53	Describe the synergism between anaesthetic agents, opioids and regional blockade and how this is used clinically	ME	PEx
BT_GS 1.54	Describe techniques to balance anaesthetic depth with changing surgical stimulus	ME	PEx
BT_GS 1.55	Describe the concept of depth of neuromuscular blockade and explain the use of neuromuscular monitoring	ME	PEx
BT_GS 1.56	Describe the clinical features and management of inadequate reversal of neuromuscular blockade	ME	PEx
BT_GS 1.57	Explain the techniques of intravenous and inhalational induction and describe clinical indications and advantages and disadvantages of both techniques	ME	PEx
BT_GS 1.59	Describe the pharmacological principles of and sources of error with target controlled infusion	ME	PEx
BT_GS 1.60	Describe the physiological effects of anaesthesia on the respiratory system and its clinical management (also refer to the *Airway management* clinical fundamental)	ME	PEx
BT_GS 1.61	Discuss the effects of anaesthesia on the immune, haematological and endocrine systems	ME	PEx
BT_GS 1.62	Discuss the prevention and management of postoperative nausea and vomiting	ME	PEx
Temperature homeostasis and anaesthesia			
BT_GS 1.65	Describe the mechanisms by which heat is produced by the body and transferred between the body and its environment	ME	PEx
BT_GS 1.66	Describe the physiological effects of hypo/hyperthermia	ME	PEx
BT_GS 1.67	Describe the energy requirements for maintenance of normal body temperature	ME	PEx
BT_GS 1.68	Describe the physiological responses to lowered and raised environmental temperature, and the effects of anaesthesia on these responses	ME	PEx
BT_GS 1.69	Discuss methods of maintaining body temperature during anaesthesia and sedation, including active warming of patients (also refer to the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	PEx

Code	Learning outcome	Role	Assessment
BT_GS 1.69a	Describe how a patient's temperature is monitored and discuss the indications for temperature monitoring with the advantages and disadvantages of particular sites and methods (also refer to monitors and monitoring standards, which is covered in the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	PEx
Vascular access			
BT_GS 1.70	Describe the anatomy including ultrasonic anatomy of the peripheral venous system relevant to performing intravenous cannulation	ME	PEx
BT_GS 1.72	Describe the anatomy and anatomical relations of the great veins relevant to performing central venous cannulation, including the ultrasound anatomy	ME	PEx
BT_GS 1.74	Describe the anatomy of the radial, brachial, femoral and dorsalis pedis arteries and their anatomical relations relevant to arterial cannulation including the ultrasound anatomy	ME	PEx
Pain medicine			
Introductory training			
Code	**Learning outcome**	**Role**	**Assessment**
IT_PM 1.3	Outline the basic concepts of multimodal analgesia and pre-emptive analgesia	ME	IAACQ, PEx
IT_PM 1.4	Outline the basic pharmacology and clinical use of available analgesic agents	ME	IAACQ, PEx
Basic training			
Neurobiology			
BT_PM 1.1	Describe the anatomy of the sensory pathways with particular reference to pain sensation	ME	PEx
BT_PM 1.2	Describe the anatomy of the autonomic nervous system	ME	PEx
BT_PM 1.3	Describe the basic physiological mechanisms of pain including: • Peripheral nociception • Conduction • Spinal cord modulation • Central processing of pain • Mediators, pathways and reflexes • Peripheral and central sensitisation • Pre-emptive and preventive analgesia	ME	PEx
BT_PM 1.4	Describe the physiological mechanism of progression from acute to chronic pain	ME	PEx
BT_PM 1.5	Describe the injury response to acute pain	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PM 1.6	Describe the applied physiology and psychology of neuropathic pain	ME	PEx
BT_PM 1.7	Outline the effects of pain and analgesia on injury-induced organ dysfunction	ME	PEx
BT_PM 1.8	Describe the alterations to physiology and perception of pain in the older patient	ME	PEx
Pharmacology			
BT_PM 1.9	Describe the pharmacology of the following agents applicable to pain management, including: • Opioids • Tramadol • Tapentadol • Local anaesthetic agents (also refer to the *Regional and local anaesthesia* clinical fundamental) • NSAIDs • Paracetamol • NMDA antagonists • Anticonvulsants • Antidepressants • Corticosteroids • Inhalational analgesics - nitrous oxide, methoxyflurane	ME	PEx
BT_PM 1.10	Describe the effect of physiological change and pathological disturbance on the pharmacology of the agents listed in learning outcome BT_PM 1.9, with special reference to the elderly	ME	PEx
BT_PM 1.11	Describe the different modes of administration of analgesic agents and evaluate their clinical application	ME	PEx
Pharmacology of specific agents: Opioid agonists and antagonists			
BT_PM 1.12	Describe opioid receptors	ME	PEx
BT_PM 1.13	Describe the mechanisms of action of opioids, including tramadol and tapentadol	ME	PEx
BT_PM 1.14	Describe the actions of agonists, partial agonists, mixed agonists-antagonists and antagonists	ME	PEx
BT_PM 1.15	Discuss the pharmacokinetic and clinical implications of different routes of administration for commonly used opioids, including the oral, transdermal, subcutaneous, intramuscular and intravenous routes	ME	PEx
BT_PM 1.16	Outline the dose conversion between commonly used opioids	ME	PEx
BT_PM 1.17	Describe the pharmacokinetics of intravenous opioids and their clinical applications	ME	PEx
BT_PM 1.18	Describe the pharmacology of opioids deposited in the epidural space or cerebrospinal fluid	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PM 1.19	Describe the adverse effects of opioids administered by systemic and neuraxial routes and their prevention and management	ME	PEx
BT_PM 1.20	Describe the potential adverse drug interactions between opioids and other agents	ME	PEx
BT_PM 1.21	Describe the pharmacology of opioid antagonists	ME	PEx
BT_PM 1.22	Describe the pharmacodynamics of individual opioids and evaluate their clinical applications	ME	PEx
Pharmacology of specific agents: NSAIDs			
BT_PM 1.23	Describe the prostaglandin pathways and their physiological role in the production of pain	ME	PEx
BT_PM 1.24	Classify non-steroidal anti-inflammatory drugs and outline their pharmacology in relation to enzyme inhibition, mode of administration and adverse effects	ME	PEx
BT_PM 1.25	Describe in detail pharmacology of paracetamol including mode of action, clinical utility, metabolism and toxicity, advantages and disadvantages of different routes of administration	ME	PEx
Pharmacology of specific agents: NMDA receptor antagonists			
BT_PM 1.26	Describe the location and role of NMDA receptors	ME	PEx
BT_PM 1.27	Describe in detail the pharmacology of ketamine including mode of action, clinical utility, metabolism and toxicity, advantages and disadvantages of different routes of administration	ME	PEx
Pharmacology of specific agents: Anticonvulsants			
BT_PM 1.28	Describe the pharmacology of anticonvulsants relevant to pain medicine, including gabapentin and carbamazepine	ME	PEx
Perioperative medicine			
Basic training			
Code	**Learning outcome**	**Role**	**Assessment**
BT_PO 1.2	Describe the features of a diagnostic test, including the concepts of sensitivity, specificity, positive and negative predictive value and how these are affected by the prevalence of the disease in question	ME	PEx
BT_PO 1.3	Describe the adverse effects of antimicrobial agents	ME	PEx
BT_PO 1.3a	Outline the pharmacology of commonly encountered illicit drugs and their interactions with drugs used in anaesthetic care	ME	PEx
BT_PO 1.4a	Outline the pharmacology of herbal medicines	ME	PEx
BT_PO 1.4b	Describe adverse effects and potential drug interactions of herbal medicines with particular reference to the perioperative period	ME	PEx

Code	Learning outcome	Role	Assessment
Respiratory anatomy and physiology			
BT_PO 1.6	Discuss the structure of the chest wall and diaphragm and the implications for respiratory mechanics	ME	PEx
BT_PO 1.7	Outline the anatomy of the lower airways	ME	PEx
BT_PO 1.8	Outline the anatomy of the pulmonary and bronchial circulations	ME	PEx
BT_PO 1.9	Describe the neural and chemical control of ventilation via central and peripheral chemoreceptors and indicate how this is altered by anaesthesia and abnormal clinical states	ME	PEx
BT_PO 1.10	Describe the properties of surfactant and relate these to its role in influencing respiratory mechanics	ME	PEx
BT_PO 1.11	Define compliance (static, dynamic and specific) and relate this to the elastic properties of the lung	ME	PEx
BT_PO 1.12	Discuss ‘fast’ and ‘slow’ alveoli, including the concept of ‘time constants’	ME	PEx
BT_PO 1.13	Describe the elastic properties of the chest wall and plot pressure-volume relationships of the lung, chest wall and the total respiratory system	ME	PEx
BT_PO 1.14	Explain the vertical gradient of pleural pressure and its significance	ME	PEx
BT_PO 1.15	Explain the physics of gas flow and the significance of the relationship between resistance and flow in the respiratory tract	ME	PEx
BT_PO 1.16	Describe the factors affecting airway resistance and how airway resistance may be measured	ME	PEx
BT_PO 1.17	Describe closing capacity and its relationship to airway closure and explain its clinical significance and measurement	ME	PEx
BT_PO 1.18	Describe the work of breathing	ME	PEx
BT_PO 1.19	Describe altered lung mechanics in common disease states	ME	PEx
BT_PO 1.20	Discuss lung volumes and capacities, their measurement and normal values	ME	PEx
BT_PO 1.21	Discuss dead space, its measurement and apply the Bohr equation and alveolar gas equation	ME	PEx
BT_PO 1.22	Describe the composition of ideal alveolar and mixed expired gases	ME	PEx
BT_PO 1.23	Describe the oxygen cascade	ME	PEx
BT_PO 1.24	Describe the alveolar exchange of oxygen and carbon dioxide	ME	PEx
BT_PO 1.25	Discuss diffusion capacity and its measurement	ME	PEx
BT_PO 1.26	Discuss normal ventilation-perfusion matching	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PO 1.27	Discuss West's zones of the lung	ME	PEx
BT_PO 1.28	Describe the shunt equation	ME	PEx
BT_PO 1.29	Discuss regional ventilation-perfusion inequalities, venous admixture and the effect on oxygenation and carbon dioxide elimination	ME	PEx
BT_PO 1.30	Outline methods used to measure ventilation-perfusion inequalities	ME	PEx
BT_PO 1.31	Discuss the carriage of oxygen in blood, the oxyhaemoglobin dissociation curve, oxygen stores in the blood and their clinical significance and implications	ME	PEx
BT_PO 1.32	Discuss the carriage of carbon dioxide in blood, the carbon dioxide dissociation curve and their clinical significance and implications	ME	PEx
BT_PO 1.33	Discuss the difference between the pulmonary and systemic circulations	ME	PEx
BT_PO 1.34	Discuss pulmonary vascular resistance and the control of pulmonary vascular tone	ME	PEx
BT_PO 1.35	Discuss the physiological consequences of intermittent positive pressure ventilation and positive end-expiratory pressure	ME	PEx
BT_PO 1.36	Discuss the physiological effects of hypoxaemia, hyper and hypocapnia, and carbon monoxide poisoning	ME	PEx
BT_PO 1.37	Discuss the effect of the following on ventilation: • Changes in posture • Exercise • Altitude • Anaesthesia • Ageing • Morbid obesity	ME	PEx
BT_PO 1.38	Define humidity and outline the importance of humidification	ME	PEx
BT_PO 1.39	Outline the non-ventilatory functions of the lungs	ME	PEx
Respiratory pharmacology			
BT_PO 1.40	Describe the pharmacology of anti-asthma drugs, including beta 2 agonists, corticosteroids, anticholinergics, leukotriene antagonists and theophylline	ME	PEx
BT_PO 1.41	Outline the pharmacology of drugs used to treat pulmonary hypertension including nitric oxide	ME	PEx
BT_PO 1.41a	Discuss oxygen therapy including methods of delivery, indications and contraindications, physiological and pathophysiological effects	ME	PEx

