SRI BALAJI VIDYAPEETH
(DEEMED TO BE UNIVERSITY)
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M.D. ANAESTHESIOLOGY

POST GRADUATE CURRICULUM 2023

DEPARTMENT OF ANAESTHESIOLOGY

MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH

INSTITUTE, PUDUCHERRY

SRI SATYASAI MEDICAL COLLEGE AND RESEARCH INSTITUTE, AMMAPETTAI

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Foreward

The promulgation of the much-awaited Competency Based Medical Education (CBME) for post graduate programs by the National Medical Council is a welcome move. Sri Balaji Vidyapeeth (SBV), Puducherry, deemed to be University, declared u/s 3 of the UGC Act. and accredited by the NAAC with A grade, takes immense privilege in preparing such an unique document in a comprehensive manner and most importantly the onus is on the Indian setting for the first time, with regard to the competency based medical education for post graduate programs that are being offered in the broad specialty departments. SBV is committed to making cardinal contributions that would be realised by exploring newer vistas. Thus, post graduate medical education in the country could be made to scale greater heights and SBV is poised to show the way in this direction.

Prof. Nihar Ranjan Biswas
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Preface 2

The National Medical Council has laid down the PG curricula in their website https://www.nmc.org.in/information-desk/for-colleges/pg-curricula-2 that is listing the syllabus course wise, listing competency to some extent, teaching learning methods and the assessment methods as well. The document describes competencies in three domains (knowledge, skill, and attitude). However, the most significant problem in competency-based training is the development of appropriate assessment tools.

The salient feature of this document is defining the program educational objectives (PEO) for its postgraduate program as a whole, defining program outcomes (PO) based on the competencies to be practiced by the specialist, course outcomes (CO) and program specific sub-competencies and their progression in the form of milestones. The compilation of the milestone description leads to the formation of the required syllabus. This allows the mentors to monitor the progress in sub-competency milestone levels. It also defines milestone in five levels, for each sub-competency. Although NMC has described three domains of competencies, the domain 'Attitude' is elaborated into 4 more competencies for ease of assessment. The six competency model (ACGME) for residency education: Medical Knowledge, Patient Care, Practice Based Learning and Improvement, Systems Based Practice, Professionalism, Inter personal and Communication Skills gives better clarity and in-depth explanation and is used in this document. The sub-competency and their milestone levels are mapped into the entrustable professional activities(EPA) that are specific to the individual postgraduate program. While doing all this, the syllabus prescribed by NMC is fully incorporated into the curriculum. To make the program more relevant, PEO, PO, CO and EPAs are mapped with each other. EPAs which are activity based are used for formative assessment and graded. EPA assessment is based on workplace based assessment (WPBA), multisource feedback (MSF) and eportfolio. A great emphasis is given on monitoring the progress in acquisition of knowledge, skill and attitude through various appraisal forms including e-portfolios during three years of residency period.

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Preface:2

It is a matter of great pride to revise the PG curriculum for MD Anaesthesiology program. This document is aligned with Guidelines for competency based Postgraduate training programme for MD in Anaesthesiology.

The salient feature of this document is defining the Program Educational Objectives (PEO), Program Outcomes (PO), Course Outcomes (CO) and expected competencies in the form of Entrustable Professional Activities (EPA's) for Anaesthesiology. The document also defines the expected milestones / outcomes for each expected competency, which is based on NMC domain of competencies as well as ACGME guidelines.

This document provides teachers and learners an illustrative guidance to achieve defined outcomes through learning and assessment. Certifying the level of resident entrustability for the intended activities upon completing their MD degree is the need of the hour to make resident understand where he or she stands. Various feedback forms are employed to ensure an objectivity in entrustabiliy for resident skills, knowledge and attitude. The curated questions are mapped to various sub-competencies and milestone levels.

This document has been prepared by the Department of Anaesthesiology and Pain Medicine , MGMCRI, Puducherry, ratified by the Board of Studies on 18th October 2023 and approved by Academic Council of Sri Balaji Vidyapeeth, a deemed to be university (accredited with 'A^{++}' Grade by NAAC.

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Table of Contents

1 List of Abbreviations and Acronyms

PEO	Programme Educational Objective
PO	Programme Outcome
CO	Course outcome
EPA	Entrustable Professional Activity
MK	Medical Knowledge
PC	Patient Care
SBP	System Based Practice
PBLI	Practice Based Learning and Improvement
IPCS	Interpersonal Communication Skills
P	Professionoalism
GS	General Surgery
ENT	Ear, Nose and Throat
OG	Obstetrics and Gynaecology
OMFS	Oral, Maxillofacial surgery
ASA	American Society of Anaesthesiologist
MAC	Monitored Anaesthesia Care
IBP	Invasive Blood Pressure
NMJ	Neuromuscular Junction
EEG	Electroencephalogram
ECG	Electrocardiogram
NIBP	Non Invasive Blood Pressure
CNB	Central Neuraxial Blockade
LA	Local Anaesthetic
PNB	Peripheral Nerve Blockade
USG	Ultrasonography
PNS	Peripheral Nerve Stimulator
LAST	Local Anaesthetic Systemic Toxicity
DAS	Difficult Airway Society
CVC	Central Venous Catheter
PICC	Peripherally inserted central catheter
GA	General Anaesthesia
MRI	Magnetic Resonance Imaging
CPB	Cardiopulmonary Bypass
PPV	Positive Pressure Ventilation
SOP	Standard Operating Procedure
ICU	Intensive care unit

2 Preamble

The competency based curriculum should take into account the needs of the society, both local and global. It needs to outline the demand for the present day as well as future. The curriculum needs to be reviewed at least every five years to address the trending needs, as new knowledge is evolving and communication of the same is seamless. Accordingly the competencies need to meet the societal needs detailing the cognitive, psychomotor and affective domain development for attaining these competencies.

The curriculum indicates to the candidate the knowledge, basic skills and attitudes required to become a competent anaesthesiologist. It disciplines the thinking habits for problem solving and discovery of new knowledge in the field of anaesthesiology. It defines the Teaching - Learning methods adopted for the resident to achieve the goals of the , and the methods of assessment performed throughout the training period and at the completion of training. The purpose of this document is to provide teachers and learners illustrative guidelines to achieve defined outcomes through learning and assessment.

3 Programme Educational Objective (PEO)

Programme Educational Objectives are broad statements that describe what graduates are expected to attain within few years of completing their programme. These are based on the needs of the society as analysed and outlined by the regulatory body. So as defined by Medical Council of India (MCI), the PEO for MD Anaesthesiology are as follows:

PEO1. Specialist who can provide comprehensive care related to anaesthesiology, critical care and pain management.

PEO2. Be a leader and team member who understands health care system and act to provide safe patient care with accountability and responsibility.

PEO3. Communicator possessing adequate communication skill to convey required information in an appropriate manner in various health care setting.

PEO4. Lifelong learner keen on updating oneself regarding the advancement in the health care field and able to perform the role of researcher and teacher.

PEO5. Professional who understands biomedical research and follows the principle of bio - ethics / ethics related to health care system.

4 Programme Outcome (PO)

PO's represent broad statements that incorporate many areas of inter - related knowledge and skills developed over the duration of the programme through a wide range of courses and experiences. They represent the big picture and describe broad aspects of knowledge, skill and attitude development. They encompass multiple learning experiences.

By the end of Anaesthesiology residency programme:

PO1. The resident should attain relevant knowledge, skills and attitude in the specialty ranging from basics to recent advances enabling them to practice anaesthesiology independently in broad and superspecialities.

PO2. The resident should attain relevant knowledge, skills and attitude to practise critical care and Pain management.

PO3. The resident should develop appropriate organisational and communication skills, to function in a group as leader or team member in Operating Room/Intensive Care Unit.

PO4. The resident should be able to identify the needs of patients and society and advocate humane, holistic, safe, quality and cost effective health care.

PO5. The resident should be able to effectively communicate with stake holders given any situation in the health care system.

PO6. The resident should develop the capacity for self-directed learning and critical appraisal of medical literature.

PO7. The resident should be able to apply various teaching and training methods including usage of simulators.

PO8. The resident should be able to conduct scientific research projects adhering to good clinical practise, research methodology and biostatistics.

5 Course and Course Outcomes (CO)

CO's describe the learning that will take place across the curriculum through concise statements, made in specific and measurable terms, of what students will know and /or be able to do after successful completion of each course.

There are four courses for MD Anaesthesiology:

1. Course 1 (C1) Basic Sciences as applied to Anaesthesiology
2. Course 2 (C2) Practice of Anaesthesia: Anaesthesia in broad specialities and in relation to associated systemic and medical diseases
3. Course 3 (C3): Anaesthesia in relation to superspecialities
4. Course 4 (C4): Intensive Care Medicine, Pain Medicine and Recent Advances

5.1 Course 1 (C1) Basic Sciences as applied to Anaesthesiology

C1.1. Should gain knowledge of Anatomy, Physiology, Biochemistry, Pharmacology as applied to Anaesthesiology

C1.2. Should know physical principles involved in functioning of anaesthesia equipments including Anaesthesia Machine and monitors.

C1.3. Should be familiar with the developmental history of anaesthesiology.

C1.4. Should complete the Basic Course in Biomedical Research, and understand the principles of designing and executing a research protocol.

5.2 Course 2 (C2) Practice of Anaesthesia: Anaesthesia in broad specialities and in relation to associated systemic and medical diseases

C2.1. The resident should gain relevant knowledge and skills for Preop Assessment, risk stratification and optimisation.

C2.2. The resident should be able to plan and conduct surgeries under General anaesthesia

C2.3. The resident should be able to plan and conduct surgeries under spinal/epidural anaesthesia

C2.4. The resident should be able to perform and manage peripheral nerve blocks

C2.5. The resident should be able to manage postoperative care and discharge from PACU

C2.6. The resident should be able to take informed consent and maintain satisfactory documentation.

C2.7. The resident should be able to plan and perform anaesthetic management for emergency cases

C2.8. The resident should be able to assess and manage securing of airway.

C2.9. The resident should be able to manage peripheral vascular access, central venous access, invasive arterial pressure monitoring.

C2.10. The resident should be able to plan and conduct anaesthetic management in relation to associated systemic and medical diseases.

C2.11. The resident should be able to manage of complications during anaesthesia administration

C2.12. The resident should be able to plan and conduct anaesthesia management for broad specialities – General surgery, Otorhinolaryngology, Obstetrics and Gynaecology, Orthopaedics.

5.3 Course 3 (C3): Anaesthesia in relation to superspecialities

C3.1. The resident should be able to conduct anaesthetic management for specialities including Ophthalmology, Maxillofacial surgery as well as superspecialities – Cardiac, thoracic, vascular, neurosurgery, urology, plastic surgery, transplant and paediatric surgery.

C3.2. The resident should be able to conduct anaesthesia sedation services electroconvulsive therapy

5.4 Course 4 (C4): Intensive Care Medicine, Pain Medicine and Recent Advances

C4.1. The resident should be able to assess and manage critically ill patients

C4.2. The resident should be able to manage mechanical ventilation

C4.3. The resident should be able to assess and initiate management for acute and chronic pain conditions

C4.4. The resident should be able to conduct anaesthesia sedation services outside the operation theatre – Radiology suite, endoscopy suite, Cardiac Cath lab.

C4.5. The resident should be able to administer anaesthesia services for day care procedures.

C4.6. The resident should be able to administer Basic Life Support/Advanced Cardiac Life Support, Paediatric/Neonatal Advanced Life support and Advanced Trauma Life Support

C4.7. The resident should be able to understand and exhibit Anaesthesia Nontechnical Skills, conduct of audit, OT scheduling and prioritising of cases.

C4.8. The resident should develop skills for Professionalism, ethics and communication

C4.9. The resident should be able to develop ability to search medical literature, perform critical appraisal of literature.

C4.10. The resident should be familiar with pedagogy and simulation based training.

5.5 Mapping of PEO, PO and CO

Programme mapping facilitates the alignment of course - level outcomes with programme outcomes. It allows faculty to create a visual map of a programme. It is also used to explore how students are meeting program - level outcomes at the course level. Outcomes mapping focuses on student learning also.

Table1. Mapping of PEO, PO and CO

	PEO 1		PEO 2		PEO 3	PEO 4		PEO 5
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
C1	✓							✓
C2		✓			✓	✓	✓	
C3		✓			✓	✓	✓	
C4		✓	✓	✓	✓	✓		

All courses run concurrently for 3 years, with a summative assessment at the end.

6 Competencies, Sub - competencies and milestones

The post graduate programme is competency based, consisting of six domains of competency. Sub - competencies under these domains, specific to the speciality, have been mentioned in general terms. The progression through the curriculum is detailed in sub - competency milestone levels, that directs the prescribed syllabus. These sub - competency milestones are mapped to the Entrustable Professional Activities (EPAs), identified as essential for a specialist. Formative assessment includes EPA assessment, and is carried out every quarter using appropriate tools, for identifying eligibility for transfer of trust, to the resident.

6.1 Domain of Competencies

1. **Medical Knowledge (MK)** – Acquiring Knowledge of established and evolving biomedical, clinical, epidemiological, and social - behavioural sciences, and the application of this knowledge to patient care.
2. **Patient Care/Procedural Skill (PC/PS)** – Acquire ability to provide patient - centred care/ acquire skills required for teaching and conducting research.
3. **System Based Practise (SBP)** - Acquire the ability to follow the standard operating procedures relevant to practices of the organisations for patient care, inculcating quality and economical practices.
4. **Practice Based Learning and improvement (PBLI)** - Acquire the commitment to learn by literature search, feedback, practice and improve upon their ability.
5. **Interpersonal Communication skills (IPCS)** - Acquire behaviour and skills that result in the effective communication, exchange of information and cooperation with patients, their families, and health professionals
6. **Professionalism (P)** - Acquire a commitment to carrying out professional responsibilities and an adherence to ethical principles.

6.2 Sub - competencies

6.2.1 Medical Knowledge (MK)

MK1. Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation

MK2. Acquire knowledge specific to General Anaesthesia Drug Administration

MK3. Acquire knowledge required for Central Neuraxial Blockade (CNB)

MK4. Acquire knowledge required for Peripheral Nerve Blockade/Fascial plane blocks

MK5. Acquire knowledge required for airway management

MK6. Acquire knowledge required for vascular access/invasive lines

MK7. Acquire knowledge required for critical care management

MK8. Acquire knowledge required for mechanical /controlled ventilation

MK9. Acquire knowledge required for management of acute and chronic pain

MK10. Acquire knowledge required for Monitored Anaesthesia care

MK11. Acquire knowledge require for Perioperative fluid management/Blood and Blood product administration

MK12. Acquire knowledge required for monitoring patients

MK13. Acquire knowledge relevant to cardiopulmonary bypass

MK14. Acquire knowledge required for presenting seminar and journal club.

6.2.2 Patient Care/ Procedural skill (PC/PS)

PC/PS1. Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation

PC/PS2. Demonstrate procedural skills for airway management

PC/PS3. Demonstrate use and interpretation of monitoring and equipment

PC/PS4. Demonstrate ability to perform and manage central neuraxial blockade

PC/PS5. Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks.

PC/PS6. Demonstrate administration of general anaesthesia – induction, maintenance and recovery

PC/PS7. Demonstrate the ability to triage, resuscitate and manage patients requiring emergency critical care

PC/PS8. Demonstrate procedural skills required for acute, chronic pain management

PC/PS9. Demonstrate procedural skills required for vascular access – peripheral/central venous access, arterial access

PC/PS10. Demonstrate management required for mechanical ventilatory care in ICU /positive pressure ventilation (PPV) during general anaesthesia

PC/PS11. Demonstrate appropriate fluid management/blood product administration

PC/PS12. Demonstrate procedural skills relevant to cardiopulmonary bypass

PC/PS13. Demonstrate ability to take seminars, conduct journal clubs and conduct teaching and training sessions

PC/PS14. Demonstrate ability to conduct and assist with research

6.2.3 System Based Practice

SBP1. Demonstrate the ability to follow the standard operating procedures (SOP) relevant to the organisations of patient care.

