

Anaesthesiology

Residency

TRAINING REQUIREMENTS

(A) INTRODUCTION

- The hospital-based ancillary specialty of anaesthesiology includes the assessment of, consultation for, and preparation of patients for anaesthesia; relief and prevention of pain during and following surgical, obstetric, therapeutic, and diagnostic procedures; monitoring and maintenance of normal physiology during the perioperative period; management of critically ill patients; diagnosis and treatment of acute, chronic, and cancer-related pain; clinical management and teaching of cardiac and pulmonary resuscitation; evaluation of respiratory function and application of respiratory therapy; conducting of clinical and basic science research; and, supervision, teaching, and evaluation of performance of personnel, both medical and paramedical, involved in perioperative care.
- The education in anaesthesiology must be 72 months in length. [TY+R1-R5]

(B) PROGRAMME OVERVIEW

- 36 months (R1-R3, ACGME-I accredited)
- 24 months (R4-R5, JCST accredited)

(C) TRAINING REQUIREMENTS R1 – R3

Clinical and / or operative experience

1. Each resident should have the following minimum clinical experiences:
 - a) 40 patients undergoing vaginal delivery. There must be evidence of direct resident involvement in some cases involving high-risk obstetrics;
 - b) 20 patients undergoing cesarean sections;
 - c) 100 patients less than 12 years of age undergoing surgery or other procedures requiring anesthetics.
 - Within this patient group, 20 children must be less than three years of age, including five less than three months of age;
 - d) 20 patients undergoing cardiac surgery. The majority of these cardiac procedures must involve the use of cardiopulmonary bypass;
 - e) 20 patients undergoing open or endovascular procedures on major vessels, including carotid surgery, intrathoracic vascular surgery, intraabdominal vascular surgery, or peripheral vascular surgery.
 - Excluded from this category is surgery for vascular access or repair of vascular access;
 - f) 20 patients undergoing non-cardiac intrathoracic surgery, including pulmonary surgery and surgery of the great vessels, esophagus, and the mediastinum and its structures;

- g) 20 patients undergoing intracerebral procedures.
 - These patients include those undergoing intracerebral endovascular procedures.
 - However, the majority of these 20 procedures must involve an open cranium;
 - h) 40 patients undergoing surgical procedures, including cesarean sections, in which epidural anesthetics are used as part of the anesthetic technique or epidural catheters are placed for perioperative analgesia.
 - Use of a combined spinal/epidural technique may be counted as both a spinal and an epidural procedure;
 - i) 20 patients undergoing procedures for complex, life-threatening injuries.
 - Examples of these injuries include trauma associated with car crashes, falls from high places, penetrating wounds, industrial and farm accidents, and assaults.
 - Burns covering more than 20% of body surface area also are included in this category;
 - j) 40 patients undergoing surgical procedures, including cesarean sections, with spinal anesthetics.
 - Use of a combined spinal/epidural technique may be counted as both a spinal and an epidural procedure;
 - k) 40 patients undergoing surgical procedures in whom peripheral nerve blocks are used as part of the anesthetic technique or perioperative analgesic management;
 - l) 20 new patients who are evaluated for management of acute, chronic, or cancer-related pain disorders.
 - Residents should have familiarity with the breadth of pain management including clinical experience with interventional pain procedures;
2. Residents must have significant experience with:
 - a broad spectrum of airway management techniques (e.g. performance of fiberoptic intubation and lung isolation techniques such as double lumen endotracheal tube placement and endobronchial blockers);
 - central vein catheter placement and ultrasound-guided placement of vascular catheters; and,
 - placement of pulmonary artery catheter or other cardiac output monitoring devices.
 3. Residents must either participate in cases in which transesophageal echocardiography is actively used as part of the procedure or have adequate didactic instruction to ensure familiarity with echocardiography techniques and interpretation.
 4. Residents must either personally participate in cases in which EEG, processed EEG or evoke potential monitoring is actively used as part of the procedure or have adequate didactic instruction to ensure familiarity with electrophysiologic monitoring and interpretation.
 - Bispectral index use and other similar interpolated modalities are not sufficient to satisfy this requirement.
 5. The patient's medical record should contain evidence of preoperative and postoperative anesthesia assessment.

Postings / rotations (core and elective and duration in each posting / rotation)

1. The three years of education must consist of experiences in:
 - basic and advanced anesthesia that include all aspects of perioperative care, and,
 - evaluation and management during the preoperative, intraoperative, and postoperative periods.