Code	Learning outcome	Role	Assessment
Cardiovascular anatomy and physiology			
BT_PO 1.42	Describe the anatomy of the heart including the coronary circulation and territories supplied.	ME	PEx
BT_PO 1.43	Discuss the physiological basis of electrical activity and its relationship to mechanical events including the: • Ionic basis of automaticity the normal and abnormal processes of cardiac excitation • Physiological basis of the electrocardiograph in normal and common pathological states • Factors that may influence cardiac electrical activity • Correlation of the mechanical events of the cardiac cycle with the electrical and ionic events	ME	PEx
BT_PO 1.44	Describe the physiology of cardiac muscle and the mechanism of excitation contraction coupling	ME	PEx
BT_PO 1.45	Discuss the factors that determine and control cardiac output and the implications for clinical practice including: • Preload, afterload and contractility • The Frank-Starling mechanism • Cardiac output and vascular function curves • Pressure volume relationships in the heart	ME	PEx
BT_PO 1.46	Describe the factors determining myocardial oxygen supply and demand and their clinical implications	ME	PEx
BT_PO 147	Discuss the control of blood pressure and the distribution of blood volume and flow throughout the cardiovascular system including: • The factors determining systemic blood pressure and its regulation and control • Total peripheral resistance and factors affecting it • The relationship between organ blood flow and demand and the role of autoregulation • Clinically significant features of the coronary, cerebral, skin, muscle, renal, hepatic and splanchnic circulations • The essential features of the microcirculation including fluid exchange and its control	ME	PEx
BT_PO 1.48	Discuss the cardiovascular responses to: • Changes in posture • Exercise • Valsalva maneouvre • Positive pressure ventilation and PEEP • Pneumoperitoneum • Haemorrhage and hypovolaemia • Surgery and trauma	ME	PEx
BT_PO 1.49	Describe the cardiovascular changes that occur with ageing	ME	PEx
BT_PO 1.50	Describe the cardiovascular changes that occur with morbid obesity	ME	PEx

Code	Learning outcome	Role	Assessment
Cardiovascular pharmacology			
BT_PO 1.51	Describe the autonomic nervous system and its physiological roles including: • Autonomic receptors and cellular effects of receptor activation • Autonomic transmitters, their synthesis, release and fate	ME	PEx
BT_PO 1.52	Describe the mechanism of action and effects of sympathomimetic and anticholinergic drugs used clinically	ME	PEx
BT_PO 1.53	Describe the pharmacology and clinical application of adrenergic agonists	ME	PEx
BT_PO 1.54	Describe the pharmacology of commonly used alpha and beta receptor blocking agents, their clinical use, adverse effects and use in the perioperative period	ME	PEx
BT_PO 1.55	Outline clinically important drug interactions with the autonomic nervous system	ME	PEx
BT_PO 1.56	Describe the physiological and pharmacological basis of antiarrhythmic therapy including classification based on electro-physiological activity and mechanism of action	ME	PEx
BT_PO 1.57	Describe the pharmacology of antiarrhythmic agents and their clinical applications including the following agents: lignocaine, flecainide, beta blockers, amiodarone, sotalol, ibutilide, calcium antagonists, digoxin, adenosine and magnesium	ME	PEx
BT_PO 1.58	Describe the pharmacology of anti-hypertensive agents and their clinical application, including the following agents: clonidine, alpha-methyl dopa, alpha and beta blockers, nitric oxide, sodium nitroprusside and glyceryl trinitrate, calcium antagonists, ACE inhibitors and angiotensin receptor antagonists, hydralazine and the potassium channel activators	ME	PEx
BT_PO 1.59	Describe the pharmacology of drugs used to manage myocardial ischaemia/infarction, including: nitrates, beta blockers, calcium antagonists, anti-platelet agents, anti-coagulants and fibrinolytic agents	ME	PEx
BT_PO 1.60	Describe the pharmacology of drugs used to manage acute or chronic cardiac failure, including: sympathomimetics, phosphodiesterase inhibitors, digoxin, diuretics, ACE inhibitors, nitrates and beta blockers	ME	PEx
Renal and fluid and electrolytes			
BT_PO 1.61	Describe the functional anatomy of the kidneys and urinary tract	ME	PEx
BT_PO 1.62	Explain the physiology of renal blood flow	ME	PEx
BT_PO 1.63	Describe glomerular filtration and tubular function	ME	PEx
BT_PO 1.64	Explain the counter-current mechanisms in the kidney	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PO 1.65	Explain the mechanisms involved in the regulation of renal function	ME	PEx
BT_PO 1.66	Outline the endocrine functions of the kidney	ME	PEx
BT_PO 1.67	Describe the role of the kidney in the handling of glucose, nitrogenous products and drugs	ME	PEx
BT_PO 1.68	Describe the principles of measurement of glomerular filtration rate and renal blood flow	ME	PEx
BT_PO 1.69	Describe the physiological effects and clinical assessment of renal dysfunction	ME	PEx
BT_PO 1.70	Explain the renal responses to hypovolaemia	ME	PEx
BT_PO 1.71	Explain the effects of anaesthesia on renal function	ME	PEx
BT_PO 1.72	Describe the function, distribution and physiological importance of sodium, potassium, magnesium, calcium and phosphate ions	ME	PEx
BT_PO 1.73	Describe the mechanisms involved in the maintenance of fluid and electrolyte balance	ME	PEx
BT_PO 1.74	Outline the constituents and functions of plasma	ME	PEx
BT_PO 1.75	Define osmotic pressure and explain the factors that determine it	ME	PEx
BT_PO 1.76	Describe the regulation of osmolality	ME	PEx
BT_PO 1.77	Outline the significance of oncotic pressure, colloid osmotic pressure and reflection coefficients	ME	PEx
BT_PO 1.78	Describe the regulation of acid/base balance	ME	PEx
BT_PO 1.79	Describe acid-base chemistry using the Henderson-Hasselbach equation and strong ion difference	ME	PEx
BT_PO 1.79a	Explain the principles of blood gas and acid-base analysis, and interpret blood gas analysis in clinical situations.	ME	PEx, CbD
Renal and fluid and electrolytes			
BT_PO 1.80	Describe alterations to drug response due to renal disease	ME	PEx
BT_PO 1.81	Outline a physiological basis of classifying diuretics related to their site of action	ME	PEx
BT_PO 1.82	Describe the pharmacology of diuretics including mannitol, frusemide, thiazides, aldosterone antagonists and carbonic anhydrase inhibitors	ME	PEx

Code	Learning outcome	Role	Assessment
Metabolic and endocrine physiology			
BT_PO 1.82a	Outline basic cellular physiology in particular • The structure of the cell membrane and trans-membrane transport mechanisms • The composition and regulation of intracellular fluid • The generation of the trans-membrane potential • Energy production by metabolic processes in cells	ME	PEx
BT_PO 1.83	Describe the physiological consequences of starvation	ME	PEx
BT_PO 1.84	Discuss the factors that influence metabolic rate	ME	PEx
BT_PO 1.85	Explain the control of blood glucose	ME	PEx
BT_PO 1.86	Describe the role of the hypothalamus in the integration of neuro-humoral responses	ME	PEx
BT_PO 1.87	Describe control of secretion and the functions of: • Pituitary hormones • Thyroid hormones • Adrenocortical hormones • Adrenomedullary hormones • Renin and angiotensin • Atrial natriuretic peptide	ME	PEx
BT_PO 1.88	Describe the regulation of plasma calcium including the actions and control of vitamin D, parathormone and calcitonin	ME	PEx
BT_PO 1.89	Outline the role of prostaglandins and other autocoids	ME	PEx
Endocrine pharmacology			
BT_PO 1.90	Describe the pharmacology of: • Insulin preparations • Oral hypoglycaemics • Corticosteroid drugs	ME	PEx
BT_PO 1.91	Outline the pharmacology of: • Thyroid hormone replacement and anti-thyroid drugs • Glucagon • Vasopressin and analogues	ME	PEx
Neurophysiology			
BT_PO 1.92	Outline the basic electrophysiology of nerve conduction	ME	PEx
BT_PO 1.93	Describe the physiology of sleep	ME	PEx
BT_PO 1.94	Outline the basis of the electroencephalogram	ME	PEx
BT_PO 1.95	Discuss the determinants and control of: • Intracranial and intraspinal pressure • Cerebral blood flow and autoregulation • Cerebral perfusion pressure • Spinal cord perfusion	ME	PEx
BT_PO 1.96	Discuss the significance of the blood brain barrier	ME	PEx

Code	Learning outcome	Role	Assessment
BT_PO 1.97	Describe the dynamics and metabolism of cerebrospinal fluid	ME	PEx
BT_PO 1.98	Describe cerebral and spinal cord metabolism including energy production, effects of temperature and factors leading to cell damage and cell death	ME	PEx
BT_PO 1.98a	Describe the physiology of skeletal muscle including mechanism of excitation contraction coupling and compare and contrast the physiology of skeletal, cardiac and smooth muscle	ME	PEx
Neurological pharmacology			
BT_PO 1.99	Outline the pharmacology of anti-depressant, anti-psychotic, anti-convulsant, anti-parkinsonian and anti-migraine medication	ME	PEx
BT_PO 1.100	Outline the pharmacology of histamine antagonists	ME	PEx
BT_PO 1.101	Outline the pharmacology of drugs acting via effects on serotonin or serotonin receptors	ME	PEx
BT_PO 1.102	Discuss the clinical features and management of serotonin syndrome	ME	PEx
Gastrointestinal anatomy and physiology			
BT_PO 1.103	Describe the storage, synthetic, metabolic, immunological and excretory functions of the liver and identify the physiological consequences of hepatic disease	ME	PEx
BT_PO 1.104	Describe the anatomical and physiological considerations in hepatic blood flow, and the changes that occur with anaesthesia	ME	PEx
BT_PO 1.105	Describe the portal circulation and its significance	ME	PEx
BT_PO 1.106	Describe the laboratory assessment of liver function and hepatic failure	ME	PEx
BT_PO 1.107	Explain the: • Physiology of swallowing • Factors preventing reflux of gastric contents into the oesophagus • Control of gastric motility and emptying • Composition of gastric fluid • Physiology of nausea and vomiting	ME	PEx
Gastrointestinal pharmacology			
BT_PO 1.108	Describe alterations to drug response due to hepatic disease	ME	PEx
BT_PO 1.109	Outline the pharmacological treatment of peptic ulcer disease and reflux	ME	PEx

Code	Learning outcome	Role	Assessment
Haematology, transfusion medicine and oncology			
BT_PO 1.110	Describe the physiological consequences of acute and chronic anaemia	ME	PEx
BT_PO 1.111	Outline the major haemoglobinopathies and their clinical significance	ME	PEx
BT_PO 1.112	Describe the physiology of haemostasis, including: • Coagulation • The role of platelets • Fibrinolysis	ME	PEx
BT_PO 1.113	Describe the physiological mechanisms of limiting and preventing thrombosis	ME	PEx
BT_PO 1.114	Outline the methods for assessing coagulation, platelet function and fibrinolysis	ME	PEx
BT_PO 1.115	Describe blood groups and methods of cross matching blood	ME	PEx
BT_PO 1.116	Outline the composition, indications and risks of use of the following blood components and products: • Packed red cells • Fresh frozen plasma • Cryoprecipitate • Platelets • Factor VIIa	ME	PEx
BT_PO 1.117	Describe the changes that occur during blood storage and their clinical implications.	ME	PEx
Pharmacology of haematology, transfusion medicine and oncology			
BT_PO 1.118	Describe the pharmacology of heparin and low molecular weight heparins including their side-effects	ME	PEx
BT_PO 1.119	Describe the mode of action of protamine and potential adverse reactions	ME	PEx
BT_PO 1.120	Describe the pharmacology of warfarin and other anticoagulant drugs	ME	PEx
BT_PO 1.121	Describe methods to reverse the effect of warfarin	ME	PEx
BT_PO 1.122	Classify and describe the pharmacology of anti-platelet drugs	ME	PEx
BT_PO 1.123	Outline the pharmacology of thrombolytic agents	ME	PEx
BT_PO 1.124	Outline the pharmacology of antifibrinolytic agents in particular tranexamic acid and aprotinin	ME	PEx
BT_PO 1.125	Outline the pharmacology of cancer chemotherapeutic agents and immunotherapy with particular reference to problems that these may cause during the perioperative period	ME	PEx