SBP2. Ascertain incorporation of patient safety and quality improvement into clinical practice

SBP3. Demonstrate an understanding of cost effectiveness in health care.

6.2.4 Practice based learning and improvement

PBLI1. Demonstrate the ability to critically appraise medical literature

PBLI2. Cultivate habits for self - directed learning

6.2.5 Interpersonal communication skills

IPCS1. Communication with patients and their care givers

IPCS2. Communication with peers/Faculty/other health care workers/paramedical and support staff – within speciality and with other specialties

IPCS3. Communication skills required for teaching and training

6.2.6 Professionalism

P1. Punctuality, honesty and self-discipline

P2. Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette

P3. Ability to receive feedback/reflect and respond and give feedback to others respectfully.

P4. Awareness of one's own wellbeing – maintaining Work-life balance

6.3 Milestone Levels for Sub - competencies

6.3.1 Medical Knowledge

MK1. Preoperative assessment

Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquire knowledge in history taking and physical examination, ordering and interpreting investigation in **normal patients** undergoing surgeries in broad speciality	In addition to Milestone Level 1, acquires knowledge in **risk stratification** and **preparation in patients with comorbid illness** undergoing surgeries in broad specialities – GS including laparoscopic surgery, OG, ortho, ENT, OMFS, Urology, plastic surgery	In addition to Milestone Level 2, acquires knowledge in assessing **end organ damage, optimisation strategies** for GS including Lap surgery, OG, ortho, ENT, OMFS, Urology, plastic surgery. In addition to Milestone Level 2 - risk stratification and preparation in **paediatric patients, geriatric patients**	In addition to Milestone Level 3, acquires knowledge in assessment, risk stratification and preparation of patients undergoing **cardiac surgery, Thoracic surgery, Neurosurgery and critically ill patient** coming for surgery.	In addition to Milestone Level 4, Acquires knowledge in recent advances. Comprehends adequately to teach others

MK2. General Anaesthetic drug administration

Acquire knowledge specific to Administration of General Anaesthetic drugs				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires understanding of pharmacodynamics & kinetics of drugs used in GA (Induction, Maintenance and reversal), in **normal patients.**	In addition to Milestone Level 1 – Acquires understanding of pharmacodynamics & kinetics changes (including drug interactions) in patients with **comorbid illness** GS including laparoscopic surgery, OG, ortho, ENT, OMFS, Urology, plastic surgery Understands the **pharmacological interactions** when using drugs in patients on treatment for other comorbid conditions (ASA II), and the need for titration/modification	In addition to Milestone Level 2 – Acquires Understanding of pharmacodynamics & kinetics (including drug interactions) in patients with **varying degrees of end organ damage** (ASA III), for management of GS including laparoscopic surgery, OG, ortho, ENT, OMFS, Urology, plastic surgery. Acquires understanding of pharmacokinetics/dynamic changes (including drug interactions) in **geriatric patients, and paediatric patients.**	In addition to Milestone Level 3 – Acquires understanding of pharmacodynamics & kinetics changes (including drug interactions) **patients undergoing cardiac surgery, Thoracic surgery, Neurosurgery and critically ill patient** coming for surgery.	In addition to Milestone Level 4 – Acquires knowledge in recent advances. Comprehends adequately to teach others

MK3. Central Neuraxial Blockade (CNB)

Acquire knowledge required for Central Neuraxial Blockade (CNB)				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires Knowledge of the basic anatomy required to perform CNB. Acquires Knowledge of the dermatomal, myotome, osteotome, visceral supply (root value) Acquires Knowledge the physiological side effects of CNB Acquires Knowledge equipment required for CNB. Acquires Knowledge the pharmacology of LA used for CNB Understands the indication for spinal or epidural anaesthesia	In addition to Milestone Level 1, Acquires understanding the rationale behind selection of Milestone Level for CNB. Understands rationale for type and gauge selection of spinal/epidural needle. Understands the rational for in selection of LA – dose, concentration and volume, and use of adjuvants Acquires the knowledge to manage the minor physiological side effects of CNB – concepts of preloading, choice of vasopressor. Understands the contraindications for CNB	In addition to Milestone Level 2, Acquires the knowledge to identification of patients with difficult spine anatomy – obesity, geriatrics, kyphoscoliosis Acquires knowledge of LA regimens for intraoperative and postoperative epidural management. Acquires Knowledge for Labour Epidural. Acquires knowledge of immediate and delayed complications and their management. - High/Total Spinal - PDPH - Persistent neurological deficit	In addition to Milestone Level 3, Acquires knowledge for management of CNB in patients with ASA grade III/IV with end organ damage – Valvular Heart Disease, CCF, Severe Pulmonary diseases, CKD, Sepsis Acquires knowledge of CNB for paediatric population. Understands the Acquires knowledge in management of CNB in patients with coagulation abnormality and Pre - existing neurological deficit.	Has knowledge of recent advances pertaining to administration and management of CNB. Comprehends adequately to teach others

MK4. Peripheral Nerve Blockade/Fascial plane blocks

Acquire knowledge required for Peripheral Nerve Blockade/Fascial plane blocks				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires Knowledge of the relevant plexus/fascial plane anatomy required to perform PNB. Acquires Knowledge of the dermatomal, myotome, osteotome, visceral supply (root value) Acquires Knowledge of the physiological side effects of PNB Acquires Knowledge of the pharmacology of LA used or PNB	In addition to Milestone Level 1 – Acquires knowledge of regional strategies. Acquires knowledge of extent of surgical stimulus in terms dermatomal, myotome, osteotome, visceral supply and patient positional requirements. Acquires Knowledge of the USG, PNS, equipment and LA for application for PNB. Acquires Knowledge of complications of PNB – intraneural injection persistent neurologic injury, LAST	In addition to Milestone Level 2 - Acquires understanding appropriate strategies for various surgeries. Acquires an understanding of management (performance, assessment) of Milestone Level I and II blocks Acquires an understanding Management of PNB in patients with coagulation abnormality, pre - existing neurological deficit	In addition to Milestone Level 3 - Acquires an understanding of management (performance, assessment) of Milestone Level I and II blocks in paediatrics. Acquires an understanding of Milestone Level III blocks.	Acquires knowledge of recent advances pertaining to administration and management of PNB. Comprehends adequately to teach others

MK5. Airway management

Acquire knowledge required for Airway Management				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires Knowledge about the basic airway anatomy. Acquires Knowledge about basic assessment of normal airway in adult Acquires Knowledge about the basic equipment related to the normal airway management. Acquire knowledge about positioning and preoxygenation. Acquires knowledge for Intubation and Extubation of a normal airway. Acquires Knowledge about commonly used drugs for airway management.	In addition to Milestone Level I, Acquires Knowledge about assessment of anticipated difficult airway in adults Acquires Knowledge about differences of paediatric and neonatal airway and assessment. Acquires Knowledge about the equipment related to the difficult airway management. Acquires Knowledge about the risk of aspiration and implication of full stomach. Acquires Knowledge about of preparation prior to airways management – position, supportive equipment and emergency drugs	In addition to Milestone Level 2, Acquires Knowledge a of difficult airway management – DAS Guidelines Acquires Knowledge of airway changes in pregnancy. Acquires Knowledge about airway anaesthesia, nasotracheal intubation, video laryngoscopy Knowledge regarding blunting of hemodynamic stress response during airway manipulation. Acquires Knowledge about complications and management of airway manipulation.	In addition to Milestone Level 3, Acquires Knowledge of management of compromised airways – due to trauma, obstruction or intubation failure. Acquires Knowledge of lung isolation techniques fibreoptic assessment of position	Acquires Knowledge about recent advances related to airway management. Comprehends adequately to teach others

MK6. Vascular access/Invasive lines

Acquire knowledge required for vascular access/invasive lines				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires knowledge of Basic vasculature, vascular access sites and indication for site selection. Acquires knowledge of Indications for peripheral, central venous access. Acquires knowledge about the gauge, flowrates, length and lumen of venflons, Central venous catheters.	In addition to Milestone Level 1, Acquires knowledge of the Indications and access sites for invasive BP monitoring. Acquire knowledge about the different equipment available for venous access/arterial access.	In addition to Milestone Level 2, Acquires knowledge of USG as applied for vascular access Acquires knowledge of how to maintain patency of vascular access, and number of days access can be kept in place. Acquire knowledge of the complications and management of peripheral/central venous axis, arterial lines. – blocked lines, infections, thrombophlebitis, gangrene following arterial line.	In addition of Milestone Level 3, Acquire knowledge of PICC lines and Chemo - ports. Acquire knowledge of pulmonary artery catheters, IABP	Acquire knowledge of recent advances. Comprehends adequately to teach others

MK7. Critical Care Management

Acquire knowledge required for critical care management				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires a basic knowledge of pathophysiology and pharmacology of critical illness Acquires an understanding on assessment of critically ill patients – physical examination, investigations	In addition to Milestone Level 1, Acquires a comprehensive understanding of disease processes and arrives at differential diagnosis, relevant to the practice of critical care medicine – sepsis, coagulopathy, metabolic acidosis, ARDS. Acquires knowledge of the physiological scoring systems for critical illness and monitoring.	In addition to Milestone Level 2, Acquires knowledge about management of patients with medical and surgical complications – poisoning, snake bite, Post Cardiac arrest, sepsis, CVA. Acquires knowledge regarding the supportive care of the critically ill patient in terms of – Hemodynamic support, Nutritional support, thromboembolism, GI management, Respiratory therapies, hygiene, positioning, rehabilitation. Acquires Knowledge of complications arising from management of critically ill patients – CABI, VAP, PE, Pressure sores, stress ulcers.	In addition to Milestone Level 3, Acquires Knowledge regarding management of critically ill patients with multisystem organ failure, post cardiac surgery on mechanical hemodynamic support, neurosurgery. Knowledge on discharge from ICU – stepping down of care.	Acquires Knowledge of recent advances on various aspects of critical care management. Comprehends adequately to teach others

MK8. Positive Pressure Ventilation

Acquire knowledge required for mechanical / controlled ventilation				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires Knowledge of physics, equipment required for mechanical ventilation. Acquires Knowledge of the physiological implications of positive pressure ventilation.	In addition to Milestone Level 1, Acquires Knowledge of the principles underlying ventilators and the modes of ventilation. Acquires knowledge of the principles of management of mechanical ventilation/positive pressure ventilation in Anaesthesia. Acquires knowledge of pressure and flow time loops and ventilator graphics.	In addition to Milestone Level 2, Acquires knowledge of initiation and maintenance mechanical ventilation for critically ill patients in the ICU – knows the strategies for ARDS, ALI Acquires knowledge weaning from mechanical ventilation. Acquires knowledge on the complications and management of mechanical ventilation.	In addition to Milestone Level 3, Acquires knowledge for Ventilatory strategies during Lung Isolation. Acquires knowledge Knows about different types ventilators available for ventilatory support. Acquires Knowledge of ECMO.	Acquires Knowledge in recent advances. Comprehends adequately to teach others

MK9. Pain Management

Acquire knowledge required for management of acute and chronic pain				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquire knowledge of physiology and pathophysiology of pain. Acquires knowledge of medications used for pain management and the concept of multimodal pain management. Acquires knowledge of medications used for interventional pain management. Acquires Knowledge of the WHO pain ladder.	In addition to Milestone Level 1, Acquires Knowledge how to assess of patients presenting with acute/chronic pain conditions. Acquires Knowledge of Indications and contraindications for non - interventional pain management.	In addition to Milestone Level 2, Acquires Knowledge regarding interventional management of pain, in non - complex patients. Acquires understanding of Perioperative Pain management. Acquires Knowledge of USG guided and Fluoroscopic guided interventional pain procedures. Acquires Knowledge of complications and management of pain management.	In addition to Milestone Level 3 Acquires Knowledge regarding interventional management of pain, in complex patients. Acquires knowledge of palliative care. Acquires knowledge of complementary and alternative modalities of pain management.	Acquires knowledge of Recent advances in pain management. Comprehends adequately to teach others

MK10. MAC

Acquire knowledge required for Monitored Anaesthesia care				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires Knowledge of pharmacology required to provide sedation. Acquires Knowledge of equipment required. – airway equipment, monitors	In addition to Milestone Level 1, Acquires understanding for administering anaesthesia for ECT and endoscopic procedures for ASA grade I and II patients Has understanding of drug delivery equipment and TIVA. Understands Ramsay Sedation scale	In addition to Milestone Level 2, Acquires Knowledge on patient selection and contraindications. Acquires Knowledge for providing anaesthesia for MRI for ASA I and II patients Acquires understanding of the discharge criteria – Aldrete Scoring system. Knows the complications for providing anaesthesia outside operation theatre.	In addition to Milestone Level 3, Acquires Knowledge for providing anaesthesia for endoscopic procedures and MRI for critically ill patients. Acquires Knowledge for providing anaesthesia for MRI for paediatric patients.	Acquires Knowledge Informed about the recent advances. Comprehends adequately to teach others

MK11. Fluids/Blood Products

Acquire knowledge requires for Perioperative fluid management/Blood and Blood product administration				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquire knowledge of plasma volume expanders. Acquires knowledge of Blood and Blood Products. Acquire knowledge of physiology behind fluid administration.	In addition to Milestone Level 1, Acquires Knowledge of basic IV fluid /blood products administration for ASA I and II patients undergoing surgery under any anaesthesia. Acquire understanding of Maximum Allowable Blood Loss, transfusion trigger and ability to estimate blood loss.	In addition to Milestone Level 2, Acquire Knowledge of fluid administration for patients with CKD/CCF/valvular heart disease (ASA III) Acquires knowledge of the indications to escalate fluid replacement to pharmacological support. Acquire knowledge of massive transfusion protocol. Acquires knowledge of the complications and management of Fluid therapy and blood/product administration.	In addition to Milestone Level 3, Acquires Knowledge of fluid management for ASA III/IV, critically ill, for cardiac surgery, thoracic surgery, neurosurgery.	Acquire Knowledge in recent advances. Comprehends adequately to teach others

MK12. Monitoring

Acquire knowledge required for monitoring patients				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires Knowledge of the physical principles behind basic monitors – ECG, pulsoximetry, NIBP, capnography Acquires knowledge of minimum monitoring standard for anaesthetic management.	In addition to Milestone Level 1, Acquires Knowledge of the physics and principles of IBP, NMJ monitoring, EEG based monitoring techniques. Acquires knowledge of the interpretation the basic monitored parameters	In addition to Milestone Level 2, Acquires understanding of the fallacies/artefacts of monitoring equipment and troubleshoot – (dampening of IBP) Acquire Knowledge of ICP, IAP monitoring. Acquire Knowledge of interpretation of basic monitors.	In addition to Milestone Level 3, Acquires Knowledge to application of advanced monitoring. (Cardiac Output, Non Invasive Cardiac Output, etc.) Acquires knowledge of mechanical support for Hemodynamic instability.	Acquires Knowledge of recent advances. Comprehends adequately to teach others

MK13. Cardiopulmonary Bypass

Acquire knowledge relevant to cardiopulmonary bypass				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquire the basic knowledge of components and of CPB circuit. Acquire an understanding of the physiology of CPB.	In addition to Milestone Level 1, Acquire knowledge of the assembly of CPB circuit.	In addition to Milestone Level 2, Acquire knowledge and understanding about initiation, maintenance and weaning of CPB.	In addition to Milestone Level 3, Acquires knowledge about basic malfunctions and troubleshoot.	Acquire knowledge of recent advances in CPB.