2. The program should provide initial rotations in surgical anesthesia, critical care medicine, and pain medicine.
 - Experience in these rotations must emphasize the fundamental aspects of anesthesia, preoperative evaluation and immediate postoperative care of surgical patients, and assessment and treatment of critically ill patients and those with acute and chronic pain; and
 - These clinical experiences should also be distributed throughout the curriculum in order to provide progressive responsibility to trainees in the later stages of the curriculum.

3. Residents must have:
 - a) a minimum of four months of distinct progressive rotations in critical care medicine;
 - During at least two of the required four months of critical care medicine, faculty anesthesiologists experienced in the practice and teaching of critical care must be actively involved in the care of the critically ill patients and the educational activities of the residents.
 - No more than two months of critical care medicine that occurs in the Transitional Year will be credited.
 - Each critical care medicine rotation should be at least one month in duration, with progressive patient care responsibility in advanced rotations.
 - Overall, these experiences must take place in units providing care for both men and women in which the majority of patients have multisystem disease.

 - b) at least three months in pain medicine that may include:
 - one month in an acute perioperative pain management rotation;
 - one month in a rotation for the assessment and treatment of inpatients and outpatients with chronic pain problems; and,
 - one month of regional analgesia experience in pain medicine;

 - c) a minimum of two identifiable one month rotations in each of obstetric anesthesia, pediatric anesthesia, neuroanesthesia, and cardiothoracic anesthesia.

 - d) one month in a preoperative evaluation clinic for evaluation prior to elective surgical procedures;

 - e) half-month caring for patients immediately after anesthesia in the postanesthesia-care unit with responsibilities for management of pain, hemodynamic changes, and emergencies related to the unit; and,

 - f) a current certification as providers for advanced cardiac life support (ACLS).

Regularly Scheduled Didactic Sessions

1. Instruction that encompasses clinical anesthesiology and related areas of basic science, as well as pertinent topics from other medical and surgical disciplines should occur.

2. Instruction in managing the specific needs of patients undergoing diagnostic or therapeutic procedures outside of the surgical suites must occur.

3. Instruction in managing the specific needs of the ambulatory surgical patient must occur.

4. Instruction in managing the problems of the geriatric population must occur.

Residents' scholarly activity

Each resident must complete an academic project.

1. Academic projects may include grand rounds presentations, preparation and publication of review articles, book chapters, manuals for teaching or clinical practice, or similar academic activities; or
2. A resident may elect to develop and perform or participate in one or more clinical or laboratory investigations. The outcomes of a resident's investigations:
 - a. must be suitable for presentation at local, regional, or national scientific meetings; and
 - b. should result in peer-reviewed abstracts or manuscripts.
3. A faculty supervisor must be in charge of each project and investigation.

(D) TRAINING REQUIREMENTS R4 – R5

1. Foundational Requirements

The R4-R5 years must be in compliance with ACGME-I's Foundational Requirements.

Foundational requirements for all other specialties: <http://www.acgme-i.org/web/requirements/internationalfoundational.pdf>

2. Specialty Specific Requirements

The training duration for Senior Residency in Anaesthesiology will be 24-months in duration and must include at least 18-months of core anaesthesia training, which consists of the following:

- a) Cardiothoracic
- b) Dental Surgery
- c) ECT
- d) ENT & Eye
- e) General Surgery
- f) Gynaecology
- g) Neurosurgery
- h) Obstetrics
- i) Obstetrics Epidural
- j) Orthopaedic Surgery
- k) Outpatient Surgery
- l) Paediatric Surgery
- m) Plastic Surgery
- n) Radiological Procedures
- o) Urology
- p) Vascular Surgery

Residents' scholarly activity

- Senior residents are encouraged to complete at least 1 scholarly activity (e.g. audit, research project, case report or series, quality improvement project). Senior residents are encouraged to present or publish their completed scholarly activity at a suitable forum.
- The senior resident shall supervise and teach medical students, junior residents and allied health personnel as required.
- The senior resident shall log their cases regularly in a designated case log format. These case logs are subject to periodic review by the Program Director or his designate.
- The senior resident shall be actively involved in departmental teaching activities e.g. CME teaching, undergraduate teaching sessions, training courses etc.

- The senior resident is required to attain a minimum of 60% attendance at both department CME sessions as well as the monthly National Teaching program.