Code	Learning outcome	Role	Assessment
Immunology			
BT_PO 1.126	Explain how the body defends against infection	ME	PEx
BT_PO 1.127	Outline the effects of anaesthesia and surgery on immune function	ME	PEx
BT_PO 1.128	Describe the immunological basis and pathophysiological effects of hypersensitivity	ME	PEx
BT_PO 1.129	Outline the principles of tissue/organ transplantation and the mechanisms of rejection of allogeneic organs	ME	PEx
Immunology related pharmacology			
BT_PO 1.130	Outline the pharmacology of antimicrobial drugs and their interactions with other drugs used during the perioperative period	ME	PEx
BT_PO 1.131	Explain the principles of antibiotic prophylaxis	ME	PEx
BT_PO 1.132	Outline the pharmacology of antiseptics and disinfectants, their clinical use and associated risks	ME	PEx
Regional and local anaesthesia			
Basic training			
BT_RA 1.1	Describe the physiology of nerve conduction	ME	PEx
BT_RA 1.2	Describe the physiological consequences of a central neuraxial block	ME	PEx
BT_RA 1.3	Discuss the pharmacology of local anaesthetic agents including: • Mechanisms of action • Comparative pharmacology of different agents • Toxicity • Use of adjuvant agents to enhance the quality or extend duration of block • Pharmacokinetics of drugs administered in the epidural and subarachnoid space	ME	PEx
BT_RA 1.4	Describe the anatomy of the vertebral column spinal cord and meninges relevant to the performance of central neuraxial block with appropriate surface markings.	ME	PEx
BT_RA 1.5	Describe the dermatomal innervations	ME	PEx
BT_RA 1.6	Describe the myotomal innervation	ME	PEx
BT_RA 1.7	Describe the pain and sensory pathways	ME	PEx
BT_RA 1.8	Describe the principles of ultrasound imaging and the safe use of ultrasound equipment for regional anaesthesia	ME	PEx
BT_RA 1.9	Describe the principles of nerve stimulation to locate nerves and the safe use of nerve stimulators	ME	PEx

Code	Learning outcome	Role	Assessment
Central neuraxial blocks			
BT_RA 1.14	Describe factors influencing dose and choice of anaesthetic agents for spinal anaesthesia and epidural anaesthesia/analgesia	ME	PEx
BT_RA 1.15	Describe how the baricity of the agents used and positioning of patients may affect the extent of block in spinal anaesthesia	ME	PEx
BT_RA 1.16	Describe the drugs that may be injected into the intrathecal or epidural space as adjuvant agents to a central neuraxial block and discuss their risks and benefits	ME	PEx
BT_RA 1.17	Describe the midline and paramedian approaches to the sub-arachnoid space and epidural space	ME	PEx
Resuscitation, trauma and crisis management			
Basic training			
Physiology			
BT_RT 1.1	Define shock	ME	PEx
BT_RT 1.2	Integrate knowledge of factors determining cardiac output to classify causes of shock	ME	PEx
BT_RT 1.3	Describe the physiological consequences of shock	ME	PEx
BT_RT 1.4	Describe oxygen delivery and outline the use of indicators of tissue oxygenation (base deficit, lactate, mixed venous oxygen saturation) in resuscitation	ME	PEx
BT_RT 1.5	Describe the systemic inflammatory response and its physiological effects	ME	PEx
BT_RT 1.6	Describe the physiological basis of anaphylaxis	ME	PEx
BT_RT 1.7	Describe blood groups and the physiological basis of transfusion reactions	ME	PEx
BT_RT 1.8	Outline the changes that occur in stored blood	ME	PEx
BT_RT 1.9	Describe physiological consequences of massive transfusion	ME	PEx
BT_RT 1.10	Outline the causes of hypoxaemia	ME	PEx
BT_RT 1.11	Describe the physiological consequences of hypoxaemia	ME	PEx
BT_RT 1.12	Outline the factors determining intracranial pressure and discuss its regulation	ME	PEx
BT_RT 1.13	Describe the cerebral circulation, the regulation of cerebral blood flow and factors leading to the loss of autoregulation	ME	PEx
BT_RT 1.14	Discuss cerebral perfusion pressure	ME	PEx

Code	Learning outcome	Role	Assessment
BT_RT 1.15	Describe the blood supply to the spinal cord and the regulation of spinal cord blood flow	ME	PEx
BT_RT 1.16	Discuss spinal cord perfusion pressure	ME	PEx
Pharmacology			
BT_RT 1.17	With reference to the management of shock, describe the pharmacology of vasopressors and inotropes, including: adrenaline, noradrenaline, phenylephrine, metaraminol, dopamine, dobutamine, phosphodiesterase inhibitors, vasopressin	ME	PEx
BT_RT 1.18	With reference to cardiopulmonary resuscitation, describe the pharmacology of adrenaline, vasopressin, amiodarone and lignocaine	ME	PEx
BT_RT 1.19	With reference to the treatment of malignant hyperthermia, describe the pharmacology of dantrolene	ME	PEx
Anatomy			
BT_RT 1.20	Outline the anatomy relevant to vascular access in resuscitation: specifically for safe cannulation of antecubital, saphenous jugular and subclavian veins and placement of intraosseous infusion devices	ME	PEx
BT_RT 1.21	Outline the anatomy relevant to the drainage of pericardial fluid	ME	PEx
BT_RT 1.22	Outline the anatomy relevant to drainage of the pleural space	ME	PEx
BT_RT 1.23	Outline the anatomy of the cerebral and spinal cord circulation	ME	PEx
Resuscitation of the shocked patient			
BT_RT 1.30	Outline how the clinical signs of shock may be altered by age	ME	PEx
Acute respiratory failure			
BT_RT 1.38	Define respiratory failure and differentiate between type 1 and type 2 respiratory failure	ME	PEx
BT_RT 1.39	Interpret blood gas analysis in respiratory failure	ME	PEx
Safety and quality in anaesthetic practice			
Introductory training			
IT_SQ 1.5	Outline the standards to which reusable anaesthetic equipment needs to be cleaned and/or treated. (Refer to College professional document *PS28 Guidelines on Infection Control in Anaesthesia*)	ME	PEx

Code	Learning outcome	Role	Assessment
Basic training			
BT_SQ 1.3	Outline the mandatory safety requirements for anaesthetic machines. (Refer to College professional document *PS54 Statement on the Minimum Safety Requirements for Anaesthetic Machines and Workstations for Clinical Practice*)	ME	PEx
Basic sciences relevant to anaesthesia equipment, measurement and safety			
BT_SQ 1.5	Describe basic physics applicable to anaesthesia in particular: • Behaviour of fluids (gases and liquids) • Electrical concepts, current, potential difference, resistance, impedance, inductance and capacitance • Principles of humidification and use of humidifiers • Principles of ultrasound imaging and use of doppler	ME	PEx

BT_SQ 1.6	Describe the methods of measurement applicable to anaesthesia, including clinical utility, complications and sources of error in particular:
	• SI units
	• Measurement of volumes, flows, and pressures, including transducers.
	• Measurement of blood pressure
	• Measurement of cardiac output
	• Measurement of temperature
	• Oximetry
	• Gas analysis, including capnography
	• Methods used to measure respiratory function, including:
	  ○ Forced expiratory volume
	  ○ Peak expiratory flow rate
	  ○ Vital capacity
	  ○ Flow-volume loops
	  ○ Functional residual capacity and residual volume
		ME	PEx

Environmental safety			
BT_SQ 1.7	Describe microshock and macroshock and the mechanisms for preventing these, with particular reference to ensuring the compatibility of medical procedure, treatment area, and medical equipment used	ME	PEx
BT_SQ 1.8	Outline the causes of fires and explosions in the operating suite and discuss methods for prevention and management (refer to the *Resuscitation, trauma and crisis management* clinical fundamental)	ME	PEx
BT_SQ 1.9	Describe the hazards of anaesthetic gas pollution and the methods of scavenging anaesthetic gases	ME	PEx
BT_SQ 1.10	Describe the supply of medical gases (bulk supply and cylinder) and features to ensure supply safety including pressure valves and regulators and connection systems	ME	PEx
BT_SQ 1.11	Describe how medical suction is generated and how to set up and test suction systems, both fixed and portable	ME	PEx

Code	Learning outcome	Role	Assessment
BT_SQ 1.12	Describe the principles and safe operation of vaporisers	ME	PEx
BT_SQ 1.13	Describe and classify breathing systems used in anaesthesia. Evaluate their clinical utility and hazards associated with their use.	ME	PEx
BT_SQ 1.14	Describe different systems to deliver supplemental oxygen and the advantages and disadvantages of these systems	ME	PEx
BT_SQ 1.15	Outline how CO2 is absorbed in a circle system and the hazards associated with the use of CO2 absorption	ME	PEx
BT_SQ 1.16	Describe when a level 1 anaesthesia machine check is required. (Refer to College professional document *PS31 Recommendations on Checking Anaesthesia Delivery Systems*)	ME	PEx
BT_SQ 1.17	Discuss the safety of methods for maintaining body temperature during anaesthesia and sedation, including active warming of patients	ME	PEx
BT_SQ 1.18	Discuss the principles of surgical diathermy, its safe use and the potential hazards	ME	PEx
BT_SQ 1.19	Describe the principles of surgical lasers, their safe use and the potential hazards	ME	PEx
BT_SQ 1.20	Outline the pharmacology of radiological contrast agents	ME	PEx

Obstetric anaesthesia and analgesia

Code	Learning outcome	Role	Assessment
Obstetric physiology and pharmacology			
SS_OB 1.1	Describe the physiological changes and their implications for anaesthesia that occur during pregnancy, labour and delivery, in particular the respiratory, cardiovascular, haematological and gastrointestinal changes.	ME	PEx
SS_OB 1.2	Outline the reference ranges for physiological and biochemical variables in pregnancy	ME	PEx
SS_OB 1.3	Describe the transition from foetal to neonatal circulation and the establishment of ventilation	ME	PEx
SS_OB 1.4	Describe the utero-placental circulation and the principles of placental physiology as related to placental gas exchange and regulation of placental blood flow	ME	PEx
SS_OB 1.5	Describe the mechanism and consequences of aorto-caval compression in pregnancy	ME	PEx
SS_OB 1.6	Describe the changes in the anatomy of the maternal airway and their impact on airway management during anaesthesia	ME	PEx
SS_OB 1.7	Describe the changes in the anatomy of the maternal vertebral column, the spinal cord and meninges relevant to the performance of a central neuraxial block including epidural, spinal and combined spinal-epidural, with appropriate surface markings (refer to the *Regional and local anaesthesia* clinical fundamental)	ME	PEx
SS_OB 1.8	Describe the anatomy and physiology of pain in labour and childbirth	ME	PEx
SS_OB 1.9	Describe the influence of pregnancy on the pharmacokinetics and pharmacodynamics of drugs commonly used in anaesthesia and analgesia	ME	PEx
SS_OB 1.10	Describe the pharmacology of oxytocic agents with special reference to oxytocin derivatives, ergot derivatives and prostaglandins	ME	PEx
SS_OB 1.11	Describe the pharmacology of tocolytic agents with particular reference to beta 2 agonists, calcium antagonists, magnesium, inhalational anaesthetics, nitrates and NSAIDS	ME	PEx
SS_OB 1.12	Describe the pharmacology of agents used for the treatment of pre-eclampsia including magnesium, hydralazine and labetalol	ME	PEx
SS_OB 1.13	Explain the factors which influence the transfer of drugs across the placenta to the foetus	ME	PEx
SS_OB 1.14	Outline the potential effects on the foetus and neonate of drugs administered during pregnancy	ME	PEx
SS_OB 1.15	Outline the potential effects on the neonate of drug administration in association with lactation	ME	PEx

Paediatric anaesthesia

Code	Learning outcome	Role	Assessment
Airway management			
SS_PA 1.1	Describe the anatomy of the neonatal airway, how this changes with growth and development and the implications for airway management	ME	PEx
Perioperative medicine – physiology			
SS_PA 1.21	Describe the foetal circulation	ME	PEx
SS_PA 1.22	Describe the circulatory and respiratory changes that occur at birth	ME	PEx
SS_PA 1.23	Define the thermoneutral zone, describe temperature regulation in the neonate and the physiological responses to lowered and raised environmental temperature, the effects of anaesthesia on these responses and how this changes with growth and development	ME	PEx
SS_PA 1.24	Describe the physiology of the cardiovascular, respiratory, renal and neurological systems in the neonate and the changes that occur with growth and development and the implications of this for anaesthetic care	ME	PEx
SS_PA 1.25	Describe the composition of body fluids in the neonate and explain the changes that occur with growth and development	ME	PEx
SS_PA 1.26	Describe glucose homeostasis in the neonate and explain the changes that occur with growth and development	ME	PEx
SS_PA 1.27	Describe vital signs for children of different ages	ME	PEx
General anaesthesia and sedation - clinical and applied pharmacology			
SS_PA 1.52	Describe how the pharmacokinetics of drugs commonly used in anaesthesia in neonates and children differ from adults and the implications for anaesthesia	ME	PEx
SS_PA 1.53	Describe the changes in the pharmacodynamics of volatile agents, analgesics, opioids and neuromuscular blocking agents in the neonate and the changes that occur with growth and development and the implications for anaesthesia	ME	PEx
SS_PA 1.54	Describe the pharmacology of agents used for premedication in children, including midazolam, clonidine, and ketamine	ME	PEx
Regional anaesthesia			
SS_PA 1.79	Describe the difference in pharmacokinetics of local anaesthetic agents in neonates and children from adults and the implications for regional blockade	ME	PEx
SS_PA 1.80	Describe the maximum safe doses of local anaesthetic agents in different age groups	ME	PEx

Appendix Three

Learning outcomes mapped to the initial assessment of anaesthetic competence questions (IAACQ)

The initial assessment of anaesthetic competence comprises two components:

- Workplace-based assessment
- Initial assessment of anaesthetic competence questions (IAACQ)

The learning outcomes listed on the following pages are those from the introductory training period for the ANZCA Clinical Fundamentals that have been mapped to the IAACQ.