	Acquires the knowledge of different types of cardioplegia.	Acquire the principles underlying monitoring of CPB – coagulation, temperature, pressure and Gas Exchange. Acquire knowledge of complications of CPB.		Comprehends adequately to teach others

MK14. Teaching, Training

Acquire knowledge for journal club and seminar presentations - Comprehension of the subject and its global relevance				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Understands the basic concepts relevant to the topic being presented. Understands the relevance of journal articles.	Knowledge of analysing Journals (Indexing, impact factor, TOC), articles, methodology and statistics Knowledge of gathering relevant information from various sources and cites the references.	Understands how to critically analyse and compare articles relevant to topic/practise Able to form concepts on the subject	Understands the direction of growth of the speciality	Updates the knowledge in recent advances of the speciality

6.3.2 Patient Care/Procedural Skill – PC/PS

PC/PS1. Preoperative assessment

Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Performs general histories and physical examinations. Identifies clinical issues relevant to anaesthetic care and orders appropriate investigations. Clearly documents all aspects of the anaesthesia care plan.	In addition to Milestone Level 1, Appropriately performs risk stratification and surgical risk assessment. Preoperative preparation of patients with controlled comorbid illness receiving anaesthetic care, and orders appropriate investigations and cross consultations. Formulates anaesthesia care plans considering patient's medical, or surgical risk factors, for routine surgeries in broad specialities – GS including laparoscopic surgery, OG, ortho, ENT, OMFS, Urology, plastic surgery.	In addition to Milestone Level 2, Preoperative risk stratification, preparation and formulates anaesthesia care plan, for patients with end organ damage. Formulates anaesthesia care plans for long duration surgeries/complex surgeries. Elicits appropriate history, performs physical examinations and preparation of **normal paediatric patients** and formulates anaesthesia care plan.	In addition to Milestone Level 3, Performs Preoperative risk stratification, preparation and formulates anaesthetic care plan for patients undergoing cardiac surgery, thoracic surgery, neurosurgery and critically ill patients. Elicits appropriate history, performs physical examinations and preparation of **complex paediatric patients** and formulates anaesthesia care plan.	Independently performs comprehensive assessment and formulates anaesthetic care plan for all patients. Elicits appropriate history, performs physical examinations, preparation and formulates anaesthesia care plan for **critically ill paediatric patients.**

PC/PS2. Airway management

Demonstrate procedural skills for airway management				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Performs airway assessment of normal airway. Appropriately prepares drugs, equipment and adjuncts for airway management. Positions patient for airway management; acquires correct use of oral and nasal airways; performs bag - valve - mask ventilation.	In addition to Milestone Level 1, Performs assessment of anticipated difficult airway and formulates plans for securing airway. Performs basic airway management in patients with normal airways, including endotracheal intubation, supraglottic airways. Recognizes and vocalizes need for assistance and/or equipment. Takes appropriate precautions when managing patients with full stomach.	In addition to Milestone Level 2, Performs basic airway management in obstetric patients. Performs advanced airway management techniques, including awake intubations, video laryngoscopy and fibreoptic intubations. Performs assessment, preparation and formulates plans for , routine paediatric airway management. Identifies complications of airway interventions, and takes appropriate measures to manage them.	In addition to Milestone Level 3, performs airway interventions in difficult situations – trauma, obstruction, failure to intubate. Performance of lung isolation techniques. Appropriately manages tracheostomies. Performs basic paediatric airway management.	Independently assesses and manages the airway for all clinical situations utilizing appropriate advanced airway techniques, including cricothyroidotomy. Independently supervises and provides consultation to other members of the health care team for airway management Performs paediatric airway management for difficult cases.

PC/PS3. Monitoring

Demonstrate use and interpretation of monitoring and equipment				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires the correct use of standard monitoring devices, including blood pressure (BP) cuff, electrocardiogram (ECG), pulse oximeter, and temperature monitors Performs pre - anaesthetic equipment and machine checks	In addition to Milestone Level 1, Interprets data from arterial and central venous catheters Interprets data from standard monitoring devices, including recognition of artefacts.	In addition to Milestone Level 2, Acquires the correct use on NM monitoring and EEG based monitors. Recognizes and appropriately troubleshoots malfunctions of standard monitoring equipment and anaesthesia machines	In addition to Milestone Level 3, Applies data from advanced monitoring devices (e.g., electroencephalogram [EEG], motor evoked potentials [MEPs], somatosensory evoked potentials [SSEPs], fetal monitors) with indirect supervision Recognizes and appropriately troubleshoots malfunctions of advanced monitoring equipment	Independently selects and uses basic and advanced monitoring techniques Performs advanced monitoring techniques for assessing cardiac function (e.g., pulmonary artery catheterization, trans-esophageal echocardiography).

PC/PS4. Central Neuraxial Blockade

Demonstrate ability to perform and manage central neuraxial blockade				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Appropriately plans and prepares for performance of CNB. Applies appropriate monitors and prepares resuscitative equipment prior to performing CNB. Takes full aseptic precautions for performance of CNB. Selects appropriate needles and Drugs for CNB. Identifies physiologic changes associated with CNB manages appropriately	In addition to Milestone Level 1, performs and manages spinal/lumbar epidural in patients of ASA I or II with normal anatomy. Recognizes difficulty and asks for help. Identify the patients with difficult spine anatomy – obesity, geriatrics, kyphoscoliosis	In addition to Milestone Level 2, performs and manages spinal/lumbar epidural in patients of ASA III/IV with normal anatomy Performs lower thoracic epidurals in patients with normal spine anatomy. Performs and manages Labour epidurals. Performs Paediatric spinal, caudal block. Prescribes appropriate intraoperative and postoperative LA dosing regimens for epidural catheters. Recognizes problems or complications associated with regional anaesthesia and appropriately manages them.	In addition to Milestone Level 3, Performs and manages spinal, epidural in difficult anatomy, ASA grade III/IV patients. Performs Upper thoracic epidurals. Performs USG of the spine. Supervises junior residents in performing spinal anaesthesia.	Independently performs CNB. Independently manages problems or complications associated with CNB.

PC/PS5. Peripheral Nerve Blocks/Fascial Plane Blocks

Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks.				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Plans appropriate regional anaesthesia strategy for the indication. Applies appropriate monitors and prepares resuscitative equipment prior to performing regional anaesthesia procedures Takes full aseptic precautions.	In addition to Milestone Level 1, Acquires appropriate ergonomics, and setup of USG/PNS for performing regional anaesthesia. Selects appropriate equipment and LA, for block performance. Identifies difficult anatomy – obesity, geriatric and paediatrics. Able to assess and grade conduction blockade, following regional blockade.	In addition to Milestone Level 2, Performs Milestone Level I and Milestone Level II blocks for upper/lower limb, fascial planes in patients with normal anatomy. Appropriately monitors and follow up post procedure. Recognizes problems or complications associated with regional anaesthesia, and manages them.	In addition to Milestone Level 3, Performs Milestone Level I and Milestone Level II blocks for upper/lower limb, fascial planes difficult anatomy. Performs Milestone Level III and upper/lower limb, fascial planes and USG Guided caudal blocks in paediatric patients. Performance of regional anaesthesia in patients with coagulation abnormalities and pre - existing neurological deficit.	Performs Milestone Level III blocks in adults and paediatric patients. Able to supervise juniors performing regional blocks.

PC/PS6. General Anaesthesia

Demonstrate administration of general anaesthesia – induction, maintenance and recovery				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Prescribes appropriate pre medication and fasting orders for patients Performs pre use machine, equipment check and ensures emergency equipment and drugs are prepared. Prepares the commonly used drugs for GA administration/Recovery Ensures Informed consent is taken.	In addition to Milestone Level 1, Prescribes appropriate premedication and medications for - patients with comorbid illness. Ensures monitors attached and functioning prior to start. Ensures appropriate vascular access is secured and calls for help when facing difficulty. Takes care when positioning the patients under GA.	In addition to Milestone Level 2, Prescribes appropriate preop orders for ASA III patients, with end organ damage. Administers GA to ASA I and II patients for GS including Lap, OG, Ortho, ENT, Urology, Plastic surgery. Monitors with vigilance and identifies disturbances and complications and appropriately escalates the call. Performs post op monitoring and determines fitness for discharge to ward. Plans and executes appropriate post - operative pain management.	In addition to Milestone Level 3, Prescribes appropriate premedication and fasting orders for ASA IV/critically ill patient coming for anaesthesia. Administers GA to ASA II/III patients for GS including Lap, OG, Ortho ENT, Urology, Plastic surgery and long duration surgeries Identifies and manages post - operative complications. Administration of GA for cardiac, thoracic, neurosurgery.	Independently prescribes premedication and preop fasting orders for all patients. Independently administers anaesthesia to all patients. Able to train and monitor juniors.

PC/PS7. Triage

Demonstrate the ability to triage, resuscitate and manage patients requiring emergency critical care				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Recognizes acutely ill or medically deteriorating patients; initiates basic resuscitative measures calls for help appropriately Performs a focused evaluation of the critically - ill patient;	In addition to Milestone Level 1, Identifies relevant critical disease processes requiring urgent or emergent intervention; seeks assistance to identify appropriate care setting (e.g., ICU, transitional care unit) Participates in development and initiation of a treatment plan and appropriately modifies treatment plan based on patient's response.	In addition to Milestone Level 2, Constructs prioritized differential diagnoses for acute clinical deterioration; initiates treatment Prioritizes clinical management of clinical problems. Recognizes when acutely ill patients require immediate surgical intervention. Performs cardiopulmonary cerebral resuscitation (CPCR) in pregnancy. Performs Neonatal resuscitation.	In addition to Milestone Level 3, Identifies and manages clinical crises appropriately; assumes increasing responsibility for leadership of crisis response team Defines clinically appropriate priorities when resources are limited Integrates management choices taking into account long - term impact of therapeutic decisions. Supervises other members of the health care team	Coordinates crisis team response. Coordinates transition of care to appropriate care setting; sets clinically appropriate priorities when resources are limited Serves as a consultant to other members of the health care team regarding initial evaluation and management of the critically - ill patient

PC/PS8. Pain Management

Demonstrate procedural skills required for acute, chronic pain management				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Performs targeted history and physical examination for patients with pain, including the use of common pain scales Initiates non - interventional, routine therapy for common pain problems.	In addition to Milestone Level 1, Diagnoses common acute and chronic pain syndromes; evaluates efficacy of current medication regimen. Implements non - interventional pain treatment plans.	In addition to Milestone Level 2, appropriately plans, manages and follows up for Acute post operative pain management. Formulates differential diagnoses of acute and chronic pain syndromes; Appropriately seeks cross consultation regarding pain management as appropriate Performs simple interventional pain procedures (e.g., trigger point injections, lumbar epidural steroid injection [ESI]. Able to identify structures on USG or fluoroscopic guidance.	In addition to Milestone Level 3, Participates in complex procedures (e.g., thoracic ESI, sympathetic blocks) for alleviating acute, chronic, or cancer pain. Recognizes treatment failures and obtains appropriate consultations, including with a pain medicine specialist	Participates in coordination of care for patients with complex pain problems Serves as a consultant to other members of the health care team regarding management of the patient with acute, chronic, or cancer - related pain

PC/PS9. Vascular Access

Demonstrate procedural skills required for vascular access – peripheral/central venous access, arterial access				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Follows aseptic precautions. Identifies appropriate site for venous access, and ensures tying of tourniquet. Performs peripheral venous cannulation in simple patients. Selects appropriate instrument for vascular access.	In addition to Milestone Level 1, Performs and manages peripheral venous cannulation for difficult patient. Perform venous cannulation of External Jugular Vein. Applies appropriate monitors and prepares resuscitative equipment prior to securing CVC. Perform CVC of Femoral vein. Recognizes difficulty and asks for help.	In addition to Milestone Level 2, Performs Internal Jugular vein cannulation. Secures radial arterial line for invasive blood pressure monitoring. Applies use of USG for procedures. Performs and manages peripheral venous cannulation for paediatric population. Recognizes problems or complications arising during or after vascular access and appropriately manages them.	In addition to Milestone Level 3, Performs Subclavian Vein cannulation, axillary lines. Secures Peripherally Inserted Central lines. Secures Femoral arterial line for invasive BP monitoring. Performs Haemodialysis sheath insertion. Performs and manages peripheral venous cannulation for neonates. Supervises junior residents in performing vascular access.	Securing of paediatric/neonatal central lines.

PC/PS10. Positive Pressure Ventilation

Demonstrate management required for mechanical ventilatory care in ICU /positive pressure ventilation (PPV) during general anaesthesia				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Initiates and monitors PPV during GA, for normal patients.	In addition to Milestone Level 1, manages and adjusts parameters for PPV during GA, in patients with controlled respiratory disorders.	In addition to Milestone Level 2, Manages PPV during GA for Laparoscopic surgeries, surgery in prone position, long duration surgeries. Recognize and manage complications of PPV.	In addition to Milestone Level 3, manages PPV in patients with respiratory compromise. Manages PPV in patients undergoing cardiac, thoracic and neurosurgery.	Manages PPV in all cases. Supervises juniors during PPV.
Management of mechanical ventilation in ICU for patients with normal respiratory system.	In addition to Milestone Level 1, monitors and appropriately makes ventilatory adjustments. Appropriately recognizes and manages patient desynchrony. Maintains patient positioning during mechanical ventilation.	In addition to Milestone Level 2, management of mechanical ventilation of patients with moderate respiratory pathology. Applies appropriate ventilatory strategies for - ARDS/ALI. Appropriately weans patients from mechanical ventilation.	In addition to Milestone Level 3, management of mechanical ventilation of patients with severe cardio - pulmonary compromise. Identifies problems with mechanical ventilation and appropriately troubleshoot. Recognize and manage complications during mechanical ventilation.	Serves as a consultant regarding management of the mechanical ventilated patient. Supervises juniors.

PC/PS11. Fluids/Blood product administration

Demonstrate appropriate fluid management/blood product administration				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Appropriately selects and correctly administers IV fluids, for management of normal patients.	In addition to Milestone Level 1, administers IV fluids considering comorbid illness. Appropriately escalates fluid therapy to colloids or pharmacological support. Appropriately calculates maximum allowable blood loss and identifies the transfusion trigger.	In addition to Milestone Level 2, administers IV fluids appropriately to patients with end organ damage. Perioperative fluid management for patients undergoing surgeries involving massive fluid shifts. Appropriately initiates and correctly administers transfusion of blood product. Recognizes and manages the complications of fluid therapy/blood product administration.	In addition to Milestone Level 3, perioperative fluid management of patients coming for cardiac, thoracic, neurosurgery, critically ill patients coming for surgery. Perioperative fluid management/blood product administration for paediatric/neonatal	Supervision of juniors.

PC/PS12. Cardiopulmonary Bypass

Demonstrate procedural skills relevant to cardiopulmonary bypass				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Monitors assembly of CPB circuit.	In addition to Milestone Level 1, Appropriately prepares and administers cardioplegia.	In addition to Milestone Level 2, Initiation, maintenance and weaning of CPB. Appropriately monitors CPB – coagulation, temperature, pressure and Gas Exchange. Recognizes complications and manages during CPB, appropriately escalating the call.	In addition to Milestone Level 3, Recognizes basic malfunctions and troubleshoots.	Performs management of CPB.

PC/PS13. Teaching & Training

Demonstrate ability to take seminars, conduct journal clubs and conduct teaching and training sessions				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Collecting information and compiling to Prepare appropriate teaching material. Prepares and presents lectures/bedside teaching for paramedical students.	In addition to Milestone Level 1, prepares and presents lectures/bedside teaching for UG students (MBBS) and interns. Prepares and presents in journal clubs.	In addition to Milestone Level 2, prepares and presents lectures/bedside teaching for junior colleagues. Prepares and presents in Case Discussion.	In addition to Milestone Level 3, able to participate in a team to conduct Simulation based training sessions.	Able to conduct Simulation based training sessions.