Other Requirements

- Senior residents must successfully fulfill the following requirements to pass each senior residency year

Year	6 monthly Clinical Competency Committee Review	Case Log Review	Attendance at department CME and National Teaching Program	Leave
4	Clear Pass	Satisfactory	At least 60%	Not exceeding stipulated limits*
5	Clear Pass	Satisfactory	At least 60%	Not exceeding stipulated limits*

- The senior resident must maintain valid BCLS and ACLS certification status at all times.
- The senior resident must attend the Medical Ethics course conducted by the Singapore Medical Association.

3. Resident Competencies

	R4	R5
1. Patient Care	Senior residents must be able to provide patient-centred care that is compassionate, appropriate and effective for the treatment of health problems and the promotion of health by: <ul style="list-style-type: none"> Demonstrating comprehensive assessment to reach appropriate diagnosis Providing the appropriate ongoing management based on best clinical practice Responding appropriately to emergency clinical problems Demonstrating procedural skills appropriate to level of training. Practicing within the scope of his/her abilities 	
2. Medical Knowledge	Senior residents must demonstrate knowledge about established and evolving biomedical, clinical sciences and the application of this knowledge to patient care and the education of others by: <ul style="list-style-type: none"> Demonstrating good basic science knowledge Applying knowledge in the clinical context Demonstrating up-to-date knowledge Demonstrating good analytical thinking and problem solving techniques 	
3. Practice-based Learning and Improvement	Senior residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices by: <ul style="list-style-type: none"> Engaging in on-going learning Facilitating the learning of others Understanding and integrating concepts of quality improvement into practice 	

4. Interpersonal and Communication Skills	Senior residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patients' families and professional associates by: <ul style="list-style-type: none"> • Demonstrating care and concern for the patient/family • Communicating effectively with patient/family • Communicating and working effectively with other healthcare professionals
5. Professionalism	Senior residents must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population by: <ul style="list-style-type: none"> • Accepting responsibility and follows through on tasks • Responding to patient's unique characteristics and needs equitably • Demonstrating integrity and ethical behaviour
6. Systems-based Practice	Senior residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on resources to provide care that is of optimal value by: <ul style="list-style-type: none"> • Providing cost-conscious medical care • Working to promote patient safety • Coordinating care with providers in the larger healthcare community

(E) LOG OF OPERATIVE / CLINICAL EXPERIENCE

All residents must keep a log of their operative / clinical experience in the electronic logging systems from R1-R3, and in Senior Residency Training Portfolios from R4-R5.

(F) ASSESSMENT AND EXAMINATIONS

Exit Examination for cohorts before 1 July 2019

Exit exam will comprise of 1 hr of Article reading, 40 mins for Viva.

Viva consists of 3 components:

- 1) Paper Critic
- 2) Clinical and Case Management review and
- 3) Logbook review

Exit Examination for cohorts from 1 July 2019

Residents must pass MMed (Anaes) Part A and Part B Examination for promotion from Junior residency (R3) to Senior residency (R4).

Intermediate Examination

MMed (Anaes) Part A Examination

- a) 2 MCQ papers with 125 SBA type questions in each paper (150 mins each)

MMed (Anaes) Part B Examination

- a) 2 written papers with 8 SAQ in each paper (120 mins each)
- b) OSCE Exam with 12 stations, each of 12-min duration

Anaesthesia Exit Examination

Candidate must pass both Parts A and B paper and have successfully completed Senior Residency to be eligible for the Part C Examination.

MMed (Anaes) Part C Exam comprises 12 viva stations with each station of 10-min duration.

The MMed (Anaesthesia) Part C will be conducted twice a year.

Timeline

The final runs of the existing format of MMed examinations will be as follows:

- a. MMed (Anaesthesia) Primary September 2018
- b. MMed (Anaesthesia) Final May 2019

(G) CHANGES IN TRAINEESHIP PERIOD AND LEAVE OF ABSENCE

I. Changes in Training Period

Residency should be continuous. If a training programme is interrupted for any reason whatsoever, the RAC may at its discretion, require the resident to undergo a further period of training in addition to the minimum requirements of the programme or terminate the residency altogether. All residents are required to conform to the residency training plan as approved by the RAC and complete all the exit and training requirements within the maximum candidature.

II. Leave Of Absence

All residents are to comply with the prevailing MOH policy on Leave of Absence.

III. Overseas Postings

Overseas attachment during Senior Residency training is not permitted with the exception of Radiation Oncology and Neurosurgery (*refer to JCST Circular 114/44*).