The supervisor of training will ask the trainee a set of questions, based on these learning outcomes, to test the trainee's knowledge in the role of medical expert. These questions will form part of the IAACQ, which forms the second component of the initial assessment of anaesthetic competence.

Airway management

By the completion of introductory training, the trainee will be able to identify issues that may lead to difficulty in airway management. The trainee will be able to manage the normal airway, with distant supervision where appropriate, in both spontaneously breathing and ventilated patients and demonstrate an ability to maintain oxygenation when the airway is threatened.

By the end of the introductory training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
Medical expert – knowledge			
IT_AM 1.1	Describe the basic structural anatomy of the upper airway including the larynx	ME	IAACQ, PEx
IT_AM 1.2	Discuss the important features of history and examination that may identify a potentially difficult airway	ME	IAACQ, FEx
IT_AM 1.3	Outline preoperative fasting requirements and the common measures employed to decrease the risk of pulmonary aspiration	ME	IAACQ, FEx
IT_AM 1.4	Describe an appropriate airway strategy for anaesthesia taking account of patient and procedural factors in patients with a normal airway, including indications for rapid sequence induction.	ME	IAACQ, FEx
IT_AM 1.5	Describe the indications for manual in-line stabilisation of the neck and the implications for airway management	ME	IAACQ, FEx
IT_AM 1.6	Outline the equipment required to be immediately available for basic airway management and the 'can't intubate, can't oxygenate' (CICO) situation	ME	IAACQ, PEx
IT_AM 1.7	Describe the optimal patient position for intubation	ME	IAACQ, FEx
IT_AM 1.8	Describe the common complications of intubation	ME	IAACQ, FEx
IT_AM 1.9	Describe preoxygenation, including its physiological basis	ME	IAACQ, PEx
IT_AM 1.10	Outline an appropriate ventilation strategy suitable for routine elective and emergency patients	ME	IAACQ, FEx
IT_AM 1.11	Outline potential management plans to ensure oxygenation of the patient with an unexpected difficult airway	ME	IAACQ, FEx
IT_AM 1.12	Outline the clinical features, possible causes, physiological consequences and management of perioperative upper airway obstruction	ME	IAACQ, FEx
IT_AM 1.13	Describe a 'can't intubate, can't oxygenate' drill, including the technique for performing an emergency surgical airway	ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
Medical expert – knowledge			
IT_AM 1.14	Describe and classify the view obtained at direct laryngoscopy according to a common grading scale (Cormack-Lehane)	ME	IAACQ, FEx
IT_AM 1.15	Describe the features of oesophageal and endobronchial intubation and outline appropriate management	ME	IAACQ, FEx
IT_AM 1.16	Describe the clinical features and outline a management plan for a patient with aspiration of gastric contents	ME	IAACQ, FEx
IT_AM 1.17	Describe the clinical features that indicate a patient can be extubated safely	ME	IAACQ, FEx
IT_AM 1.18	Describe potential complications at extubation	ME	IAACQ, FEx
IT_AM 1.19	Describe optimisation of the patient for extubation	ME	IAACQ, FEx
IT_AM 1.20	Outline the important airway considerations in determining the suitability of a patient for discharge to recovery	ME	IAACQ, FEx

General anaesthesia and sedation

By the completion of introductory training, the trainee will be able to anaesthetise or sedate a low-risk patient having low-risk surgery with distant supervision, applying an appropriate technique for the clinical situation. They will begin studying applied pharmacology underpinning anaesthetic practice.			
By the end of the introductory training core study unit, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
Medical expert – knowledge			
IT_GS 1.1	Outline the basic pharmacology of sedative/hypnotic agents (propofol, thiopentone, midazolam, ketamine), inhalational agents, opioids, muscle relaxants, reversal drugs and anti-emetic agents relevant to their clinical practice	ME	IAACQ, PEx
IT_GS 1.2	Outline the process of induction, maintenance and emergence from anaesthesia	ME	IAACQ
IT_GS 1.3	Outline preoperative fasting requirements, identify patients at risk of aspiration and outline common measures employed to decrease the risk of pulmonary aspiration (also refer to the *Airway management* clinical fundamental)	ME	IAACQ
IT_GS 1.4	Discuss indications for rapid sequence induction of anaesthesia (also refer to the *Airway management* clinical fundamental)	ME	IAACQ
IT_GS 1.5	Describe the chemical composition of crystalloids and colloids used in clinical practice and their effects when used in volume replacement	ME	IAACQ, PEx
IT_GS 1.6	Calculate intravenous fluid requirements and choose intravenous fluid therapy appropriate to the clinical situation for low-risk patients having low-risk surgery	ME	IAACQ, FEx
IT_GS 1.7	Describe the clinical situations when anxiolytic or sedative premedication may be indicated or contraindicated	ME	IAACQ, FEx
IT_GS 1.8	Outline the physiological changes that occur with and the implications for anaesthetic management of pneumoperitoneum	ME	IAACQ, PEx
IT_GS 1.9	Outline the physiological changes that occur with and the implications for anaesthetic management of the following patient positions: • Supine • Trendelenberg and reverse trendelenberg • Lateral • Lithotomy • Prone (Also refer to the *Safety and quality in anaesthetic practice* clinical fundamental)	ME	IAACQ, PEx
Medical expert – knowledge			
IT_GS 1.10	Outline a strategy for the management of postoperative nausea and vomiting	ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
IT_GS 1.11	Describe the clinical features that indicate a patient can be extubated safely (also refer to the *Airway management* clinical fundamental)	ME	IAACQ, FEx
IT_GS 1.12	Outline a strategy for the management of failure to wake from anaesthesia	ME	IAACQ, FEx
IT_GS 1.13	Outline a strategy for the management of postoperative delirium	ME	IAACQ, FEx
IT_GS 1.14	Outline a strategy for the management of postoperative analgesia for patients in their care (also refer to the *Pain medicine* clinical fundamental)	ME	IAACQ, FEx

Pain medicine

By the completion of introductory training, the trainee will be able to manage simple acute pain and recognise clinical situations where consultation with supervisors is required to formulate a pain management plan.			
By the end of the introductory training core study unit, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
Medical expert – knowledge			
IT_PM 1.1	Define pain, acute pain and chronic pain	ME	IAACQ, FEx
IT_PM 1.2	Outline the elements of a basic pain history	ME	IAACQ, FEx
IT_PM 1.3	Outline the basic concepts of multimodal analgesia and pre-emptive analgesia	ME	IAACQ, PEx
IT_PM 1.4	Outline the basic pharmacology and clinical use of available analgesic agents	ME	IAACQ, PEx
IT_PM 1.5	Outline clinical situations where the use of analgesic agents may be associated with increased risk to the patient and requires consultation with supervisors for the initiation of therapy	ME	IAACQ
IT_PM 1.6	Outline the principles of acute pain management and the assessment of analgesic efficacy and adverse effects as contained in the College professional document *PS41 Guidelines on Acute Pain Management*	ME	IAACQ, FEx
IT_PM 1.7	Outline a protocol for the management of pain in recovery	ME	IAACQ, FEx
IT_PM 1.8	Outline a pain management plan for patients having day surgery procedures	ME	IAACQ, FEx
IT_PM 1.9	Outline the risks associated with and the monitoring requirements for patients receiving patient-controlled analgesia (PCA), opioid infusions or continuous regional analgesia for acute pain management	ME	IAACQ, FEx
IT_PM 1.10	Outline the problems in managing acute pain for patients with chronic prior exposure to opioids	ME	IAACQ, FEx
IT_PM 1.11	Describe the assessment and adjustment of continuous regional techniques for acute pain control	ME	IAACQ, FEx
Medical expert – knowledge			
IT_PM 1.12	Describe the advantages and disadvantages of patient-controlled analgesia (PCA), continuous infusion and intermittent prescription of opioids for acute pain management	ME	IAACQ, FEx
IT_PM 1.13	Outline the management of hypotension associated with a central neuraxial block	ME	IAACQ, FEx
IT_PM 1.14	Outline the management of 'high spinal' block (also refer to the *Regional and local anaesthesia* and *resuscitation, trauma and crisis management* clinical fundamentals)	ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
IT_PM 1.15	Outline a plan to transition patients with acute pain from parenteral to oral analgesic therapies (in low complexity cases)	ME	IAACQ, FEx
IT_PM 1.16	Outline the contribution of psychosocial factors to the patient's experience of pain	ME	IAACQ, FEx

Perioperative medicine

By the completion of introductory training, the trainee will be able to perform a pre-operative assessment of patients to inform discussion of perioperative management with supervisors and recognise when further assessment and optimisation and/or referral is required.			
By the end of the introductory training core study unit, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Medical expert – knowledge			
IT_PO 1.1	Outline the ASA physical status classification system and the implications for anaesthesia	ME	IAACQ, FEx
IT_PO 1.2	Outline the functional assessment of patients based on exercise capacity and performance of activities of daily living	ME	IAACQ, FEx
IT_PO 1.3	Outline how functional assessment is used in perioperative risk assessment	ME	IAACQ, FEx
IT_PO 1.4	Outline the implications for anaesthetic management and perioperative risk of a range of medical conditions including but not limited to: Cardiovascular • Coronary artery disease • Valvular heart disease • Cardiac conduction abnormalities/pacemakers • Left heart failure (CCF) • Hypertension • Cerebrovascular disease (embolic and haemorrhagic) • Peripheral vascular disease Respiratory • Chronic obstructive pulmonary disease • Asthma • Respiratory tract infection • Obstructive sleep apnoea • Chronic tobacco use Metabolic/Endocrine • Obesity (including morbid obesity) • Diabetes • Electrolyte and acid base disorders • Steroid dependence Haematological/Immunological • Anaemia • Thrombocytopenia • Thromboembolic disease (DVT/PE) • Coagulopathy/anticoagulant use • Immunocompromised patient Gastrointestinall/Renal • Renal impairment (acute and chronic) • Gastro-oesophageal reflux • GIT haemorrhage	ME	IAACQ, FEx

Bt the completion of Introductory training, the trainee will have acquired the initial knowledge and skills for the safe conduct of regional anaesthesia including selection of appropriate patients and procedures, knowledge of aseptic techniques and management of complications.			
By the end of the introductory training core study unit, a trainee will be able to:			
Code	**Learning outcome**	**Role**	**Assessment**
1. Medical expert – knowledge			
IT_RA 1.1	Describe the principles for the safe conduct of major regional anaesthesia as outlined in College professional document as outlined in College professional document *PS03 Guidelines for the Management of Major Regional Analgesia*	ME	IAACQ, FEx
IT_RA 1.2	Outline the pre-operative assessment of the patient necessary before performing any regional technique	ME	IAACQ, FEx
IT_RA 1.3	Describe the sterile technique necessary for the performance of regional anaesthesia	ME	IAACQ, FEx
IT_RA 1.4	Outline the skills required for the safe performance of regional blockade, including: • Confirming and marking site of surgery and site of regional technique • Positioning of patient • Identification of anatomical landmarks • Use of aseptic technique • Selection of appropriate needle • Selecting, checking, drawing up, diluting, and labelling of drugs for injection • Checking for inadvertent intravenous and intraneural administration	ME	IAACQ, FEx
IT_RA 1.5	Outline the clinical features and management of local anaesthetic toxicity (also refer to the *Resuscitation, trauma and crisis management* clinical fundamental)	ME	IAACQ, FEx
IT_RA 1.6	Outline the management of hypotension associated with a central neuraxial block.	ME	IAACQ, FEx
IT_RA 1.7	Outline the management of 'high spinal' block	ME	IAACQ, FEx
IT_RA 1.8	Describe the absolute and relative contraindications of a central neuraxial block	ME	IAACQ, FEx
IT_RA 1.9	Describe how to assess the adequacy of a regional technique	ME	IAACQ, FEx
IT_RA 1.10	Describe the measures to be taken when a regional technique is not working completely	ME	IAACQ, FEx
IT_RA 1.11	Outline the complications of a central neuraxial block	ME	IAACQ, FEx

Resuscitation, trauma and crisis management

By the completion of introductory training, the trainee will be able to recognise clinical situations which are life threatening or have the potential for major patient morbidity. They will call for assistance and when appropriate initiate management of these conditions.