PC/PS14. Research

Demonstrate ability to conduct and assist with research				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Review of Literature - Collecting information and compiling.	In addition to Milestone Level 1, Prepares study protocol for dissertation submission. Confidently presents study protocol to scientific committee.	In addition to Milestone Level 2, proactively participates in data collection and data compilation. Discusses study findings with the guide and co guides regularly and seeks help when warranted.	In addition to Milestone Level 3, able to present their study at scientific meetings. Compiles data collected and statistics, and formatting for dissertation..	Develop dissertation, designs and conducts research studies. Helps and guides juniors with research protocols.

6.3.3 System based practice

SBP1.SOP

Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Aware of the Departmental SOP but doesn't understand.	Aware and understands the SOP, but unable to implement.	Aware, understands and Implements core components that ensures patient safety.	Aware, understands and Implements all the components of SOP effectively.	Identify deficiency in SOP & provides solutions. Supervises and ensures that juniors follow the SOP.

SBP2.Safety/Quality practice

Ascertain incorporation of patient safety and quality improvement into clinical practice				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Aware of patient safety practices and quality control measures, in the speciality. Including - Management of Medication, Infection control practices, WHO checklist, Occupational hazards.	Aware, understands and implement patient safety practices and quality control.	Recognizes adverse clinical events, drug administration errors and complications, and appropriately escalates the call	Critically analyse the event and submit Morbidity and Mortality report. Create an appropriate monitoring systems that ensures patient safety and quality clinical practice.	Analyse and use the data from monitoring system to change the patient safety and quality improvement practice care.

SBP3.Cost Effectiveness

Acquire an understanding of cost effectiveness in health care				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Understands importance of cost effective clinical practice.	Implements cost effective into clinical practice.	Identifies opportunities to reduce total costs of care without compromising patient outcomes	Substantially contributes to programmes to reduce costs and improve efficiency of clinical care	Creates policy and system in place to ensure cost - effective delivery of health care.

6.3.4 Practice based learning and improvement

PBLI1. Critical Appraisal

Acquire the ability to critically appraise medical literature				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Acquires an understanding of critical appraisal of the literature Acquires responsiveness to constructive feedback	Identifies resources (e.g., texts, search engines) to answer questions while providing patient care Recognizes limits of knowledge, expertise, and technical skills Describes commonly used study designs (e.g., randomized controlled trial [RCT], cohort; case - control, cross - sectional)	Applies patient - appropriate evidence - based information from review articles or guidelines on common topics in practice Critically reviews and interprets the literature.	Interprets the strength of evidence in current literature and applies it to practice. Analyses his or her own outcomes as compared to national standards.	Contributes to peer - reviewed medical literature

PBLI2. Self - directed Learning

Cultivate habits for self - directed learning				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Analyse practice experience and perform practice - based improvement activities using a systematic methodology or preprocedural checklists Completes assigned readings and prescribed learning activities Uses clinical opportunities to direct self - learning	Reviews the literature and information relevant to specific clinical assignments Periodically modifies learning plan based on feedback, and self - reflection.	Differentiates evidence - based information from non - evidence - based resources to address specific patient management needs Incorporates experiences from subspecialty rotations to modify learning plan Use information technology to manage information, access on - line medical information, and support their own education Understands the importance of audits to improve their practice.	Ability to participate in audits and understand the data to improve their practice and the system. Incorporates evidence - based medicine practices into patient management Takes responsibility for integrating past experience, multiple learning activities, and self - reflection to direct lifelong learning independently	Facilitate the learning of students and other healthcare professionals Refines clinical practice based on evolving medical evidence Continually analyzes personal practice to focus self - directed lifelong learning

6.3.5 Interpersonal communication skills

IPCS1. Communication with patients and their care givers

Communication with patients and their care givers				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Understands the need for effective communication, maintaining a respectful and culturally - sensitive manner. Obtains informed consent for routine procedures using language appropriate to the patient's and family's level of understanding	Ability to gather the needed information during History taking and physical examination in a respectful manner. Communicates effectively in routine situations and ensures that patient and family understand the situation and procedure and allows to ask questions. Maintains respectful communication throughout procedures where patient is awake. Willingness to solicit and answer all questions from patients and relatives.	Communicates effectively in stressful, emergent, and complex situations. Ability to give the necessary information regarding choice of management and guide the patient/attenders for informed decision making. Ability to communicate the risks involved for patient care, in an understandable language without making the patient/attenders apprehensive, allowing two way communication.	Capable of delivering bad news to patients and families regarding poor prognoses situations in a compassionate way. Ability to declare and explain the unexpected outcome to families about complications. Participates in education of patients and families	Leads multidisciplinary family/patient/team member conferences. Capable of training UG's, PG's and junior colleagues in communication skills.

IPCS2. Communication with peers/Faculty/other health care workers/paramedical and support staff – within speciality and with other specialties

Communication with peers/Faculty/other health care workers/paramedical and support staff – within speciality and with other specialties				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Understands the importance of relationship development, information gathering, sharing, and teamwork.	Acquires an understanding of the roles of health care team members and communicates effectively within the team. Acquires an understanding of transitions of care and team debriefing. Ability to maintain clear and meticulous documentation with legible handwriting.	Works effectively in interprofessional and interdisciplinary health care teams Ability to convey the required information clearly to the consultants, peers and other health care workers. Participates in effective transitions of care and team debriefing	Responds to requests for consultation in a timely manner and communicates recommendations to the requesting team. Knows the etiquette of speaking / arguing respectfully in group meetings	Educates other health care professionals regarding team building Leads effective transitions of care and team debriefing Has developed skills for public speaking.

IPCS3. Communication skills required for teaching and training – Seminars, case presentations and Journal clubs

IPCS1. Communication skills required for teaching and training – Seminars, case presentations and Journal clubs				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Makes the effort to speak clearly with good clear enunciation. Maintains proper communication with the moderator/consults senior prior to presentation.	Confidently vocalises the topic clearly with good language articulation – both subject oriented and general grammar.	Communicates effectively with students, ensuring audience has understood and allows them to ask questions.	Confidently able to answer questions, raised during the presentation, without a biased reproach.	Ability to take the role of Moderator to junior or other students.

6.3.6 Professionalism

P1. Punctuality, honesty and self-discipline

Punctuality, honesty and self-discipline				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Does not maintain punctuality, is irregular in attendance. Gives excuses without accepting responsibility. Not able to depend on the versions of transferred information.	Ability to be regular and punctual. Submission of assignments within stipulated times. Is truthful in all forms of communication.	Maintenance of timings while taking teaching and training sessions – Arrives on time, conducts the class/journal club as per the stipulated time and format.	Ability to maintain emotional balance during triggering situations, people and environment.	Serves as a role model and mentor for juniors and students.

P2. Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette

Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Inappropriate work attire. Is not forthcoming in all communications	Addresses ethical issues relevant to the needs of the patient/student, society and profession. Understands the importance of workplace hierarchy. Acquires respectfulness and spirit of cooperation to consultants, peers and other health care workers/support staff	Addresses ethical issues in complex and challenging circumstance. Acquires sensitivity and responsiveness to diversity of patients/students, ages, cultures, races, religions, abilities, or sexual orientations Takes responsibility for the care provided and seeks help appropriately Able to follow the hierarchy in the working environment.	Ability to be a functional member of a coordinated team and follow the protocol and chain of command appropriately.	Serves as a role model and mentors others about bioethical principles Ability to function as the team leader and coordinate overall team performance. Develops a systematic approach to managing ethical dilemmas.

P3. Ability to receive feedback/reflect and respond and give feedback to others respectfully.

Ability to receive feedback/reflect and respond and give feedback to others respectfully.				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Seeks constructive feedback from faculty members and colleagues.	Ability to accept and follow constructive feedback from consultants, peers and other health care workers, and integrate into their practise.	Correlates feedback with self - reflection and incorporates it into lifelong learning to enhance patient care.	Provides constructive feedback to juniors in a tactful and supportive way to enhance patient care.	Effectively seeks and provides constructive feedback in challenging situations.

P4. Awareness of one's own wellbeing – maintaining work-life balance

Awareness of one's own wellbeing – maintaining work-life balance				
Milestone Level 1	Milestone Level 2	Milestone Level 3	Milestone Level 4	Milestone Level 5
Does not manage stress adequately - Maladaptive reactions to stress Reluctance in accepting tasks	Understands the importance of work-life balance. Proactively accepts tasks with a pleasant demeanour.	Ability to recognise their own stress and seek help to manage it. Is proactive in task management and self reflects for improvement.	Maintains a well-balanced work etiquette and works well under pressure and coordinates tasks appropriately.	Maintains balance between work and life and serves as an example to all. Ability to guide others in management of stress and well being.

7 Syllabus

7.1 Course 1 (C1) Basic Sciences as applied to Anaesthesiology

7.1.1 Anatomy

a. Relevant anatomy of respiratory system involved in gas exchange process, Diaphragm, larynx and upper and lower airway.
b. Relevant anatomy of cardiovascular and central nervous systems.
c. Anatomy of musculoskeletal system and neuromuscular transmission.
d. Anatomy of peripheral nerves and surface anatomy for regional anaesthesia and venous cannulations.
e. Some Anatomical areas of interest to the anaesthetist are Orbit of the Eye, Base of skull, Vertebral Column, spinal cord and meninges, axilla, 1st rib, intercostal space.

7.1.2 Physiology

a. Theories of mechanism of Anaesthesia.
b. Respiratory, cardiovascular. hepatobiliary, renal and endocrine system.
c. Acid base homeostasis in health and diseases.
d. Pregnancy, Blood coagulation,
e. Muscle & Neuromuscular junction,
f. Regulation of temperature & Metabolism, Stress response,
g. Cerebral blood flow and ICP
h. Pain pathway

7.1.3 Pharmacology

a. General pharmacological principles.
b. Concepts of pharmacokinetics and pharmacodynamics.
c. Uptake and distribution of inhaled anaesthesia agents.
d. Drugs used in Anaesthesia

e. Drugs used for treatment of diseases and interaction of these drugs with Anaesthetic drugs.

f. Fluid balance & Blood Transfusions, blood substitutes & Perioperative fluid therapy.

7.1.4 Principles of physics and use of equipment in anaesthesia

a. Anaesthesia machine - checking the machine and assembly of necessary items, Reducing valves, Humidifiers, Flow meters

b. Anaesthetic and monitoring equipment - Care, cleaning, disinfecting and sterilization (particularly airway equipment), Potential defects and problems, Safety precautions and checking.

c. Vaporizers - Characteristics and functional specifications.

d. Airway equipment including Tracheostomy / Equipment for airway management - mask, fibreoptic laryngoscopes, supraglottic airway devices etc.

e. Breathing systems – Types, functional analysis, Assembly and checking and scavenging systems.

f. Monitoring in Anaesthesia with concepts of minimal monitoring.

g. Ultrasound - image generation/ ultrasound waves / Piezoelectric effect/ A, B, M modes/ Doppler principle

h. Peripheral Nerve Stimulator

i. Safety in Anaesthesia Equipment.

j. Medical gases - storage and central pipeline system,

7.1.5 History of Anaesthesia

7.1.6 Introduction to Research methodology, Randomised clinical trials etc. and basics of biostatistics.

7.1.7 Ethics & medico legal aspects of anaesthesiology

7.2 Course 2 (C2) Practice of Anaesthesia: Anaesthesia in relation to associated systemic and medical diseases

7.2.1 Basic knowledge and skills for practice of anaesthesia

Knowledge

1. Preoperative assessments and medication - general principals.
2. Theoretical background of the commonly used anaesthetic techniques of general and regional anaesthesia viz.
    a. GA – Intravenous / inhalational, using spontaneous and controlled mode ventilation.
    b. RA – Spinal, epidural and peripheral nerve blocks.
    c. Effect of positioning under anaesthesia.
    d. Monitored anaesthesia care.
3. Theoretical background on disorders of
    a. Cardiovascular system.
    b. Respiratory system
    c. Hepatobiliary system.
    d. Urinary system.
    e. Endocrine system, Pregnancy.
4. Pharmacology of drugs used in cardiovascular, respiratory, endocrine, renal diseases and CNS disorders.
5. Acid - base and electrolyte balance and Interpretation of blood gases and other relevant biochemical values, various function tests and basics of measurement techniques
6. Pulmonary function tests - principles and applications.
7. Principles of monitoring equipment used for assessment of
    a. Cardiac function viz. ECG, Rhythm, pulse, venous and arterial pressures, cardiac output.
    b. Temperature
    c. Respiratory function viz. Rate volumes, compliance, resistance, blood gases.

d. Intracranial pressure, depth of anaesthesia and Neuromuscular block.

8. Working principles of ventilators in anaesthesia
9. Blood and blood component therapy. Anaesthetic implications in coagulation disorders.
10. Anaesthetic implication in Endocrine disorders.
11. Recovery from anaesthesia.
12. Anaesthesia in abnormal environments:
    a. High altitude
    b. Pressure chambers / at depth
    c. Low temperature
13. Problems for patients and staff because of:
    a. Age (anaesthesia and the elderly)
    b. Obesity
    c. Smoking
    d. Alcoholism
    e. Drug dependency and addiction
    f. Hepatitis B & C carriers
    g. HIV and AIDS
    h. Variant CJD
    i. Pacemakers
14. Hazards for patients and staff because of:
    a. Anaesthetic drugs and pregnancy
    b. Electricity and electrocution
    c. Diathermy
    d. Sharps injury
    e. Pollution by anaesthetic gases
    f. Fires and explosions

g. Intravenous fluid replacement

h. Blood transfusion

i. Jehovah's Witnesses

j. Blood substitutes

k. Disseminated intravascular coagulation

l. Colloid / crystalloid

15. Posture and positioning

a. Lateral position

b. Prone Position

c. Trendelenberg Position

d. Lithotomy

e. Peripheral nerve damage

f. Prevention of deep vein thrombosis

16. Airway Management

a. Anatomy of the airway

b. Physiology of airway and airway reflexes

17. Evaluation of the airway:

a. History

b. General examination

c. Specific predictive tests

d. Special investigations

18. Airway strategy:

a. Aspiration risk

b. Predicted difficult mask inflation, direct laryngoscopy

c. Known abnormal / narrowed tracheo - bronchial tree

d. Unexpected difficult ventilation and intubation

e. Can't intubate / can't oxygenate

19. Preoxygenation – techniques / purpose
20. Pharmacology relevant to the airway:
    a. Control of secretions
    b. Control of airway reflexes in conscious sedation
    c. Effect of anaesthetic drugs on airway reflexes
    d. Reducing the prevalence and sequale of gastro - esophageal reflux
21. Confirmation of position of tracheal tube within trachea
22. Monitoring of ventilation by pressure changes, gas flows and capnography
23. Cricoid force induced difficulties with airway management
24. Airway equipment - difficult airway trolley
25. Tracheostomy tubes, types, fixation and care
26. The obstructed airway:
    a. Recognition
    b. Immediate treatment of acute obstruction
    c. Anaesthetic management of acute and chronic obstruction
    d. Flexible nasoendoscopy and imaging
27. Emergency cricothyrotomy
    a. Needle
    b. Purpose built cannula >4 mm ID
    c. Surgical
28. Extubation strategies - routine, predicted and unexpected difficulty
29. Complications of difficult airway management
30. Follow - up care of patient, documentation and patient information
31. Percutaneous cricothyrotomy and tracheostomy
32. Conscious sedated (awake) intubation:

a. Preparation of patient

b. Topical anaesthesia

c. Nerve blocks for airway

d. Laryngoscopy, bronchoscopy

e. Specialized tubes

Skills

1. Recognition of the difficult airway
2. When to ask for help
3. Failed rapid sequence intubation
4. Performance of recognized ‘drills’ for failed intubation / ventilation
5. Alternative methods of intubation
6. Other laryngoscopy blades and bougies
7. Low skill fibreoptic intubation e.g. Via laryngeal mask or specialized airway
8. Placement and checking of double lumen tubes
9. Anaesthetic techniques for laryngoscopy, bronchoscopy and tracheostomy
10. Extubation in abnormal airway
11. Clinical review of patient to detect and treat airway instrumentation damage
12. Interpretation of CT, MRI imaging and flow - volume loops

Additional desirable clinical skills

Additional desirable clinical skills to be learnt primarily in the non - clinical environment (skills laboratory / manikin / simulator) but supplemented by some clinical experience

The availability of equipment to display the fibreoptic image on a screen will also extend the opportunities for clinical teaching.

1. Awake intubation:
    a. Indications
    b. Use with the compromised airway

2. Fibreoptic intubation through the nose and mouth with and without concurrent ventilation
3. Fibre - endoscopy skills to:
    a. Visualize tracheo - bronchial tree
    b. Confirm placement of single and double lumen tubes
    c. Intubate through the laryngeal mask
4. Blind and fibreoptic assisted intubation via the intubating laryngeal mask
5. Elective trans - tracheal ventilation to aid difficult intubation
6. Retrograde intubation - blind and fibreoptic assisted
7. Placement bronchial blockers
8. Specialized bougies and airway exchange catheters
9. Use of the combitube or other supraglottic balloon device
10. Emergency cricothyrotomy:
    a. Landmarks
    b. Insertion of needle / cannula
    c. Confirmation of position within trachea
    d. Fixation
    e. Pressures required for adequate gas flows
    f. Ventilation through cannula / catheter
    g. Complications
11. Application of 30 N cricoid force
12. Operating room management, concepts of PACU

7.2.2 Regional anaesthesia

Regional techniques are integral components of anaesthesia. It is inappropriate to expect that every trainee will become competent in every possible block technique, although they must be competent in all the generic aspects of block performance. All trainees should become competent in spinal and epidural block, with training in certain other blocks where opportunities allow and should increase the range of block techniques in which they become competent.

Knowledge

1. Basic sciences applied to regional anaesthesia: anatomy, physiology and pharmacology
2. Advantages / disadvantages, risks / benefits and indications / contra - indications
3. Assessment, preparation and management of the patient for regional anaesthesia
4. The principles of minor and major peripheral nerve blocks (including cranial nerve blocks) and central neural blocks
5. Desirable effects, possible side effects and complications of regional anaesthesia
6. Management of effects and complications

Skills

1. Assessment and preparation of the patient for regional anaesthesia, to include discussion of anaesthetic options (i.e. Regional versus general)
2. Management of the patient receiving a regional block during surgery (whether awake or as part of a 'balanced' anaesthetic technique) and during labour
3. Management of the patient receiving regional techniques in the postoperative period, including liaison with surgeons, acute pain teams, and ward staff
4. Central neuraxial blocks:
    a. Spinal anaesthesia
    b. Epidural block (lumbar & sacral)
    c. Combined spinal /epidural

5. Major nerve block (landmark guided)– able to perform at least one method for upper and lower limb surgery respectively:
    a. Brachial plexus – one technique at least
    b. Sciatic
    c. Femoral
6. Minor nerve block: (landmark guided)
    a. Superficial cervical plexus block
    b. Trunk (penile, intercostal & inguinal blocks)
    c. Upper limb (elbow and distal)
    d. Lower limb (ankle & distal)
7. Miscellaneous: Ophthalmic blocks, topical, Intravenous regional anaesthesia (IVRA), infiltration & intra - articular
8. Recognition and management of the adverse effects of regional anaesthesia.

There should be formal assessment, of each block before the trainee can be judged as competent.

Ultrasound in regional anaesthesia

Knowledge to be acquired

1. Ultrasound physics – image generation
    a. Ultrasound waves
    b. Piezoelectric effect
    c. A, B, M modes
    d. Doppler principle
2. Equipment.
    a. Probe selection
    b. Knobology
    c. Depth, gain, MB, Needle guide etc.

d. Image storing and archiving

3. Sonoanatomy of common nerve blocks
    a. Applied anatomy of Brachial plexus, Lumbar, sacral plexus.
    b. Applied anatomy of thoracic, lumbar spine and paravertebral areas.
    c. Ability to interpret 3D anatomy from 2D cross sectional image.
4. Cleaning and disinfection
    a. Knowledge about the cleaning solutions and its implication

Skills to be attained

1. Image acquisition
    i. Ability to effectively apply “PART “maneuver – pressure, alignment, rotation, tilting.
    ii. Performer, patient, monitor – ergonomics.
2. Needling (get the needle on to the target)
    i. In plane and out of plane concepts.
    ii. Ability to use needle visualization presets.
    iii. Ability to get the target, needle tip visualization.

Attitudes and behaviour

1. Provides explanations of regional techniques in a way that patients can understand
2. Understands patients’ anxieties about regional techniques, especially the stress of undergoing surgery while conscious
3. Recognizes need for communication with staff about use of regional block
4. Handles patients gently during performance of regional block
5. Meticulous attention to safety and sterility during performance of regional blocks
6. Enlists help / advice from other professionals when appropriate

Workplace training objectives

1. Trainees should take appropriate opportunities to use regional anaesthesia in patients undergoing a range of operations in specialties such as orthopaedics, gynaecology, urology and plastic surgery in order to acquire their attainment of the listed requirements.
2. Lectures to cover up the basic principles and sonoanatomy.
3. Phantom training for needling
4. All such cases should be fully detailed in the logbook.

7.2.3 General surgery

Anaesthesia for general surgical procedures forms the backbone of anaesthesia.

Knowledge

1. Relevant anatomy and physiology for common surgical procedures
2. Anaesthesia for complex GI surgery including Intrathoracic procedures
3. Emergency anaesthesia for general surgery
4. Carcinoid syndrome / tumours
5. Endocrinology; diseases relevant to hepatobiliary, pancreatic, splenic surgery
6. Management of thyroid (and parathyroid) surgery
7. Starvation / obesity
8. Metabolism; nutrients, carbohydrates, fats, proteins, vitamins, minerals

Skills

1. Preoperative assessment and resuscitation of emergency surgical patient e.g. trauma, obstruction and perforation
2. Postoperative analgesia e.g. regional and field blocks
3. Assessment of need for ICU and HDU admission
4. Assessment of the elderly and children
5. Laparoscopic surgery
6. TIVA

Attitudes and behaviour

1. Can assess preoperative patients effectively and resuscitate appropriately
2. Links with other staff showing ability to co - ordinate a team

7.2.4 Gynaecology

Knowledge

1. Relevant anatomy and physiology
2. Endocrinology relating to gynaecology
3. Preoperative assessment
4. Laparoscopic surgery
5. Gynaecological procedures during pregnancy

Skills

1. Regional techniques
2. Laparoscopic surgery

Attitudes and behaviour

1. Shows appropriate attitude and behaviour to the female patient

7.2.5 Obstetric anaesthesia

Obstetric anaesthesia and analgesia is the only area of anaesthetic practice where two patients are cared for simultaneously. Pregnancy is a physiological rather than a pathological state. The majority of the workload is anaesthesia for operative delivery and the provision of analgesia in labour. Multidisciplinary care for the sick mother is increasingly important and highlighted.

Knowledge

1. Anatomy and physiology of pregnancy
2. Physiology of labour
3. Placental structure and mechanisms affecting drug transfer across the placenta
4. Basic knowledge of obstetrics

5. Gastrointestinal physiology and acid aspiration prophylaxis
6. Pharmacology of drugs relevant to obstetric anaesthesia
7. Pain and pain relief in labour
8. Emergencies in obstetric anaesthesia:
    a. Pre - eclampsia, eclampsia, failed intubation, major haemorrhage, maternal resuscitation, amniotic fluid embolus, total spinal
    b. Use of magnesium sulphate
9. Incidental surgery during pregnancy
10. Assessment of fetal wellbeing in utero
11. Thromboprophylaxis
12. Feeding / fasting policies
13. Influence of common concurrent medical diseases
14. Management of twin pregnancy
15. Management of premature delivery
16. Maternal morbidity and mortality
17. Management of difficult or failed intubation
18. Maternal and neonatal resuscitation
19. Legal aspects related to fetus

Skills

1. Assessment of pregnant woman presenting for anaesthesia / analgesia
2. Epidural / subarachnoid analgesia for labour
3. Management of complications of regional block and of failure to achieve adequate block
4. Epidural and subarachnoid anaesthesia for Caesarean Section, and other operative deliveries
5. Conversion of analgesia for labour to that for operative delivery
6. General anaesthesia for Caesarean Section
7. Airway management

8. Management of the awake patient during surgery
9. Ability to ventilate the newborn with bag and mask
10. Anaesthesia for interventions other than delivery
11. Post - delivery pain relief
12. Management of accidental dural puncture and post - dural puncture headache
13. Recognition of sick mother
14. High dependency care of obstetric patients
15. Optimization for the 'at risk' baby

Attitudes and behaviour

1. To be aware of local guidelines in the obstetric unit
2. To communicate a balanced view of the advantages, disadvantages, risks and benefits of various forms of analgesia and anaesthesia appropriate to individual patients
3. To communicate effectively with partner and relatives
4. To help deal with disappointment
5. To be involved in the initial management of complaints
6. To communicate effectively with midwives
7. To obtain consent appropriately
8. To keep good records
9. To identify priorities
10. To attempt by conscientious care to recognize problems early
11. To allocate resources and call for assistance appropriately
12. To be aware of local audits and self audit

Workplace training objectives

Within the obstetric team, the trainee should play a full part; communicating effectively about anaesthetic and analgesic techniques used in obstetrics and developing organizational skills. They should consolidate clinical management of common obstetric practice but recognize and treat common complications exercising proper judgment in calling for help.

7.2.6 Orthopaedic anaesthesia

Knowledge

1. Preoperative assessment with particular reference to the problems of children, the elderly and patients with co - existing disease or injury such as congenital syndromes, rheumatoid arthritis or vertebral fractures
2. Special airway problems especially in the rheumatoid patient and those with cervical spine injury or pathology
3. Emergency anaesthesia for fractures
4. Resuscitation and management of patients with multiple injuries
5. Routine anaesthesia for joint replacement surgery, arthroscopy, fractured bones, dislocations and tendon repair
6. The problems that may result from the use of tourniquets and of cement
7. Problems of operations in the prone position
8. Anaesthesia for spinal surgery (including scoliosis)
9. Perioperative analgesia, including use of regional analgesia
10. Prevention, recognition and management of potential postoperative complications, including prophylaxis, recognition and management of deep venous thrombosis & pulmonary embolus, and fat embolus
11. Other specific complications of orthopaedic surgery including continuing blood loss, compartment syndromes, neurovascular deficit, complications due to difficulty of access to patients who may be on traction, in hip spica, plaster jackets, and the problems of pressure areas.

Skills

1. Airway assessment and management in the patient with rheumatoid arthritis
2. Safe positioning of patient, particularly in lateral and prone positions
3. Assessment and management of major blood loss

4. Correct application and use of tourniquets

Attitudes and behaviour

1. Provides explanations of anaesthesia for orthopaedic surgery in a way that patients can understand
2. Gentle handling of patient during positioning and performance of general or regional anaesthesia
3. Enlists help / advice from other professionals when appropriate

Workplace training objectives

Anaesthesia for orthopaedic lists enables trainees to attain competency in ensuring the smooth and efficient running of an operating list; liaising with other staff, avoiding delays and reassuring patients. They should acquire their ability to employ safe but effective methods for postoperative pain relief. In addition, they should develop awareness of the potential hazards and complications of orthopaedic surgery.

7.2.7 Ear, Nose And Throat (Otorhinolaryngology)

Knowledge

1. Preoperative assessment, particularly prediction of a difficult intubation
2. Management of patients of all ages to include patients with: stridor; intubation difficulties; sleep apnoea; concomitant diseases
3. Local techniques and surface analgesia
4. Acute ENT emergencies (e.g. bleeding tonsils, croup, epiglottitis, foreign bodies) Laryngoscopy and bronchoscopy
5. Knowledge of special tubes, gags and equipment for micro laryngoscopy, bronchoscopy, laser surgery (e.g. Venturi devices, ventilating bronchoscope and fibreoptic bronchoscopy)
6. Middle ear surgery including hypotensive techniques
7. Major head and neck surgery (including laryngectomy)

8. Emergency airway management including tracheostomy
9. Use of helium
10. Postoperative management

Skills

Preoperative

1. Recognized the importance of preoperative assessment with particular attention to:
    a. age (paediatric / adult / elderly)
    b. concomitant disease GI tract
    c. patients with sleep apnoea, stridor and intubation difficulties
2. Discuss the anaesthetic procedures with the patient and/or relatives (if a child is involved)
3. Discuss special requirements with the surgical team
4. Acute ENT emergencies such as bleeding tonsil bed, croup / epiglottitis
5. Prepare all appropriate drugs, appropriate masks, airways, tracheal tubes, bougies, laryngoscopes, throat packs

Peroperative

1. Provide smooth anaesthesia / analgesic / surgical operating conditions
2. Cope with parental presence in the anaesthetic room
3. Use the appropriate tracheal tube or laryngeal mask
4. Use of special tubes, gags and goggles (laser surgery)
5. Techniques available for microlaryngoscopy and bronchoscopy (Venturi devices and ventilating bronchoscope)
6. Hypotensive anaesthetic techniques, when appropriate
    a. To use invasive monitoring (arterial, CVP, urinary) for major surgical procedures on the head and neck

Postoperative

1. Extubation procedures to avoid laryngospasm
2. Oxygen therapy
3. Appropriate postoperative analgesia
4. Postoperative fluid balance
5. Maintain venous access after operation, if required
6. Postoperative anti - emetics

Attitudes and behaviour

1. Develop an understanding of the needs of the surgeon when operating on a shared airway but the absolute importance of not compromising patient safety.
2. To support and guide recovery and other staff taking responsibility for the unconscious patient who has undergone surgery to the airway.

Workplace training objectives

To develop confidence in the anaesthetic management of adults and children undergoing surgery to the airway.