By the end of the introductory training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
IT_RT 1.1	Outline a systematic approach to identifying the cause and describe the initial management of the following, when occurring in association with anaesthesia or sedation: • Dyspnoea • Hypoxia • Hypocapnoea/hypocarbia • Hypercapnoea/hypercarbia • Tachycardia • Bradycardia • Hypotension • Hypertension • High airway pressures • Oliguria/anuria • Failure to wake from anaesthesia (also refer to the G*eneral anaesthesia and sedation* clinical fundamental)	ME	IAACQ, FEx
2. Medical expert – knowledge			

IT_RT 1.2	Outline the clinical features and describe the initial management of patients with the following life-threatening conditions:
	• Cardiac arrest
	• Respiratory arrest
	• Shock
	  ○ Hypovolaemic
	  ○ Distributive
	  ○ Cardiogenic
	  ○ Obstructive
	• Cardiac tamponade
	• Acute myocardial ischaemia
	• Acute pulmonary oedema
	• Aortic dissection
	• Arrhythmias causing haemodynamic compromise
	• Aspiration of gastric contents
	• Severe bronchospasm
	• Tension pneumothorax
	• Massive haemoptysis
	• Coma
	• Raised intra-cranial pressure
	• Prolonged seizures
	• Local anaesthetic toxicity (also refer to the *Regional and local anaesthesia* clinical fundamental)
	• Anaphylaxis (refer to endorsed guidelines by ANZAAG *Anaphylaxis Management Guidelines)*
	• Malignant hyperthermia (refer to endorsed guidelines on *Malignant Hyperthermia Crisis Manangent*)
	• Pulmonary embolism
	• Gas embolism
	• Coagulopathy in association with surgery or trauma
	• Hyper/hypokalemia
		ME	IAACQ, FEx

Code	Learning outcome	Role	Assessment
IT_RT 1.3	Outline the personnel, equipment and drugs available for crisis management in anaesthetising locations	ME	IAACQ, FEx
IT_RT 1.4	Describe the primary survey of the trauma patient	ME	IAACQ, FEx
IT_RT 1.5	Describe techniques for the immobilisation of patients with spinal injuries during transport and transfer	ME	IAACQ, FEx

Safety and quality in anaesthetic practice

By the completion of introductory training, the trainee will be able to recognise clinical situations which are life threatening or have the potential for major patient morbidity. They will call for assistance and when appropriate initiate management of these conditions.

By the end of the introductory training core study unit, a trainee will be able to:

Code	Learning outcome	Role	Assessment
1. Medical expert – knowledge			
IT_SQ 1.1	Outline and apply the College guidelines and recommendations for standards of safe practice: • Ensure appropriate standards are met in terms of equipment, monitoring and staffing when providing anaesthesia and sedation. Refer to College professional document *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations* • Perform a level two and three check of the anaesthetic machine and related equipment. Refer to College professional document *PS31 Recommendations on Checking Anaesthesia Delivery Systems* • Apply appropriate monitoring for each case. Refer to College professional document *PS18 Recommendations on Monitoring* • Safely draw up, label and store drugs. Refer to College professional document *PS51 Guidelines for the Safe Administration of Injectable Drugs in Anaesthesia* • Demonstrate safe handover of care during and after anaesthesia. Refer to College professional document *PS53 Statement on the Handover Responsibilities of the Anaesthetist* • Outline the planning staffing and equipment required for the safe intra-hospital transfer of patients. Refer to College professional document *PS52:* Guidelines for *Transport of Critically ill Patients* Outline and apply the surgical safety checklist (including time-out procedure). Refer to *endorsed guideline WHO Surgical Safety Checklist Australian and New Zealand edition*	ME	Outline IAACQ, FEx Apply CEX, DOPS
IT_SQ 1.2	Describe safe transfusion practices including: • Safe storage and handling of blood and blood products Protocols for checking prior to transfusing	ME	IAACQ, FEx
IT_SQ 1.3	Outline measures to minimise the risk of injury or complications resulting from the use of a tourniquet	ME	IAACQ, FEx
IT_SQ 1.4	Outline the recommended vaccinations for healthcare workers. Refer to College professional document *PS28 Guidelines on Infection Control in Anaesthesia*	ME	IAACQ, FEx
2. Medical expert – knowledge			
IT_SQ 1.5	Outline the standards to which reusable anaesthetic equipment needs to be cleaned and/or treated. Refer to College professional document *PS28 Guidelines on Infection Control in Anaesthesia*	ME	PEx
IT_SQ 1.6	Outline the risk of peripheral nerve injury and measures to minimise this risk during procedures	ME	IAACQ, FEx

IT_SQ 1.7	Outline steps to minimise the risk of eye injury during perioperative care	ME	IAACQ, FEx
IT_SQ 1.8	Outline measures to minimise the risk of injury or complications resulting from the following patient positions: • Supine • Trendelenberg and reverse trendelenberg • Lateral • Lithotomy Prone	ME	IAACQ, FEx

Appendix Four

Volume of practice and workplace-based assessment requirements for each of the ANZCA Clinical Fundamentals

This appendix contains tables setting out both the volume of practice and workplace-based assessment requirements for each of the ANZCA Clinical Fundamentals.

In addition to the workplace-based assessment requirements specified for each ANZCA Clinical Fundamental and each training period, trainees are required to undertake the following assessment within each training period, summarised here and also in the tables following:

Introductory training

- A minimum of four mini clinical evaluation exercises (mini-CEX) in any ANZCA Clinical Fundamental during introductory training. For this purpose, trainees may select low-risk cases of low complexity encountered in their clinical practice. Trainees should refer to those learning outcomes from 'medical expert – skills' in the clinical fundamentals of the introductory training period that are assessed by mini-CEX, to get some indication of the areas of focus that they might select to be assessed on.
- All workplace-based assessments completed must be directly relevant to the clinical fundamentals, as no workplace-based assessments for the specialised study units should be completed during introductory training.
- A minimum of one multi-source feedback (MsF), which can cover various areas of a trainee's performance from within the ANZCA Roles in Practice and/or the ANZCA Clinical Fundamentals.

Basic training

Throughout basic and advanced training, trainees are required to undertake a minimum number of workplace-based assessments on a combination of specified and non-specified topics. The focus of some of these assessments will be drawn from the specialised study units but have been included in this section for ease of reference.

- A minimum of eight direct observation of procedural skills (DOPS) assessments, on a combination of specified and non-specified topics. For the specified topics trainees may refer to the required DOPS from any of the specialised study units, indicated by M-DOPS in the assessment column.

For the non-specified topics, trainees may select procedures encountered in their clinical practice from any of the clinical fundamentals or specialised study units. Trainees should refer to those learning outcomes from the medical expert – skills sections in the clinical fundamentals of the basic training period, or specialised study units assessed by DOPS, to get some indication of the areas of focus that they might select to be assessed on.

- A minimum of 11 mini clinical evaluation exercises (mini-CEX) from a combination of specified and non-specified topics in both the clinical fundamentals and specialised study units. For the specified topics trainees may refer to the required CEX from any of the specialised study units, indicated by 'M-CEX' in the assessment column.
- For the non-specified topics, trainees may select procedures encountered in their clinical practice from any of the ANZCA Clinical Fundamentals or specialised study units. Trainees should refer to those learning outcomes from the

medical expert – skills sections in the clinical fundamentals of the basic training period, or specialised study units assessed by CEX, to get some indication of the areas of focus that they might select to be assessed on.

- A minimum of three case-based discussions (CbD) from a combination of specified topics and non-specified topics. For the specified topics trainees may select from any of the specialised study units where a case-based discussion is indicated.

For the non-specified topics, trainees may select cases of moderate complexity encountered in their clinical practice and should refer to those learning outcomes from the medical expert – skills sections in the clinical fundamentals of the basic training core study unit, or specialised study units assessable by case-based discussion, to get some indication of the areas of focus they might select to be assessed on.

- A minimum of one multi-source feedback, which can cover various areas of a trainee's performance from within the ANZCA Roles in Practice and/or the ANZCA Clinical Fundamentals.

Advanced training

- A minimum of six direct observation of procedural skills (DOPS) assessments, on a combination of specified and non-specified topics. For the specified topics trainees may refer to the required DOPS from any of the specialised study units, indicated by M-DOPS in the assessment column.

For the non-specified topics, trainees may select procedures encountered in their clinical practice from any of the clinical fundamentals or specialised study units. Trainees should refer to those learning outcomes from the medical expert – skills sections in the clinical fundamentals of the advanced training period, or specialised study units assessable by DOPS, to get some indication of the areas of focus that they might select to be assessed on.

- A minimum of 15 mini clinical evaluation exercises (mini-CEX) from a combination of specified and non-specified topics in both the clinical fundamentals and specialised study units. For the specified topics trainees may refer to the required CEX from any of the specialised study units, indicated by 'M-CEX' in the assessment column.

For the non-specified topics, trainees may select procedures encountered in their clinical practice from any of the clinical fundamentals or specialised study units. Trainees should refer to those learning outcomes from the medical expert – skills sections in the clinical fundamentals of the advanced training period, or specialised study units assessable by CEX, to get some indication of the areas of focus that they might select to be assessed on.

- A minimum of five case-based discussions (CbD) from a combination of specified topics and non-specified topics. For the specified topics trainees may select from any of the specialised study units where a case-based discussion is indicated.

For the non-specified topics, trainees may select cases of moderate complexity encountered in their clinical practice and should refer to those learning outcomes from the medical expert – skills sections in the clinical fundamentals of the advanced training core study unit, or specialised study units assessable by case-based discussion, to get some indication of the areas of focus they might select to be assessed on.

- A minimum of one multi-source feedback (MsF), which can cover various areas of a trainee's performance from within the ANZCA Roles in Practice and/or the ANZCA Clinical Fundamentals.

If a trainee does not gain experience in a specialised study unit with specified topics indicated for assessment by direct observation of procedural skills, mini-clinical evaluation exercise or case-based discussion, they can instead undertake the minimum number of assessments on non-specified topics, until such time that they are able to gain experience in areas that have specified topics of assessment indicated.