7.2.8 Cardiology

Knowledge

1. Knowledge of the basics of Cardiology including Cardiac Anatomy, Physiology, Biochemistry, Pharmacology
2. Knowledge of ECG, trans thoracic echo cardiogram, trans esophageal echocardiogram
3. Knowledge of cardiovascular diseases like IHD, Valvular heart disease and congenital heart disease
4. Knowledge of cathlab interventional procedures

Skills:

1. To do trans thoracic and trans esophageal echocardiogram basic views

2. To identify critical clinical conditions like cardiac tamponade, valvular heart disease and left ventricular dysfunction
3. Introduction to various Cath lab interventional procedures

Attitude and behaviour

1. Acquire empathy and humane approach towards patients and their families and exhibit
2. Interpersonal behaviour in accordance with the societal norms and expectation

7.3 Course 3 (C3): Anaesthesia in relation to subspecialties and superspecialities

7.3.1 Cardiac / Thoracic Anaesthesia

Knowledge

Cardiac Anaesthesia

1. Preoperative assessment and perioperative care of patients with cardiac disease
2. Induction and maintenance of anaesthesia for high risk cardiac procedures, including valve replacement
3. Antibiotic prophylaxis against subacute bacterial endocarditis
4. Problems of cardiopulmonary bypass
5. Postoperative cardiac critical care, including analgesia, sedation and ventilatory management
6. Significance of cardiac tamponade
7. Interpretation of ECG and CXR
8. Interpretation of invasive and non - invasive cardiovascular monitoring
9. Temperature control and patient rewarming methods
10. Coagulopathy
11. Cardiac pacing modes
12. Intra - aortic balloon counter pulsation
13. Understanding of the adult patient with congenital heart disease
14. A working knowledge of the following investigations:
    a. Stress testing
    b. Cardiac catheterization
    c. Echocardiography – transthoracic / trans esophageal
    d. Radionuclide scan

Thoracic Anaesthesia

1. Preoperative pulmonary function tests
1. Local and general anaesthesia for bronchoscopy including techniques of ventilation
2. Understanding of fibreoptic bronchoscopic techniques for airway management
3. Principles of one - lung anaesthesia
4. Management of a pneumothorax
5. Principles of underwater seals on chest drains
6. Postoperative care and analgesia after thoracic surgery

Skills

Generic

1. Internal jugular and subclavian venous cannulation
2. Arterial cannulation
3. Invasive pressure monitoring, including pulmonary artery catheters and interpretation of derived indices
4. Postoperative analgesia by appropriate methods including local techniques
5. Cardiopulmonary resuscitation and appropriate use of defibrillators

Cardiac Anaesthesia

1. Preoperative assessment of patients with valvular and with ischemic heart disease
2. Induction and maintenance of anaesthesia for elective coronary bypass
3. Management of the patient during cardiopulmonary bypass
4. Use of inotropes and vasodilators
5. Anaesthesia for procedures in intensive care including emergency re - sternotomy, re - intubation, tracheostomy or cardioversion

Thoracic Anaesthesia

1. Preoperative assessment, preparation of patients with pulmonary disease
2. Preoperative assessment, preparation of patients for thoracic surgery

3. Induction and maintenance of anaesthesia for minor thoracic procedures, in particular, bronchoscopy and the use of the Sanders injector
4. Use of single and double lumen endobronchial intubation
5. Fibreoptic endoscopic confirmation of tube placement
6. Induction and maintenance of anaesthesia for major thoracic procedures
7. One lung ventilation

Attitudes and behaviour

1. To communicate effectively with surgical colleagues / other members of the theatre team
2. To be able to summarize a case to critical care staff
3. Understand how to communicate with the intubated patient in intensive care
4. To be able to recognize the need for senior help when appropriate
5. Maintain accurate clinical records
6. Presentation of material to departmental meetings and participation in clinical audit

Workplace training objectives

1. By gaining experience in cardiothoracic anaesthesia, the trainee should also develop competency in the management of cardiovascular and pulmonary problems arising in non - cardiac surgical patient.
2. The trainee should develop the ability to assess the circulation and have experience in the use of inotropes and vasoactive agents to support of the circulation in patients with cardiac disease. They should also develop an understanding of the problems of extracorporeal circulation.
3. The trainee should understand the problems of one lung anaesthesia and develop experience in the placement of double - lumen tubes

7.3.2 Neuroanaesthesia

Anaesthetic training for Neurosurgery and Neuroradiology will take place within designated specialist centers with the appropriate critical care facilities.

Knowledge

1. Preoperative assessment and management of patients with neurological disease
2. Anaesthesia for imaging relevant to the CNS
3. Anaesthesia for MRI including problems of magnetic fields
4. Anatomy of the skull and skull base
5. Anatomy, physiological control and effect of drugs on cerebral blood volume and flow, intracranial pressure, CMRO2
6. Principles of anaesthesia for craniotomy, to include vascular disease, cerebral tumours and posterior fossa lesions
7. Anaesthetic implications of pituitary disease including endocrine effects (acromegaly) and trans - sphenoidal surgery
8. Perioperative management of interventional neuroradiological procedures
9. Anaesthesia for spinal column surgery and anaesthetic implications of spinal cord trauma
10. Principles of immediate postoperative management including pain relief and special considerations with narcotics
11. Principles of neurological monitoring
12. Implications of prion diseases for the anaesthetist and other staff
13. Anaesthetic and critical care implications of neuromedical diseases:
14. Guillain - Barre syndrome
15. Myasthenia gravis - pharmacological management / thymectomy
16. Myasthenic syndrome
17. Dystrophia myotonica
18. Muscular dystrophy
19. Paraplegia and long - term spinal cord damage
20. Control of convulsions including status epilepticus
21. Tetanus

22. Trigeminal neuralgia including thermo coagulation

Skills

1. The trainee will be supervised during the provision of anaesthesia for:
    a. Planned intracranial surgery
    b. Spinal surgery
    c. Emergency neurosurgery for head trauma
2. Safe patient positioning – prone, park - bench (lateral)
3. The trainee will be instructed in the non - surgical management of the head trauma patient
    a. Resuscitation and patient transfer
    b. Monitoring:
    c. Insertion of arterial lines
    d. Insertion of CVP lines
    e. Techniques for detection and management of air embolism
    f. EEG and evoked potentials
    g. Intracranial pressure measurement
    h. Spinal drainage
4. Critical Care:
    a. Indications for ventilation
    b. The role of drugs
    c. Management of raised intracranial pressure and manipulation of cerebral perfusion pressure
    d. Fluid and electrolyte balance in neurocritical care
5. Complications
    a. Treatment of raised intracranial pressure
    b. Cerebral protection and prevention of cerebral ischaemia
6. Management of patients for organ donation

7. Neuroradiology
8. Practical aspects of patient management for CT and MRI
9. Anaesthetic considerations in interventional radiology

Attitudes and behaviour

1. To understand the problems of obtaining consent in patients with impaired consciousness.
2. To appreciate the limits of medical intervention
3. To gain the ability to establish a rapport with the operating neurosurgeon and exchange information during surgery on aspects of changes in the patient's vital signs which are relevant to the operative procedure
4. To communicate well with the nursing staff in the ICU, patients, relatives and other hospital staff
5. To offer comfort to the patient and relatives when there is no prospect of survival
6. To understand the requirements for organ donation

Workplace training objectives

Trainees should gain an understanding of the principles of neuroanaesthesia and the associated neuro - critical care in order to manage, with safety, patients for routine operations on the brain and spinal cord. For patients with head injury, trainees should be able to manage their resuscitation, stabilization and transfer.

7.3.3 Paediatric Anaesthesia

Paediatric anaesthesia and pain management includes everything from healthy children to the sickest premature babies in tertiary referral centers and in paediatric intensive care units (PICU).

Knowledge

General

1. Anatomical and physiological characteristics which affect anaesthesia and the changes which take place during growth from neonate to a young child

2. Paediatric medical and surgical problems including major congenital abnormalities, congenital heart disease and syndromes e.g. Down's and their implications for anaesthesia
3. Starvation and hypoglycemia
4. Preoperative assessment and psychological preparation for surgery
5. Anaesthetic equipment and the differences from adult practice

Children and Infants

1. Anaesthetic management of children for minor operations and major elective and emergency surgery
2. Management of recovery
3. Management of postoperative pain, and nausea and vomiting in children
4. Management of acute airway obstruction including croup and epiglottitis

Neonates

1. Anatomical, physiological and pharmacological differences to the older child / adult
2. Preoperative assessment
3. Anaesthetic techniques and thermoregulation
4. Analgesia
5. Neonatal equipment and monitoring
6. Anaesthetic problems and management of important congenital anomalies including those requiring surgical correction in the neonatal period (tracheooesophageal fistula, diaphragmatic hernia, exomphalos, gastroschisis, intestinal obstruction, pyloric stenosis)
7. Special problems of the premature and ex - premature neonate
8. Resuscitation of the newborn

PICU

1. Principles of paediatric intensive care: management of the commoner problems, ventilatory and circulatory support, multi - organ failure

2. Principles of safe transport of critically ill children and babies

Skills

Children and Infants

1. Resuscitation – Basic life support (BLS) and advanced life support (ALS) at all ages
2. Preoperative assessment and preparation
3. Techniques of induction, maintenance and monitoring for elective and emergency anaesthesia
4. Selection, management and monitoring of children for diagnostic and therapeutic procedures carried out under sedation
5. Maintenance of physiology: glucose, fluids, temperature
6. Strategies and practice for the management of anaesthetic emergencies in children: loss of airway, laryngospasm, failed venous access, suxamethonium apnoea and anaphylaxis including latex allergy.
7. Postoperative pain management including the use of local and regional anaesthetic techniques, simple analgesics, NSAID's and use of opioids (including infusions and PCA)
8. Communication with paediatric patients and their family

Attitudes and behaviour

1. To understand consent in children: the law, research, restraint
2. To communicate with parents (carers) and children throughout the surgical episode

Workplace training objectives

The trainee should develop a wide knowledge of the anaesthetic needs of children and neonates. They should, as Resident trainees at the end of their training, be able to organize and manage safely a list of straightforward paediatric cases over the age of 3 years with available consultant cover. They should understand the potential hazards of paediatric anaesthesia and have had as much practical training as is possible in planning for the management of such events.

7.3.4 Urology

Knowledge

1. Anatomy of the renal tract
2. Blood flow, GFR, plasma clearance
3. Tubular function, urine formation and micturition
4. Assessment of renal function
5. Disturbances of fluid balance, edema and dehydration
6. Management of acid - base abnormalities
7. Renal failure and its management
8. Plasma electrolyte disturbances
9. Anaesthesia on spinal injuries patients for urological procedures
10. TURP syndrome
11. Transplantation
    a. Principles and complications of immunosuppression
    b. Specific anaesthetic problems associated with renal transplantation
    c. Anaesthetic management of patients with transplanted organs

Skills

1. Regional techniques
2. Major procedures – e.g. Nephrectomy, cystectomy

Attitudes and behaviour

Understands the ethical implications of transplantation

Workplace training objectives

The trainee should acquire the required professional judgment in assessing and managing the risk of aspiration, in deciding the urgency of a case against any delay necessary for resuscitation and in assessing the requirement for postoperative critical care.

7.3.5 Ophthalmic Anaesthesia

This specialty affords potentially very valuable training for resident trainees. The age range of the patients and the wide adoption of local anaesthetic techniques are particular aspects that can be beneficial to the development of the trainee. However, it is recognized that only a proportion of trainees will be able to gain this experience

Knowledge

1. Preoperative assessment with particular reference to patients with comorbidities
2. Choice of local or general anaesthetic techniques in relation to the patient and surgery with particular reference to:
3. Strabismus surgery
4. Cataract surgery
5. Surgery for the detached retina
6. Penetrating eye injury
7. Control of intraocular pressure
8. Action of anaesthetic drugs on the eye
9. Anatomy relevant to local anaesthetic blocks
10. Local analgesia
11. Topical anaesthesia
12. Risks of sharp needles in peribulbar and retro bulbar techniques
13. Sub - Tenon's block
14. Problems of glaucoma surgery
15. Postoperative care

Skills

1. Assessment and preparation, including the use of day care facilities

2. Anaesthetic management of patients for lachrymal surgery including syringing and probing and dacrocystorhinostomy
3. Requirements for strabismus surgery, including knowledge of the oculocardiac reflex
4. Control of intraocular pressure
5. The use of topical preparations, possible effects and interactions
6. Appropriate local anaesthetic methods
7. Techniques of general anaesthesia for ophthalmic surgery
8. Choice and use of appropriate method for airway maintenance under general anaesthesia
9. Postoperative care

Attitudes and behaviour

1. Understanding of the importance of the patient's general health and wishes to decisions relating to the choice of anaesthetic techniques
2. Being an effective communicator with elderly patients in explaining the risks and benefits of general and local anaesthesia for eye surgery

Workplace training objectives

Trainees should develop expertise in the administration of local anaesthesia for eye surgery trying to obtain competency in at least one block. They should also show the necessary medical knowledge and skill in the preoperative assessment of elderly patients.

7.3.6 Maxillo - Facial / Dental Anaesthesia

Maxillo - facial surgery covers a range of procedures from simple dental extractions to complex resections and reconstructive procedures. The age range of patients is similarly wide, from childhood to the elderly.

Knowledge

1. Preoperative assessment
2. Day case / inpatient requirements

3. Resuscitation facilities
4. Anaesthesia for dental extractions (to include sedation and analgesic techniques)
5. Paediatric anaesthesia
6. Assessment and management of the difficult airway including fibreoptic intubation Anaesthesia for Maxillo - facial surgery including the perioperative management of the fractured jaw and other major facial injuries.
7. Postoperative management for all patients undergoing dental or Maxillo - facial procedures

Skills

Many of the skills required for this unit of training are shared with ENT surgery

1. Patient assessment for day - stay surgery, including children and the mentally and physically handicapped
2. Pre and postoperative instructions for patients
3. Talking to patients and explaining the anaesthesia proposed
4. Choice of anaesthetic technique
5. Potential problems and hazards of the shared airway
6. Airway management including nasal masks, naso - pharyngeal airways, laryngeal mask airways, oral and nasal endotracheal intubation
7. Working with dental and oral surgeons and their use of mouth props and packs
8. Appropriate monitoring techniques and record keeping
9. Recovery and patient assessment for discharge including regular audit of outcomes
10. Management of emergencies
11. Conscious sedation:
    a. Patient selection, assessment and suitability for treatment under sedation
    b. The techniques and drugs available including non - pharmacological methods
    c. Administration methods - oral, inhalational, intravenous, trans mucosal, patient - controlled

12. Monitoring and management of the sedated patient

Attitudes and behaviour

1. Develop an understanding of the needs of the surgeon when operating on a shared airway but the absolute importance of not compromising patient safety
2. To support and guide recovery and other staff taking responsibility for the unconscious patient who has undergone surgery to the airway

Workplace training objectives

Trainees should develop confidence in the anaesthetic management of adults and children undergoing surgery to the airway.

7.4 Course 4 (C4): Intensive Care Medicine, Pain Medicine and Recent Advances

7.4.1 Intensive care medicine

Knowledge

General

Trainees should have a good understanding of the diagnosis and management of the critically ill patient. All trainees should be familiar with the monitoring and life support equipment used in the treatment of critically ill patients. Trainees must be able to acquire their knowledge of practical invasive procedures, with an understanding of the principles and hazards involved and the interpretation of data from such procedures.

Specific

1. Transport of the critically ill:
    a. Assessment and organization of transfer
    b. Physiological consequences of acceleration
    c. Problems of working in isolated environments
2. Outreach care:
    a. Early warning signs and symptoms
    b. Infection and Multiple Organ Failure
3. Sepsis and endotoxemia:
    a. Nosocomial infections
    b. Assessment and management of oxygen delivery
    c. Antibiotics and immunotherapy
    d. Reperfusion injury and antioxidants
4. Cardiovascular system to include
    a. Pathophysiology and management of cardiogenic and hypovolemic shock

b. Pulmonary embolism

c. Investigation and management of cardiac failure

d. Investigation and management of arrhythmias

5. Respiratory system to include:

a. Airway care, including tracheal intubation and clearance of secretions

b. Humidification

c. Management of tracheostomy and decannulation

d. Ventilators and modes of pulmonary ventilation (including non - invasive ventilation)

e. Management of acute and chronic respiratory failure

f. Management of severe asthma

6. Nervous system to include:

a. Central nervous system infection

b. Acute polyneuropathy

c. Traumatic and non - traumatic coma

d. Encephalopathy

e. Cerebral ischemia

f. Status epilepticus

g. Brain stem death

7. Renal, Electrolyte and Metabolic Disorders to include:

a. Diagnosis, prevention and management of acute renal failure

b. Fluid, electrolyte and acid - base disorders

c. Body temperature

d. Adrenal and thyroid dysfunction

8. Haematological Disorders to include:

a. Coagulopathies

b. Immunocompromised patients

9. Gastrointestinal Disorders:
    a. Acute liver failure - diagnosis and management
    b. Acute pancreatitis
    c. Gut ischemia
    d. Gastrointestinal ulceration and bleeding
    e. Translocation and absorption disorders
10. Nutrition:
    a. Enteral and parenteral nutrition: methods, nutrients, and complications
11. Analgesia, Anxiolysis and Sedation
12. Trauma:
    a. Management of multiple injuries
    b. Near - drowning
    c. Burns and smoke inhalation
13. Cardiopulmonary Resuscitation
14. Management of Acute Poisoning:
    a. Paracetamol
    b. Barbiturates
    c. Benzodiazepines
    d. Organophosphorus
    e. Tricyclics
    f. Yellow oleander
    g. Corrosive poisoning
15. Organ Donation
16. Scoring Systems and Audit
17. Ethics

Skills

General

1. Arterial and central venous access
2. Insertion of thoracic drain
3. Insertion of oro - or naso - gastric tube

Specific

1. Recognition of the critically ill patient
2. Insertion of flow directed pulmonary artery catheter
3. Peritoneal lavage
4. Set up ventilator for adult suffering from severe ARDS
5. Assist in prone positioning patient
6. Assist in weaning patient from IPPV via assist/CPAP

Attitudes and behaviour

1. An awareness of the importance of communication skills and interpersonal relationships will be expected
2. Obtaining consent / assent for procedures in the critical care unit
3. Breaking bad news
4. Requesting post mortem investigation
5. Explaining need for unexpected / early discharge
6. Introducing the concept of organ donation

Workplace training objectives

1. There will be variation in the experience and degree of competence that individual trainees will achieve in this initial period of ICM training. However, for example, they should be able to admit and manage a patient who has undergone major emergency for instance in vascular

surgery or to admit and organize the early management of a patient suffering from severe respiratory failure complicated by acute renal failure.