Table of non-specified assessment for the ANZCA Clinical Fundamentals during introductory, basic and advanced training

Clinical fundamental	Focus of assessment	Assessment	No.
Introductory training			
Any clinical fundamental	Not specified – may select low-risk cases of low complexity encountered in their clinical practice* IT_GS 1.15; IT_PM 2.1, 2.3; IT_PO 2.1, 2.4, 2.5, 2.6, 2.7; IT_SQ 2.2, 2.3, 2.4, 2.8 (IT_SQ 1.1)	CEX	4
Any clinical fundamental and the ANZCA Roles in Practice	Various areas	M-MsF IT	1
Basic training			
Any specialised study unit	Select from any required M-DOPS identified in the specialised study units	M-DOPS	8
Any clinical fundamental or specialised study unit	Not specified - may select procedures encountered in their clinical practice* BT_AM 2.1, 2.3, 2.4, 2.5, 2.6; BT_RA 2.1, 2.2, 2.3, 2.4, 2.5; BT_RT 2.1, 2.2; SS_OB 2.3; SS_OP 2.1; SS_PA 2.4, 2.5, 2.6, 2.9, 2.10, 2.11; SS_TS 2.5;	DOPS	
Any specialised study unit	Select from any required M-CEX identified in the specialised study units	M-CEX	11
Any clinical fundamental or specialised study unit	Not specified - may select cases of moderate complexity encountered in their clinical practice* BT_AM 2.2, 2.4, 2.7; BT_GS 2.5, 2.6; BT_PM 2.1, 2.2, 2.3, 2.4; BT_PO 2.1, 2.5, 2.6, 2.7, 2.8; BT_RT 2.3, 2.4; BT_SQ 2.1 SS_CS 2.1, 2.2, 2.3, 2.4; SS_HN 2.5; SS_NS 2.1, 2.2, 2.3; SS _OB 2.3, 2.4, 2.5, 2.6; SS_OP 2.2; SS_PA 2.7 SS_TS 2.1, 2.2, 2.3; SS_VS 2.1;	CEX	

Clinical fundamental	Focus of assessment	Assessment	No.
Any clinical fundamental or specialised study unit	Not specified - may select cases of moderate complexity encountered in their clinical practice* BT_GS 2.5; BT_PO 2.7, 2.8; BT_RA 2.7; BT_SQ 1.4; SS_CS 2.1, 2.2, 2.3, 2.4; SS_GG 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11, 2.12; SS_HN 2.1, 2.2, 2.3, 2.4, 2.5; SS_NS 2.3, 2.4, 2.5, 2.6, 2.7, 2.8; SS_OB 2.3, 2.4, 2.6, 2.8; SS_OP 2.2; SS_OR 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7; SS_PA 1.20, 2.3; 2.12, 2.13, 2,15, 2.16, 2.17, 2.18; SS_TS 2.1, 2.6, 2.7, 2.8; SS_VS 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7;	CbD	3
Any clinical fundamental and the ANZCA Roles in Practice	Various areas	M-MsF BT	1
Advanced training			
Any specialised study unit	Select from any required M-DOPS identified in the specialised study units	M-DOPS	6
Any clinical fundamental or specialised study unit	Not specified – may select procedures encountered in their clinical practice* AT_AM 2.2, 2.3, 2.4, 2.5; AT_GS 2.4; AT_RA 2.10; AT_RT 2.2; SS_OB 2.3; SS_OP 2.1; SS_PA 2.4, 2.5, 2.6, 2.9, 2.10, 2.11; SS_TS 2.5;	DOPS	
Any specialised study unit	Select from any required M-CEX identified in the specialised study units	M-CEX	15

Clinical fundamental	Focus of assessment	Assessment	No.
Any clinical fundamental or specialised study unit	Not specified – may select cases including those of high complexity encountered in their clinical practice* AT_AM 2.1, 2.3, 2.4; AT_GS 2.1, 2.2, 2.3; AT_PM 2.1, 2.3; AT_PO 2.3; AT_RA 2.5, 2.6, 2.7, 2.8, 2.9, 2.11; AT_RT 2.4; AT_SQ 1.7; SS_CS 2.1, 2.2, 2.3, 2.4; SS_HN 2.5; SS_NS 2.1, 2.2, 2.3; SS _OB 2.3, 2.4, 2.5, 2.6; SS_OP 2.2; SS_PA 2.7 SS_TS 2.1, 2.2, 2.3; SS_VS 2.1;	CEX	
Any clinical fundamental or specialised study unit	Not specified – may select cases including those of high complexity encountered in their clinical practice* AT_GS 2.1, 2.3; AT_PM 1.9, 2.2, 2.3, 2.4, 2.5; AT_PO 2.3, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11; AT_RA 2.5, 2.6, 2.7, 2.8, 2.9, 2.11; AT_RT 2.3; SS_CS 2.1, 2.2, 2.3, 2.4; SS_GG 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11, 2.12; SS_HN 2.1, 2.2, 2.3, 2.4, 2.5; SS_NS 2.3, 2.4, 2.5, 2.6, 2.7, 2.8; SS_OB 2.3, 2.4, 2.6, 2.8; SS_OP 2.2; SS_OR 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7; SS_PA 1.20, 2.3; 2.12, 2.13, 2,15, 2.16, 2.17, 2.18; SS_TS 2.1, 2.6, 2.7, 2.8; SS_VS 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7;	CbD	5
Any clinical fundamental and the ANZCA Roles in Practice	Various areas	M-MsF AT	1

Airway management

Workplace-based assessment			
Assessment tool	**Introductory training**	**Basic training**	**Advanced training**
DOPS	2 Airway intubation, RSI and extubation (1) Bag/mask ventilation and insertion of LMA (1)	1 Fibreoptic intubation (1)	_
Mini-CEX*	1 Pre-operative airway assessment (done as part of the preoperative assessment mini-CEX for perioperative medicine) (1)	_	_
Total minimum WBA	**3**	**1**	**0**

Volume of practice			
Case/procedure	**Introductory training**	**Basic training**	**Advanced training**
Endotracheal intubation	20	_	_
Use of different laryngoscopes May include video laryngoscope, alternative blades	10		_
Insertion of reinforced/flexible LMA	0		_
Relief of airway obstruction with difficult mask ventilation	0		_
Nasal intubation	10		
Gaseous induction of general anaesthesia (in an adult)	5		
Awake fibreoptic bronchoscopy or intubation	5		
Total minimum VOP	**50**		

General anaesthesia and sedation

Workplace-based assessment			
Assessment tool	**Introductory training**	**Basic training**	**Advanced training**
DOPS	–	2 Central venous cannulation with the use of ultrasound guidance (1) Arterial cannulation (1)	–
Total minimum WBA	_	**2**	_

Volume of practice			
Case/procedure	**Introductory training**	**Basic training**	**Advanced training**
Arterial cannulation	40		
Central venous cannulation	40		
Anaesthesia using TIVA	50		
Teaching of a technical skill to others, not including airway skills, for example, vascular access	0		
Total minimum VOP	**130**		

Pain medicine

Workplace-based assessment			
Assessment tool	**Introductory training**	**Basic training**	**Advanced training**
Mini-CEX	1 Assessment and management of a patient in acute pain on a pain round (1)	–	–
CbD	–	1 Assessment and management of a patient in acute pain on a pain round (1)	1
Total minimum WBA	**1**	**1**	**1**

Volume of practice			
Case/procedure	**Introductory training**	**Basic training**	**Advanced training**
Acute pain sessions with one to one supervision	2	–	–
Acute pain sessions	–	18	–
Acute pain sessions	–	–	20
Total minimum acute pain sessions	**40**		
Management of patients with chronic pain in any setting May include managing acute pain for a patient with chronic pain, planning perioperative management for a patient with chronic pain, or consultation in a pain clinic.	20		
Provision of regional analgesia for the management of acute **or** chronic pain *Must exclude obstetric pain*	20		
Total minimum VOP	**40**		
Total minimum VOP for pain medicine ***Including acute pain sessions***	**80**		

Perioperative medicine

Workplace-based assessment			
Assessment tool	**Introductory training**	**Basic training**	**Advanced training**
Mini-CEX	1 Pre-operative airway assessment (done as part of the Preoperative assessment mini-CEX for perioperative medicine) (1)	1 Pre-assessment of a patient with multi-system disease (1)	1
Total minimum WBA	**1**	**1**	**1**

Volume of practice			
Case/procedure	**Introductory training**	**Basic training**	**Advanced training**
Perioperative medicine – clinic sessions			
Pre-admission clinic sessions with one to one supervision	2	–	–
Pre-admission clinic sessions with level 2 supervision	–	8	–
Pre-admission clinic sessions	–	–	10
Total minimum pre-admission clinic sessions	**20**		

Perioperative medicine Patient factors and medical conditions *volume of practice to be achieved throughout introductory, basic and advanced training*		
Respiratory disorders Obstructive sleep apnoea (0) Chronic obstructive airways disease (0) Asthma (0)	**Metabolic and endocrine disorders** Diabetes (0) Morbid obesity (0) Chronic steroid use/dependence (0)	**Neurological and neuromuscular disorders** Transient ischaemic attacks and stroke (0) Epilepsy (0)
Cardiovascular disorders Ischaemic heart disease (0) Pacemakers/AICDs (0) Congestive cardiac failure (0) Valvular heart disease (0) Peripheral vascular disease (0) Hypertension (0) Arrhythmias and conduction abnormalities (0) Patients at high risk of thromboembolism (0)	**Renal, fluid and electrolyte disorders** Kidney failure requiring dialysis (0)	**Gastrointestinal disorders** Gastro-oesophageal reflux (0) Chronic liver disease (0) Bowel obstruction (0)
Haematological and oncology disorders Anticoagulant use (0)	**Rheumatological disorders** Rheumatological disorders (0)	**Infectious diseases** (For example HIV, Hepatitis) (0)
Total minimum VOP patient factors and medical conditions) 0		

Regional and local anaesthesia

Workplace-based assessment			
Assessment tool	**Introductory training**	**Basic training**	**Advanced training**
DOPS	–	1 Performance of a spinal block on a patient who is not anatomically difficult (1)	2 Performance of an upper limb plexus block (1) Performance of a lower limb plexus block (1)
Total minimum WBA	–	**1**	**2**

Volume of practice			
Case/procedure	**Introductory training**	**Basic training**	**Advanced training**
Central neuraxial blocks			
Epidural – lumbar May include obstetric epidurals	70		
Spinal Must include 30 non-obstetric Note: Combined spinal epidural may count for both spinal and lumbar epidural	70		
Regional anaesthesia/analgesia			
Independent intra-operative management of procedure performed solely under central neural blockade (may be covered in above volume of practice for central neuraxial blockade)	1		–
Upper limb (must include one anaesthesia/analgesia for shoulder pathology - must include minimum five brachial plexus blocks)	10		
Thorax, abdomen or pelvis (non-neuraxial only)	5		
Knee (must be non-neuraxial)	5		
Lower limb (must be non-neuraxial, not knee or hip)	5		
Hip (must be non-neuraxial)	5		
Total minimum VOP	**171**		

Resuscitation, trauma and crisis management

Workplace-based assessment			
Assessment tool	**Introductory training**	**Basic training**	**Advanced training**
CbD	–	2 Discussion of their management of crises (2)	2
Total minimum WBA	_	**2**	**2**
Volume of practice			
Case/procedure	**Introductory training**	**Basic training**	**Advanced training**
Trauma team member for the initial assessment and resuscitation of a multi-trauma case *Note: EMST course required* http://www.surgeons.org/ *(delivered by the Royal Australasian College of Surgeons) or equivalent (for example ATLS) if volume of practice is not met*	5		
Total minimum VOP	**5**		

Safety and quality in anaesthetic practice

Workplace-based assessment			
Assessment tool	**Introductory training**	**Basic training**	**Advanced training**
DOPS	1 Anaesthetic machine check (1)	–	–
Total minimum WBA	**1**	–	–
Volume of practice			
No associated volume of practice requirements			

Appendix Five

Volume of practice and workplace-based assessment requirements for the specialised study units

This appendix contains tables setting out both the volume of practice (VOP) and workplace-based assessment (WBA) requirements for each of the specialised study units.

For the assessment requirements that do not have a specified topic, trainees should refer to the learning outcomes within that specialised study unit that are indicated for assessment using that particular tool, to get an indication of the areas of focus that they might use for assessment.