7.4.2 Trauma

Knowledge

1. Principle of management in Trauma, disorders and mass casualties
2. Assess a patient's condition rapidly and accurately.
3. Resuscitate and stabilize patients according to priority.
4. Determine whether a patient's needs exceed a facility's resources and/or a doctor's capabilities.
5. Arrange appropriately for a patient's interhospital or intrahospital transfer (what, who, when, and how).
6. Ensure that optimal care is provided and that the Milestone Level of care does not deteriorate at any point during the evaluation, resuscitation, or transfer processes.

Skills

1. Management of patients in the EMS
2. Primary and secondary assessment of a patient with simulated, multiple injuries
3. Establishment of a patent airway and initiation of assisted ventilations.
4. Orotracheal intubation on adult and infant manikins
5. Pulse oximetry and carbon dioxide detection in exhaled gas
6. Cricothyroidotomy
7. Assessment and treatment of a patient in shock, particularly recognition of life - threatening
8. Venous and intraosseous access
9. Pleural decompression via needle thoracentesis and chest tube insertion
10. Recognition of cardiac tamponade and appropriate treatment
11. Clinical and radiographic identification of thoracic injuries

12. Use of peritoneal lavage, ultrasound (FAST), and computed tomography (CT) in abdominal
13. Evaluation and treatment of a patient with brain injury, including use of the Glasgow Coma Scale score and CT of the brain
14. Assessment of head and facial trauma by physical examination
15. Protection of the spinal cord, and radiographic and clinical evaluation of spine injuries
16. Musculoskeletal trauma assessment and management
17. Estimation of the size and depth of burn injury and volume resuscitation
18. Recognition of the special problems of injuries in infants, the elderly, and pregnant women
19. Understanding of the principles of disaster management

Attitude

1. An awareness of the importance of communication skills and interpersonal relationships will be expected
2. Obtaining consent / assent for procedures in the emergency room
3. Explaining the critical state of patient with relatives and handling anger of mobs
4. Leadership qualities in critical situations

7.4.3 Pain Clinic And Acute Pain Services

Knowledge

1. Anatomy, physiology, pharmacology and basic psychology relevant to pain management
2. Assessment and measurement of acute pain - including special problems with children, the elderly and patients who are unconscious or in intensive care
3. Use of medication for pain management; conventional analgesics and adjuvant analgesics; side - effects; problems of drug dependency and addiction
4. Identifying and treating Local Anaesthetic Systemic Toxicity
5. The role of and indications for neural blockade: Peripheral nerve, plexus, epidural and subarachnoid blocks, techniques of sympathetic blockade

6. Knowledge on pharmacology of anticoagulants and antiplatelet, maintaining and removing catheters safely when patients are on drugs altering coagulation
7. Organisation of Acute Pain Service and training of paramedical staff
8. Basic principles of chronic pain management
9. Assessment of a patient with chronic pain in pain clinic
10. Pain management in palliative care and symptom control in terminal illness

Skills

1. Assessment of postoperative pain
2. Assessment of chronic pain and effectiveness of intervention
3. Epidural catheter placement congruent to incision site
4. Superficial upper limb and lower limb peripheral nerve blocks (Landmark Based and USG guided)
5. Interventional pain procedures for chronic pain under supervision

Attitude

1. Understanding of the psychological affect due to pain and wishes to decisions relating to the choice of interventional techniques
2. Being an effective communicator with patients in explaining the various modalities of analgesia and its complications

7.4.4 Diagnostic Imaging, Anaesthesia & Sedation

The role of the anaesthetist in providing general anaesthesia and sedation together with physiological and pharmacological support for patients in the radiology department is evolving rapidly. Trainees need to understand the benefits and risks particularly with regard to interventional procedures.

Knowledge

1. Preanesthetic assessment and preparation
2. Techniques appropriate for adults and children for CT scanning, MR imaging and angiography

3. Post procedural care

Skills

1. Pre - anaesthetic preparation
2. Sedation and general anaesthetic techniques for:
    a. Angiography and interventional procedures
    b. CT scanning, adults and children
    c. Magnetic resonance imaging with respect to:
    d. The isolated patient
    e. The problems due to magnetic field
3. Post procedural care

Attitudes and behaviour

Establishing good communication and an understanding of their working needs with nursing staff, radiographers and radiologists

Workplace training objectives

Trainees should understand the implications of different interventional radiological procedures in their anaesthetic care of the patient and be able to establish safe anaesthesia or sedation within the confines and limitations of the radiology department.

7.4.5 Day Care Surgery

Knowledge

1. Anaesthetic pre - assessment clinics

1. Instructions to patients, anaesthetic and social
2. Regional analgesia appropriate to day cases
3. General anaesthesia appropriate to day cases
4. Appropriate drugs for day cases
5. Recovery assessment

6. Postoperative analgesia

Skills

1. Instructions to patient:
    a. Transport
    b. Accompanying person who can drive if in own car
    c. Home not more than 1 hour away from day stay unit
    d. Milestone Level of care overnight
    e. Telephone availability
2. Anaesthesia:
    a. Regional or local anaesthesia
    b. Local topical anaesthesia or sedation
    c. General anaesthesia
    d. Recognize those unsuitable for day case management
3. General anaesthesia:
    a. To limit the loss of physiological stability and to achieve rapid recovery
    b. To select where appropriate analgesics and muscle relaxants used during outpatient GA to recognize when a patient is sufficiently recovered to return home supervised
4. Use of protocols or guidelines

Attitudes and behaviour

1. Good communication with nursing staff, patients, relatives and other hospital staff
2. The development of a professional and reassuring manner in order to allay patient anxieties

Workplace training objectives

The trainee must understand and apply agreed protocols with regard to patient selection and other aspects of care, and also appreciate the importance of minimizing postoperative complications such as nausea and pain, in patients who are returning home the same day.

7.4.6 Academic / Research

An understanding of the scientific basis of anaesthetic practice is essential. This unit of training effectively underwrites the understanding and education of trainees in all the other aspects of the training that they will receive. Even if separate time is not allocated, the concepts identified here should be fundamental to the education of Trainees.

Knowledge

1. The scientific basis of clinical practice
2. The methodology and processes of clinical and laboratory research including the ethical considerations raised by research, the importance of study design in clinical research and the importance of statistical analyses
3. The audit cycle
4. Critical Incident Reporting:
    a. In purpose and value
    b. In methods – local / national
    c. In anonymity – pros and cons

Skills

1. Able to locate published research in a systematic manner
2. Critically interpret and evaluate the value of published clinical research
3. Plan and prepare a presentation and present to a live audience.

Attitudes and behaviour

1. Maintain an inquisitive, questioning approach to clinical practice
2. Cultivate an evidence - based practice
3. Awareness of and detachment from vested interests or entrenched views
4. Develop a readiness to both listen and explain
5. Acquire a willingness to teach and learn

6. Develop an informed critical approach to the scientific literature

Workplace training objectives

Trainees should gain competency in the critical interpretation and evaluation of published clinical research and be able to assess the benefit of applying the results of research to clinical practice.

7.4.7 Miscellaneous topics

1. Documentation and medico - legal aspects of anaesthesia. Stress the importance of accurate documentation.
2. Sterilization of equipment
3. Simulation in Anaesthesia
4. Selection, purchase, maintenance and sterilization of anaesthesia and related equipment.
5. Principles of human resources and material management.

8 Teaching and Learning Method

The trainee will undergo a graded training over a period of three years.

- Orientation

At the beginning of the course each resident should be given an orientation to the hospital operation theatre and subject of anaesthesia. The candidate shall be assigned dissertation guides so as to help them prepare protocols

8.1 Theory (Knowledge/ Cognitive Domain)

The teaching learning methods does not totally depend on didactic lectures. Only the introductory lectures by faculty are in this format.

8.1.1 Introductory lectures

These will be conducted at the beginning of the course by a faculty and are aimed to familiarize the resident with the:

a) Basic anaesthesia delivery equipment and Monitors and important principles of physics that govern the functions of these equipment.

b) Intravenous Anaesthetic drugs and Inhalation agents.

c) Patient evaluation, interpretation of laboratory investigation as applied to the care of' the patients, planning and conduct of general anaesthesia, and postoperative care.

d) Residents are taught basic and advanced cardiac life support.

e) The resident should be familiarized about the principle of the sterilization and universal precautions.

f) Residents will be taught to search literature and write a dissertation protocol.

The residents are encouraged to ask questions and request consultations when necessary.

8.1.2 Teaching programme

This will include theory topics and will ensure participation of the resident in the form of:

1. Seminars, group discussions and symposia. These should be regularly organized in the department.
2. Problem case discussion, before and after the conduct of the case should form part of training.
3. Journal club presentation and discussion
4. Interdepartmental programmes with clinical departments like Cardiology, CTVS, Neuro surgery and others.
5. Simulation based training involving - Weekly 2hrs class on simulation:
    a) Learning and practicing basic skills and competencies
    b) Problem solving and decision making skills/ Interpersonal and communications skills or team - based competencies, Deliberate practice with feedback, Exposure to uncommon events and Assessment of learners

8.1.3 Structured Graded Training – Year wise Knowledge / cognitive domain

First year theory

1. Theory as mentioned in syllabus of Course 1
2. Theoretical background of the commonly used anaesthetic techniques of general and regional anaesthesia viz.
    a. GA – Intravenous / inhalational, using spontaneous and controlled mode ventilation.
    b. RA – Spinal, epidural and peripheral nerve blocks.
    c. Effect of positioning under anaesthesia.
    d. Fluid balance & Blood Transfusions, blood substitutes & Perioperative fluid therapy.
    e. Acid base homeostasis in health and diseases.
3. Documentation and medico - legal aspects of anaesthesia. Stress the importance of accurate documentation.
4. Theoretical background on disorders of
    a. Cardiovascular system.
    b. Respiratory system
    c. Hepatobiliary system.
    d. Urinary system.
    e. Endocrine system, Pregnancy.
5. Cardiopulmonary Resuscitation;
    a. Theories of cardiac pump. thoracic pump and defibrillation.
    b. Resuscitation of a patient with overdose of drug/poisons.
    c. Management of unconscious patients.
    d. Resuscitation of a severely injured patient.
    e. Identification and management of hypoxia and airway related cardiac arrest
6. Neonatal resuscitation.
7. Introduction to Research methodology, Random clinical trials etc. and basics of biostatistics.

8. Preoperative assessments and medication - general principals.
9. Introduction to anatomical physiological, pharmacological and biochemical aspects of pain and pain management.
10. Introduction to artificial ventilation.
11. Oxygen therapy
12. Introduction to the operation theatre, concepts of PACU and ICU.
13. Recovery from anaesthesia.
14. Shock – pathophysiology, clinical diagnosis and management.
15. Pulmonary function tests - principles and applications.
16. History of Anaesthesia

Second year theory

1. Relevant anatomy of each system
2. Physics of equipment used in anaesthesia
    a. Medical gases - gas plant, central pipeline Scavenging system.
    b. Reducing valves
    c. Anaesthesia machine, Humidifiers
    d. Flow meters
    e. Vaporizers - Characteristics and functional specifications.
    f. Minimum monitoring standards requirements.
    g. Ultrasound - image generation/ ultrasound waves / Piezoelectric effect/ A, B, M modes/ Doppler principle.
3. Sterilization of equipment
4. Computers, Utility, computer assisted learning and data storage. Computerized anaesthesia records.
5. Pharmacology of drugs used in cardiovascular, respiratory, endocrine, renal diseases and CNS disorders.

6. Acid - base and electrolyte balance and Interpretation of blood gases and other relevant biochemical values, various function tests and basics of measurement techniques, ECG
7. Principles of monitoring equipment used for assessment of
    a. Cardiac function viz. Rhythm, pulse, venous and arterial pressures, cardiac output.
    b. Temperature
    c. Respiratory function viz. Rate volumes, compliance, resistance, blood gases.
    d. Intracranial pressure, depth of anaesthesia and
    e. Neuromuscular block.
8. Working principles of ventilators.
9. Special anaesthetic techniques as relevant to outpatient anaesthesia, hypotensive anaesthesia, anaesthesia in abnormal environments and calamitous situations.
10. Anaesthetic management in special situations - Emergency, ENT, Ophthalmology, Obstetrics, Obstetric analgesia. Plastic, Dental. Radio - diagnosis and Radio therapeutic procedures and patients with systemic diseases.
11. Principles of paediatric anaesthesia, management of neonatal surgical emergencies, RA in infants. Paediatrics — Prematurity, Physiology, anatomy of neonate vs. adult.
12. Basics of orthopaedic anaesthesia.
13. Day care anaesthesia.
14. Anaesthesia for otorhinolaryngology with special emphasis on difficult airway management.
15. Blood and blood component therapy. Anaesthetic implications in coagulation disorders.
16. Monitored anaesthesia care.
17. Anaesthetic implication in Endocrine disorders.
18. Principles of geriatric anaesthesia
19. Anaesthesia outside the OR and in special situation
20. Principle of management in Trauma, disorders and mass casualties
21. Management of patients in the EMS

22. Medical statistics relevant to data collection, analysis, comparison and estimation of significance
23. Simulation in Anaesthesia

Third Year Theory:

1. Anaesthesia for patients with severe cardiac, respiratory, renal and hepatobiliary disorders posted for unrelated surgery
2. Management of patients in shock, renal failure, critically ill and / or on ventilator.
3. Chronic pain therapy and therapeutic nerve blocks.
4. Selection, purchase, maintenance and sterilization of anaesthesia and related equipment.
5. Principles of anaesthetic management of neuro / cardiac / thoracic / vascular/ Transplantation / burn and plastic surgery
6. Principles of neonatal ventilation and critical care.
7. Principles of human resources and material management.
8. General principles of medical audit
9. Recent advances in anaesthesiology.
10. Operating room management

8.2 Practical skills training(psychomotor domain)

8.2.1 Resident Rotations

- Residents are expected to attain experience and practice in the psychomotor skills during their rotations in the Operation Theatres, Intensive Care Unit, Pre - anaesthetic Unit, Emergency Theatres, Pain Clinics, Peripheral areas like CT Room, MRI Room, Endoscopy room, interventional cardiology lab and ECT – along with case discussions and management plans.
- The resident will discuss the preoperative preparation of the patients and the intraoperative problems of cases being conducted on the day. During these postings the residents will initially observe and then perform various procedures and conduct the anaesthetic procedure as discussed. A log of everyday activities such as patient care, procedures performed and academic sessions attended will be entered by resident into an e - portfolio, a link of which will be sent to the respective consultant in - charge for review and comments.
- The recommended period of posting to achieve the goals is given in Table 3.