Cardiac surgery and interventional cardiology

Workplace-based assessment			
There are no mandatory assessments required to finish this specialised study unit. Trainees may select a case relevant to this specialised study unit to complete one of the six required specialised study unit case-based discussions during both basic and advanced training, or they may choose to complete one or more alternate workplace-based assessments from this specialised study unit as one of the 'non-specified' workplace-based assessments identified in their core study unit requirements.			
Assessment name	**Area of focus**	**Assessment**	**No.**
SSU optional CbD	Trainees may select a case encountered in their clinical practice which is applicable to this specialised study unit *	M-CbD OS	-

Volume of practice		
Case/procedure	**Inclusions/exclusions**	**VOP**
Cardiac surgery and interventional cardiology procedures	Minimum 11 involving use of cardiopulmonary bypass May include: Acute coronary stenting EP ablation procedures	20
Simple cardiological procedures	May include: Cardioversion Pacemaker check TOE	10
Total minimum VOP		**30**

General surgical, urological, gynaecological and endoscopic procedures

Workplace-based assessment			
Assessment name	**Area of focus**	**Assessment**	**No.**
General, urological, gynaecological, endoscopic anaesthesia	Provide anaesthesia or sedation for a patient having a general, urological, gynaecological or endoscopic procedure	M-CEX GG1	4
SSU CbD	Trainees may select two cases encountered in their clinical practice which are applicable to this specialised study unit *	CbD	-

Volume of practice		
Case/procedure	**Inclusions or exclusions**	**VOP**
Emergency laparotomy	May include: • Bleeding, not including trauma-related • Trauma • Bowel obstruction • Organ perforation	25
Elective major upper abdominal surgery	May include: • Adrenalectomy • Bariatric surgery • Biliary surgery • Gastrectomy • Liver resection • Nephrectomy • Oesophageal surgery • Pancreatectomy/Whipples' procedure • Splenectomy	10
Elective major lower abdominal and pelvic surgery	May include: • Abdominal hysterectomy • Colorectal surgery • Cystectomy • Open prostatectomy	15
Endoscopic urological surgery	Must include: • Minimum five TURPs May include: • TURBT • Ureteroscopy • PCNL	20
Major per-vaginal surgery	May include: • Vaginal hysterectomy	5
Breast surgery	n/a	5

Case/procedure	Inclusions or exclusions	VOP
Upper GI endoscopy	Must include: • Minimum one emergent gastroscopy for bleeding • Minimum one ERCP	2
Total minimum VOP		**82**

Head and neck, ear, nose and throat, dental surgery and electro-convulsive therapy

Workplace-based assessment			
Assessment name	**Focus of assessment**	**Assessment**	**No.**
Ear, nose and throat Anaesthesia Airway Surgery	Provide anaesthesia for a patient having airway surgery	M-CEX HN1	1
Head and neck anaesthesia	Pre-operative assessment (may be part of the preoperative assessment mini-CEX for perioperative medicine) Trainees may choose to combine this with the pre-operative assessment mini-CEX for the *Perioperative medicine* clinical fundamental for their current level of training, **either** basic **or** advanced, if the patient has a multisystem disease or multiple co morbidities respectively. Trainees may conduct a pre-operative assessment for one patient, however this must be logged as two separate WBAs with specific feedback for each area of focus provided	M-CEX HN2	1
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this SSU *	CbD	-

Volume of practice		
Case/procedure	**Inclusions or exclusions**	**VOP**
Airway surgery	Tonsillectomy and/or adenoidectomy	10
	May include: • Laser airway surgery • Microlaryngoscopy • Removal of foreign bodies from upper or lower airways • Tracheostomy	10
Head and neck surgery	Minimum ONE of each of the following types of surgery: • Nasal surgery • Thyroidectomy/parathyroidectomy • Myringoplasty/middle ear surgery • Neck dissection	20
Dental surgery	n/a	10
ORIF mandible	n/a	1
Electro-convulsive therapy	n/a	10
Total minimum VOP		**61**

Intensive care

Workplace-based assessment			
Assessment name	**Area of focus**	**Assessment**	**No.**
ICU feedback	General performance in intensive care	M- MsF IC1	1
Volume of practice			
A minimum of 11 weeks FTE OCT excluding leave in ICM must be completed during BT plus AT. As from the commencement of the 2016 HEY this minimum 11 weeks must be completed as a continuous period that may be interrupted only by up to two weeks leave. These 11 weeks may be undertaken with prospective approval on a part-time basis, but the training undertaken must represent only clinical time in ICM			

Neurosurgery and neuroradiology

Workplace-based assessment			
Assessment name	**Area of focus**	**Assessment**	**No.**
Neuroanaesthesia - head	Anaesthesia for neurosurgery involving the head	M-CEX NS1	2
Neuroanaesthesia - any	Anaesthesia for neurosurgery, may include spinal surgery	M-CEX NS2	1
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this specialised study unit *	CbD	-
Volume of practice			
Case/procedure	**Inclusions or exclusions**		**VOP**
Neurosurgical and neuroradiological procedures	Must include: • Minimum 15 craniotomy May include: • Burr hole procedures • Interventional neuroradiological procedures for intracranial vascular pathology • Shunt procedures Excludes: • Surgery for spinal pathology		25
Spinal surgery	n/a		10
Total minimum VOP			**35**

Obstetric anaesthesia and analgesia

Workplace-based assessment			
Assessment name	**Area of focus**	**Assessment type**	**No.**
Obstetric anaesthesia for LSCS	Provide anaesthesia for LSCS	M-CEX OB1	1
Obstetric anaesthesia	Provide anaesthesia to an obstetric patient for either an obstetric or non obstetric procedure	M-CEX OB2	1
Obstetric labour epidural	Epidural for labour	M-DOPS OB1	1
Obstetric LSCS spinal/epidural/CSE	Spinal/epidural for LSCS	M-DOPS OB2	1
Obstetric general anaesthesia LSCS	General anaesthesia LSCS	M-CbD OB1	1
SSU CbD	Trainees may select a case of an ***obstetric emergency or complication*** encountered in their clinical practice which is applicable to this specialised study unit *	CbD O	-
Volume of practice			
Case/procedure	**Inclusions or exclusions**		**VOP**
Caesarean section	Must include: Minimum five cases under general anaesthesia Minimum five cases requiring epidural top-up		50
Epidural for labour analgesia	May be counted toward the target for lumbar epidurals for the regional and local anaesthesia clinical fundamental		50
Management of postpartum complications	n/a		5
Care of the newborn following delivery	Includes routine care of a baby following vaginal or caesarean section delivery.		5
Total minimum VOP			**110**

Ophthalmic procedures

Workplace-based assessment
There are no mandatory assessments required to finish this specialised study unit but a trainee may choose to complete one or more workplace-based assessments from this specialised study unit as one of the non- specified workplace-based assessments identified in their core study unit requirements.

Volume of practice		
Case/procedure	**Inclusions or exclusions**	**VOP**
Ophthalmic surgery	Must include 10 under regional eye block Can include eye block performed by surgeon	20
Total minimum VOP		**20**

Orthopaedic surgery

Workplace-based assessment			
Assessment name	**Area of focus**	**Assessment**	**No.**
Orthopaedic anaesthesia	Provide anaesthesia for an orthopaedic case	M- CEX OR1	2
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this specialised study unit *	CbD	-
Volume of practice			
Case/procedure	**Inclusions or exclusions**		**VOP**
Hip fracture	n/a		25
Internal fixation long bones	n/a		10
Hip arthroplasty, elective	Must include minimum one hip revision		10
Knee arthroplasty	n/a		10
Shoulder surgery	May include shoulder arthroscopy		3
Arthroscopy	May include shoulder surgery		5
Total minimum VOP			**63**

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

Paediatric anaesthesia

Workplace-based assessment			
Assessment name	**Area of focus**	**Assessment**	**No.**
Paediatric pre-assessment	Pre-assessment of paediatric patients	M-CEX PA1	1
Paediatric anaesthesia and IV	Anaesthetising paediatric patients, including induction (gas or IV) and securing venous access	M-CEX PA2	2
Paediatric inguinal surgery Block	Block for inguinal or penile surgery	M-DOPS PA1	1
Paediatric < 2 BMVent	Face mask ventilation <2 years	M-DOPS PA2	1
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this SSU *	CbD	-

Volume of practice	
Case/procedure and inclusions or exclusions	**VOP**
Age <16 years which must include: • Minimum 20 where age is <2 years • Minimum 20 where age is ≥ 2 years < 6 years	150

These cases should include a minimum of:
• 20 minor emergencies cases
• 20 minor elective procedures not including shared airway cases
• 10 medical imaging procedures (for example, CT or MRI)
• 20 shared airway procedures which may include:
  • Tonsillectomy,
  • Dental extraction,
  • Removal of inhaled foreign body	

Total minimum VOP for any age <16 years	**150**

Plastic, reconstructive and burns surgery

There are no workplace-based assessment requirements or volume of practice requirements for this specialised study unit. Credit for this unit will be given at the successful completion of the advanced training period.

Thoracic surgery

Workplace-based assessment			
Assessment name	**Area of focus**	**Assessment**	**No.**
Thoracic anaesthesia	Provide anaesthesia for a patient having thoracic surgery	M-CEX TS1	1
Thoracic DLT	Securing the airway with a double lumen tube, checking positioning and testing for lung isolation	M-DOPS TS1	1
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this specialised study unit *	CbD	-
Volume of practice			
Case/procedure	**Inclusions or exclusions**		**VOP**
Thoracotomy and/or thoracoscopy	Excludes: • Cardiac surgery • Sternotomy cases		10
Bronchoscopy	Must involve care of patients undergoing this procedure, with proceduraliats from any specialty		5
Total minimum VOP			**15**

*Trainees should refer to the learning outcomes within this specialised study unit identified as being assessable by case-based discussion to get some indication of the areas of focus that they might use to select a case for discussion.

Vascular surgery and interventional radiology

Workplace-based assessment			
Assessment name	**Area of focus**	**Assessment**	**No.**
Vascular anaesthesia Revascularisation	Provide anaesthesia for a patient undergoing a revascularisation procedure	M-CEX VS1	1
Vascular anaesthesia	Provide anaesthesia for a vascular case	M-CEX VS2	1
SSU CbD	Trainees may select a case encountered in their clinical practice which is applicable to this specialised study unit *	CbD	-
Volume of practice			
Case/procedure	**Inclusions or exclusions**		**VOP**
interventional radiological procedures	Excludes: Interventional neuroradiological procedures Interventional cardiological procedures		
Total minimum VOP			**25**

Version control register for previous versions

Version	Author	Approved by	Approval date	Publication date	Sections modified	Next review
1.1	Education Development Unit CRSG CAG	ETC Council	April 2012	Published on ANZCA website September 2012	The following learning outcomes added: BT_GS 1.51a BT_PO 1.41a BT_PO 1.82a BT_PO 1.98a AT_GS 1.7a AT_GS 1.7b AT_SQ 1.5a The following learning outcome amended to include the endorsed guideline WHO Surgical Safety Checklist Australian and New Zealand edition: IT_SQ 1.1 The following learning outcome amended to include the College professional document PS 15 Recommendations for the Perioperative Care of Patients Selected for Day Care Surgery and the endorsed guideline WHO Surgical Safety Checklist Australian and New Zealand edition: AT_SQ 1.5	2013

Version	Author	Approved by	Approval date	Publication date	Sections modified	Next review
1.2	Education Development Unit Dean of Education	Dean of Education	August 2013	Published on ANZCA website 19/08/13	Learning outcome AT_PO 2.5 subheading Psychiatric disorders changed to Psychiatric conditions. Learning outcome SS_OB 1.36 changed from Psychiatric disease to Psychiatric conditions. Learning outcomes BT_SQ 1.3 and AT_SQ 1.5 amended to replace T3 document with its successor PS54 Statement on the Minimum Safety Requirements for Anaesthetic Machines and Workstations for Clinical Practice Learning outcomes IT_RA 1.1, BT_RA 2.1, 2.5 and 2.6 changed to reflect the approval of the pilot document PS3 Guidelines for the Management of Major Regional Analgesia – PILOT to PS03 Guidelines for the Management of Major Regional Analgesia Statement added to page i to clarify that the document is the current version and that users should consult the ANZCA website for the latest version, particularly if they are going to download and/or print a copy The word ‘upon’ added to the opening paragraph of section *2.2 Basic training* to clarify meaning Assessment code ‘O’ corrected to ‘OB2’ from for the following CbD assessment for the Obstetric anaesthesia and analgesia SSU (page 173): Trainees may select a case of an obstetric emergency or complication encountered in their clinical practice, which is applicable to this specialised study unit * Explanatory note appended to the table of VOP for cases and procedures for the Paediatric anaesthesia SSU, to clarify that it relates only to providing anaesthesia for the specified procedures and not to participating in similar procedures where they may be carried out in ICU	2013

Version	Author	Approved by	Approval date	Publication date	Sections modified	Next review
1.2	Education Development Unit Dean of Education	Dean of Education	August 2013	Published on ANZCA website 19/08/13	Learning outcome BT_GS 1.18 removed due to it being a duplication of BT_GS 1.6. 'CbD' added as an assessment method for learning outcomes AR_CM 3.6, AR_CL 1.12 and AR_CL 1.15, AR_PF 4.5 Learning outcome AT_GS 1.9a added regarding postoperative cognitive dysfunction' and mapped to the final exam. Subheading two from section *1.5 Health advocate* amended to read 'Promote health and respond to health needs of patients and the working environment' (previously read 'Promote health and respond to health needs of patients') Learning outcome AR_PF 2.4 amended to read 'Access resources about culturally and linguistically diverse (CALD) communities and religions, their histories and specific health issues as a context for understanding culture, religion and health interactions' (previously read 'Access resources about culturally and linguistically diverse communities, their histories and specific health issues as a context for understanding culture, and health interactions) Learning outcome AR_PF 2.5 amended to read 'Identify groups from different cultures and religions in their workplace and acquire knowledge to improve their cultural and religious understanding' (previously read 'Identify groups from different cultures in their workplace and acquire knowledge to improve their cultural understanding') Tables of assessment in Appendix one reordered to appear as they do in the body of the document for each training period. (Previously categorised according to clinical fundamental/specialised study unit then WBA type). Table of volume of practice for the Clinical Fundamentals reordered to list alphabetically by clinical fundamental (pages 47-50) Courses section on page 236 (Appendix one) updated to clarify that the EMAC course must be completed any time after the completion of introductory training.	2013

Version	Author	Approved by	Approval date	Publication date	Sections modified	Next review
1.3	Education Development Unit	EDU	August 2013	Published on ANZCA website 27/08/13	Descriptions of all mandatory assessment items for the clinical fundamentals added to appendix four (previously stated as completed under version1.2) Minor reformatting of version control table and other tables resulting in addition of pages xi and xii and total page count reduced from 391 to 390. Table on page six amended to change 'Final Clinical Placement Review (CPR)' to 'Provisional Fellowship Review (PFR)' for consistency of terminology. Courses section (page six of Appendix one) updated to clarify that the EMAC course must be completed any time after the completion of introductory training. (Previously updated in the body of the main document only).	2014
1.4	EDU ETADC	ETADC	28/04/14	01/05/14	Professional document PS59 Statement on Roles in Anaesthesia and Perioperative Care added to learning outcomes AR_CL 1.1 and AR_HA 1.13. Learning outcome BT_PM 1.10 amended to clarify that it refers to the pharmacological agents listed in the preceding outcome. Section four and appendix one amended to confirm that trainees must meet the requirements of regulations 37.5.5.7.4 and 37.5.5.7.5 and the CPD program during provisional fellowship training. Volume of practice table for Orthopaedic surgery amended to re-label 'Hip fracture' to 'Hip fracture surgery' to align with the training portfolio system (TPS). References to College professional document PS39 removed as this content was subsumed into PS52, with the title updated from 'Minimum Standards for Transport of Critically Ill Patients' to 'Guidelines for Transport of Critically Ill Patients'. Technical document T01 replaced with professional document *PS55 Recommendations on Minimum Facilities for Safe Administration of Anaesthesia in Operating Suites and Other Anaesthetising Locations*	2015

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1.4	EDU ETADC	ETADC	28/04/14	01/05/14	Table of assessment for the scholar role activities updated to: • Clarify that the critical appraisal of a topic may be completed during basic training, as well as advanced or provisional fellowship training • Remove the words 'critical appraisal of a topic' from the option B activity 'Complete, to a publishable standard, a systematic review/ critical appraisal of a topic', as the activity should be a systematic review only Assessment tables for basic and advanced training and the Head and neck ear, nose and throat, dental surgery and electroconvulsive therapy specialised study unit updated to clarify that for the mandatory mini-CEX on pre-operative assessment for both the SSU and the perioperative medicine clinical fundamental, trainees may complete an assessment on one patient which may be counted toward and must be recorded as two separate mini-CEX in the TPS. The SSU assessment may be double counted with the perioperative medicine mini-CEX at either the BT or AT level. The basic and advanced training assessment sections and the intensive care specialised study unit (section 3.4) updated to clarify that trainees are not required to meet the workplace-based assessment (WBA) run rate during an intensive care placement, however this does not reduce the overall run rate which must be met during the basic and advanced training periods. Learning outcomes AT_AM 2.3 and AT_AM 2.4 updated to append DOPS as a possible method of assessment for these outcomes. Learning outcome SS_OB 1.25 updated to reflect the correct title of the RANZCOG College Statement C-Obs 14. Previously recorded as 'C-Obs 14 Decision to Delivery Interval for Caesarean Birth' and updated to 'C-Obs 14 Categorisation of urgency for caesarean section'.	2015

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1.5	Education Unit ETADC	ETADC	02/12/14	02/12/14	Addition of the following learning outcomes mapped to either the primary exam, final exam or CPR questions: • BT_SQ 1.20 Outline the pharmacology of radiological contrast agents • AR_PF 1.19 Practise in a way that gives due consideration to the standards of anaesthetic practice outlined in ANZCA professional documents • BT_PO 1.3a Outline the pharmacology of commonly encountered illicit drugs and their interactions with drugs used in anaesthetic care • BT_PO 1.4a Outline the pharmacology of herbal medicines. Describe adverse effects and potential drug interactions of such medicines with particular reference to the perioperative period. Volume of practice for blocks of the thorax, abdomen or pelvis reduced from 20 to five (non-neuraxial only). Simulated DOPS on lower limb plexus block required for advanced training amended to include femoral, obturator and sciatic nerve blocks.	2016

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1.7	Education Unit ETADC	ETADC	September 2017	October 2017	ANZCA Roles of Practice change of Manager to Leader and Manager. Changes made throughout document and abbreviated to LM. Copyright acknowledgement on page one included RCoA perioperative content use. General content change has been made to VOP tables. If the VOP requirement equals to zero then it has been removed from the table. All reference to normal leave has been changed to leave. Section 1.1 Last paragraph, deletion of Assessment methods have been developed according to ANZCA's guidelines on assessment, and For further information on the ANZCA principles of assessment please refer to the College website at: http://www.anzca.edu.au/Documents/Handbook-Appendix-1.pdf Section 2 Clinical Fundamental, Regional and local anaesthesia change from Lumber to Epidural. Delete descriptor of Spinal. Add Lower limb (non-neuraxial, including knee and hip) VOP = 15. Delete Knee, Lower limb and Hip. Section 2.1.2 New learning outcome IT_GS 1.2a Section 2.1.4 Perioperative Medicine. Addition of learning outcomes explanatory note at beginning of table. Table has new headers of Perioperative, Intraoperative and Postoperative. Perioperative IT_PO 1.4 has been deleted and replaced by expanded learning outcomes IT_PO 1.4, 1.5 and 1.6. Intraoperative IT_PO 1.8 has been added. Postoperative IT_PO 1.9 is a new learning outcome. Section 2.2.2 Expanded learning outcomes BT_GS 1.45a, b, c, d, and e. Removed sedation from BT_GS 1.46. Added learning outcome BT_GS 2.6. Section 2.2.4 Perioperative Medicine. Addition of learning outcomes explanatory note at beginning of table. Table has new headers of Perioperative,	2018

					Intraoperative and Postoperative. BT_PO 1.4 has been split into two learning outcomes: BT_PO 1.4a Outline the pharmacology of herbal medicines and BT_PO 1.4b Describe adverse effects and potential drug interactions of such medicines with particular reference to the perioperative period. BT_PO 1.5 Wording change of learning outcome and deletion of congenital heart disease and pulmonary hypertension from list. New learing outcomes BT_PO 1.5a, 1.5b, 1.5c, 1.5d and 1.5e. BT_PO 2.8 wording change to 'and stability of common medical conditions'and deletion of list of conditions.	
1.8	Education Unit / EDEC	EDEC	August 2018	September 2018	Throughout document – alignment with regulation 37 and terminology changes Curriculum design – pilot education principles included AR_ME 4.8, AR_LM 4.7, AR_HA 1.1, AR_HA 2.5, BT_PO 1.98a, BT_RT 1.18, - amended learning outcomes AR_SC 4.9, AR_PF 2.6, BT_PO 1.79a, AT_PO 1.7, AT_PO 2.12 – new learning outcomes 3.12 – volume of practice updated Provision Fellowship Training – ALS course required in PF Appendix 1 courses – course exemptions clarified Appendix 2 - learning outcome examples included	2019

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1.9	Education Unit/ EDEC	EDEC/ EEMC	September 2019	October 2019	Amended learning outcome descriptors for: AR_CM 1.2, AR_CM 3.2, AR_SC 4.1, AR_SC 4.2, AR_PF 2.1, AR_PF 2.2, AR_PF 3.17, BT_GS 1.45a, BT_PM 1.9, BT_PM 1.13, BT_PO 1.125, BT_RT 1.6 AT_GS 1.9, AT_PO 2.4, AT_PO 2.6, AT_PO 2.9, SS_PA 2.8. Amended learning outcome assessment requirements for: AR_SC 4.1, IT_AM 2.13, AT_AM 2.6, AT_AM 2.7, SS_OB 2.7, SS_PA 2.8 Added learning outcome role and/or assessment for: AT_PO 1.7, AT_PO 2.12 New learning outcome: AT_PO 2.13 added in Section 2.3.4 Perioperative medicine Deleted learning outcome: AT_GS 1.9a removed from Section 2.3.2 General anaesthesia and sedation Introduction – required number of workplace-based assessments • Clarification of when trainees should undertake additional WBAs. Section 1.7 Professional • 1.7.2 header amended as underlined: “Demonstrate cultural and bias awareness and sensitivity with patients and colleagues”. Section 2.1 Introductory training • Addition of CICO course in list of core unit requirements. • Addition of CICO course requirement for IAAC WBAs. • Removal of CICO MS-DOPS requirement and adjustment of DOPS total. Section 2.2 Basic training • Addition of CICO course in list of core unit requirements. • Removal of CICO MS-DOPS requirement. • Addition of one non-specified DOPS. Section 2.3 Advanced training • Addition of CICO course in list of core unit requirements. • Removal of CICO MS-DOPS requirement. • Addition of one non-specified DOPS. Section 3.6 Obstetric anaesthesia and analgesia • M-DOPS requirement reduced from three to two. • Obstetric resuscitation of the newborn removed from table of assessments.	2020

					• Requirement for neonatal resuscitation course added.
					Section 3.9 Paediatric anaesthesia
					• M-DOPS requirement reduced from three to two.
					• Paediatric ALS sim removed from table of assessments.
					• Requirement for paediatric life support course added.
					Appendix One – Training requirements for each training period
					• Introductory training
					  ○ Removal of CICO MS-DOPS from table and adjustment of DOPS total.
					  ○ Addition of CICO course requirement.
					• Basic training
					  ○ Removal of CICO MS-DOPS from table
					  ○ Addition of one non-specified DOPS.
					  ○ Addition of CICO course requirement.
					• Advanced training
					  ○ Removal of CICO MS-DOPS from table
					  ○ Addition of one non-specified DOPS.
					  ○ Addition of CICO course requirement.
					• Provisional fellowship training:
					  ○ Added requirement for ALS course
					  ○ Clarification of requirements for feedback CPRs
					Appendix Four – VOP and WBA for the clinical fundamentals
					• Airway management: Removal of CICO DOPS from WBA requirements table and adjustment of WBA totals
					Appendix Five – VOP and WBA for the specialised study units
					• Obstetric anaesthesia and analgesia: Removal of Obstetric resuscitation of the newborn DOPS from WBA requirements table
					• Paediatric anaesthesia: Removal of Paediatric ALS sim DOPS from WBA requirements table	