Table 3 showing the recommended number of months in speciality rotations for the resident

Basic Specialty Postings/Months		**Allied Postings/Months**		**Super Specialty Postings/Months**	
General surgery	5	Peripheral postings (Trauma)	1	CTVS	3
Obstetrics & Gynaecology	5			Neurosurgery	1
Orthopaedics	3			Paediatric surgery	2
ENT/Ophthalmology	3	Cardiology	1	Urology	2
OMFS	1			Plastic/burns	2
PAC/MRI/CT/Endoscopy	2			ICU	3
Pain clinic and acute pain services	2				
Total	21	Total	02	Total	13

8.2.2 Structured Graded Training –Year - wise Practical training objectives

First Year Objectives:

- The first year resident should be taught expertise in the management of ASA I and II cases. To start with they will observe and slowly become independent in giving general anaesthesia and spinal anaesthesia to ASA I & II cases for minor and major surgery, under graded supervision.
- The candidate should learn to perform basic and advanced cardiac life support.

Second Year Objectives

- The resident should be taught to give general anaesthesia and regional anaesthesia to ASA III & IV under supervision.
- They should be able to give extradural block, Spinal Block, and Peripheral Nerve Blocks under supervision.
- Should learn paediatric and trauma life supports and maintain skills for basic and advanced cardiac life support.
- The resident should be able to analyse data and write a dissertation. Should be able to present scientific data.

Third Year Objectives:

- The resident should be able to plan and administer anaesthesia to all patients under graded supervision, including patients for cardiac, Neurosurgery, Paediatric surgery and for all major surgery.
- The aim at the end is to be competent and independent soon after the third year of junior residency in providing anaesthesia to elective and emergency cases.
- The resident should be able to manage critically ill patient, treat intractable pain.
- They should also know how to organize mass casualty.

8.3 Eportfolio

E - portfolio: - It is an electronic portfolio to be maintained by the resident to record their day to day academic and patient care activities under the following sections:

- Entrustable Professional Activity assessment
- Daily log
- Patient care
- Procedure
- Dissertation
- Academic activities(Seminar, symposium, case presentation, journal club)
- Co - curricular activities (Conference, CME, Workshop),
- Teaching Assignments,
- Awards and achievements
- Outreach activities.

E - portfolio will be monitored and endorsed periodically by the faculty supervisors. This will enable faculty to monitor residents progress, attainment of milestones and impart the training accordingly.

9 Assessment

Assessment will have 2 components Formative and Summative

9.1 Formative assessment

9.1.1 Cognitive Assessment

- Assessment in Cognitive Domain - A theory test will be conducted at the end of every 6 months consisting of 10 questions of 10 marks each.
- Schedule of theory tests
    - 1st year – 2 papers consisting of syllabus from Course 1, including BLS/ACLS
    - 2nd year – 2 papers consisting of syllabus from Course 2 and 3
    - 3rd year – one paper consisting of syllabus from Course 4
    - 3rd year – Mock exams one month prior to University examination, consisting of 4 papers, including syllabus from all the four courses.

9.1.2 EPA Assessment

- Assessment of Entrustable Professional Activities (EPA) done during the OT posting by the consultant in - charge. EPA assessment will be done once by the end of the 1st week of the posting and then again at the end of the posting, for monitoring of resident progress.

List of EPA's

EPA1. Assessing normal patients / patients with controlled comorbid illness preoperatively, risk stratifying & optimizing them before surgery

EPA2. Assessing patients with comorbidity / patients with varying degrees of end organ damage preoperatively, risk stratifying & optimizing them before surgery

EPA3. Securing airway in patients with normal airway anatomy

EPA4. Securing airway in patients with Difficult airway

EPA5. Administering General Anaesthesia to patients of ASA I and II physical status.

EPA6. Administering General Anaesthesia to patients of ASA III and IV physical status.

EPA7. Managing Central Neuraxial Blockade in patients with ASA I & II physical status.

EPA8. Managing Central Neuraxial Blockade in patients with ASA III & IV physical status.

EPA9. Performing Peripheral nerve/Fascial plane blocks.

EPA10. Providing Monitored Anaesthesia Care

EPA11. Securing peripheral and central vascular access including invasive arterial access.

EPA12. Managing acute pain conditions

EPA13. Managing chronic pain conditions

EPA14. Managing anaesthesia for Cardiac Surgery

EPA15. Managing anaesthesia for Thoracic Surgery

EPA16. Managing anaesthesia for Neurosurgery

EPA17. Managing anaesthesia in Paediatric patients

EPA18. Managing anaesthesia in Obstetrics patients

EPA19. Managing the critically ill patient

EPA20. Conversant with pedagogic and andragogic methods of teaching and learning

EPA21. Formulating a research protocol, performing literature search, data collection and analysis.

9.1.3 EPA Descriptions

EPA1. PAC for ASA I & II

<table>
<tr><th colspan="4">Assessing normal patients / patients with controlled comorbid illness preoperatively, risk stratifying & optimizing them before surgery</th></tr>
<tr><td>Description for the activity</td><td colspan="3">The resident should be able to perform a focused general history, physical & systemic examination and risk stratification for patients with controlled comorbid conditions, coming for surgery.
They should be able to prescribe appropriate medications and fasting orders in preparation for anaesthesia and surgery.</td></tr>
<tr><td rowspan="6">Resident will be entrustable when these sub-competency Milestone Levels are attained</td><td>Relevant domains of competency</td><td>Sub - competencies within each domain</td><td>Milestone level (L) in sub-competency</td></tr>
<tr><td>MK</td><td>1</td><td>1 - L2</td></tr>
<tr><td>PC/PS</td><td>1</td><td>1 - L2</td></tr>
<tr><td>SBP</td><td>1</td><td>1 - L4</td></tr>
<tr><td>IPCS</td><td>1, 2</td><td>1 – L2; 2 – L4</td></tr>
<tr><td>P</td><td>1, 2, 3, 4</td><td>1 – L2; 2 – L3; 3 – L2; 4 – L2</td></tr>
<tr><td>Method of Assessment</td><td colspan="3">1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio
2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio.
3. Communication skills & Professionalism will be assessed by Multisource feedback.
4. Assessment done in PAC posting</td></tr>
</table>

EPA2. PAC for ASA III & IV

<table>
<tr><th colspan="4">Assessing patients with comorbidity / patients with varying degrees of end organ damage preoperatively, risk stratifying & optimizing them before surgery</th></tr>
<tr><td>Description for the activity</td><td colspan="3">Residents must be able to perform a focused general history, physical & systemic examination and risk stratification for patients with comorbid conditions with varying degree of end organ damage, coming for surgery.
They should be able to investigate, get appropriate cross consultation and implement optimization strategy. They should also be able to prescribe appropriate medication and fasting guidelines in preparation for anaesthesia and surgery.</td></tr>
<tr><td rowspan="6">Resident will be entrustable when these sub-competency Milestone Levels are attained</td><td>Relevant domains of competency</td><td>Sub - competencies within each domain</td><td>Milestone level (L) in sub - competency</td></tr>
<tr><td>MK</td><td>1</td><td>1 - L4</td></tr>
<tr><td>PC/PS</td><td>1</td><td>1 - L3</td></tr>
<tr><td>SBP</td><td>1</td><td>1 - L4</td></tr>
<tr><td>IPCS</td><td>1, 2</td><td>1 – L4; 2 – L4</td></tr>
<tr><td>P</td><td>1, 2, 3, 4</td><td>1 – L4; 2 – L4; 3 – L3; 4 – L3</td></tr>
<tr><td>Method of Assessment</td><td colspan="3">1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio
2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio.
3. Communication skills & Professionalism will be assessed by Multisource feedback
4. Assessment done in PAC posting</td></tr>
</table>

EPA3. Normal Airway management

Securing airway in patients with normal airway anatomy			
Description for the activity	The resident should be able assess and perform management of normal airway, this includes appropriate use of bag and mask, supraglottic, subglottic devices and airway gadgets.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	5	5 - L2
	PC/PS	2	2 - L2
	SBP	1, 2	1 - L3; 2 - L3
	PBLI	2	2 - L2
	IPCS	1, 2	1 - L2; 2 – L4
	P	3	3 - L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback. 4. EPA Assessment done during General Surgery and ENT Postings.		

EPA4. Difficult Airway management

Securing airway in patients with Difficult airway			
Description for the activity	The resident should be able to asses and perform management of difficult airway, this includes appropriate use of bag and mask, supraglottic, subglottic devices (including surgical access) and airway gadgets.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	5	5 - L4
	PC/PS	2	2 - L4
	SBP	1, 2	1 - L3; 2 - L4
	PBLI	2	2 - L3
	IPCS	1, 2	1 – L4; 2 – L4
	P	3	3 - L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in ENT and OMFS posting		

EPA5. GA management for ASA I and II

Administering General Anaesthesia to patients of ASA I and II physical status.			
Description for the activity	The resident should be able to administer general anaesthesia for patients with controlled comorbid illness in terms of - smooth induction, maintenance, monitoring and recovery. They should also be able to recognise and manage post - operative complications and appropriately manage them.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	2, 6, 8, 11, 12	2 - L2, 6 - L1, 8 - L2, 11 - L2, 12 - L1
	PC/PS	3, 6, 9, 10, 11	3 - L1, 6 - L3, 9 - L1, 10 - L3, 11 - L2
	SBP	1, 2, 3	1 - L4, 2 - L3, 3 - L3
	PBLI	1, 2	1 - L3, 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS, SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback. 4. Assessment done in General Surgery and ENT posting		

EPA6. GA Management for ASA III and IV

Administering General Anaesthesia to patients of ASA III and IV physical status.			
Description for the activity	The resident should be able to administer general anaesthesia for patients with uncontrolled comorbid illness/end organ damage in terms of - smooth induction, maintenance, monitoring and smooth recovery. They should also be able to recognise and manage intraoperative and post - operative complications.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	2, 6, 8, 11, 12	2 - L4, 6 - L3, 8 - L2, 11 - L4, 12 - L3
	PC/PS	3, 6, 7, 9, 10, 11	3 - L3, 6 - L4, 7 - L1, 9 - L3, 10 - L4, 11 - L4
	SBP	1, 2, 3	1 - L4, 2 - L3, 3 - L3
	PBLI	1, 2	1 - L3, 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS, SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in General Surgery and Urology posting		

EPA7. CNB for ASA I and II

Managing Central Neuraxial Blockade in patients with ASA I & II physical status.			
Description for the activity	The resident should be able to perform central neuraxial blockade in patients with controlled comorbid illness and be able to recognise and appropriately manage the complications.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	3	3 - L3
	PC/PS	4	4 - L3
	SBP	1, 2, 3	1 - L4; 2 - L3; 3 - L3
	PBLI	1, 2	1 - L3; 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in Orthopaedic, OG and Urology		

EPA8. CNB for ASA III and IV

Managing Central Neuraxial Blockade in patients with ASA III & IV physical status.			
Description for the activity	The resident should be able to perform central neuraxial blockade in patients with uncontrolled comorbid illness with varying degree of end organ damage, and be able to recognise and appropriately manage the complications.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	3	3 - L4
	PC/PS	4	4 - L4
	SBP	1, 2, 3	1 - L4, 2 - L4, 3 - L3
	PBLI	1, 2	1 - L3, 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS, SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in Orthopaedic, OG and Urology		

EPA9. PNB Management

Performing Peripheral nerve/Fascial plane blocks			
Description for the activity	The resident should be able to perform appropriate peripheral nerve/fascial plane blockade in patients, for surgical and non - surgical indications. They should be able to recognise and appropriately manage the complications.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	4	4 - L3;
	PC/PS	5	5 - L3
	SBP	1, 2, 3	1 - L4, 2 - L3, 3 - L3
	PBLI	1, 2	1 - L3, 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3	2 – L3, 3 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in Orthopaedic Posting		

EPA10.MAC

Providing Monitored Anaesthesia Care			
Description for the activity	To provide appropriate procedural sedation for surgical and non - surgical indication, inside and outside the operating suite, taking due consideration of airway, monitoring and application of discharge criteria. Recognize and manage complications.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	2, 6, 8, 10, 11, 13	2 - L4; 6 - L3; 8 - L2; 10 - L4; 11 - L4; 12 - L3
	PC/PS	3, 6, 7, 9, 10, 11	3 - L3; 6 - L4; 7 - L1; 9 - L3; 10 - L4; 11 - L4
	SBP	1, 2, 3	1 - L4; 2 - L3; 3 - L3
	PBLI	1, 2	1 - L3; 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS, SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in PAC posting		

EPA11.Vascular access Management

Securing peripheral and central vascular access including invasive arterial access.			
Description for the activity	Appropriately select the site, device and perform peripheral, central venous catheterisation and cannulate arteries for invasive blood pressure monitoring. Recognize and manage complications associated with vascular access.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	6, 12	6 - L3; 12 - L3
	PC/PS	3, 9	3 - L3; 9 - L3;
	SBP	1, 2, 3	1 - L4; 2 - L3; 3 - L3
	PBLI	1, 2	1 - L3; 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3	2 – L3, 3 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessement during APS, CTVS, CCM posting		

EPA12.Acute Pain Management

Managing acute pain conditions			
Description for the activity	To assess and diagnose commonly occurring acute pain disorders (including post - operative pain) and formulate and execute a treatment plan. The treatment should be monitored and accordingly adjusted. Recognize and manage complications, related to acute pain management.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	9, 3, 4	9 - L3; 3 - L3; 4 - L3
	PC/PS	8, 4, 5	8 - L3; 4 - L3, 5 - L3
	SBP	1, 2, 3	1 - L4; 2 - L3; 3 - L3
	PBLI	1, 2	1 - L3; 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback. 4. Assessment done in APS posting		

EPA13.Chronic Pain Management

Managing chronic pain conditions			
Description for the activity	Assess and diagnose commonly occurring chronic pain disorders, and formulate and execute a treatment plan. Monitor and adjust the treatment appropriately, recognize and manage complications.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	9, 3, 4	9 - L4; 3 - L3; 4 - L3
	PC/PS	8, 4, 5	8 - L3; 4 - L3, 5 - L3
	SBP	1, 2, 3	1 - L4; 2 - L3; 3 - L3
	PBLI	1, 2	1 - L3; 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback. 4. Assessment done in the APS posting		

EPA14.Cardiac Anaesthesia

Managing anaesthesia for Cardiac Surgery			
Description for the activity	Assess, prepare and manage anaesthesia administration for patients undergoing cardiac surgeries. Includes management of cardiopulmonary bypass, pharmacological and mechanical hemodynamic support, recognise and manage complications occurring in these procedures and patients.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	1, 2, 6, 8, 11, 12, 13	1 - L4; 2 - L4; 6 - L3; 8 - L2; 11 - L4; 12 - L4; 13 - L3
	PC/PS	1, 3, 6, 7, 9, 10, 11, 12	1 - L4; 3 - L3; 6 - L4; 7 - L3; 9 - L3; 10 - L4; 11 - L4; 12 - L3
	SBP	1, 2, 3	1 - L4; 2 - L3; 3 - L3
	PBLI	1, 2	1 - L3; 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in CTVS posting.		

EPA15.Thoracic Anaesthesia

Managing anaesthesia for Thoracic Surgery			
Description for the activity	Assess, prepare and manage anaesthesia administration for patients undergoing thoracic surgeries, including lung isolation techniques and management of one lung ventilation, recognition and management of complications occurring in these patients.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	1, 2, 5, 6, 8, 11, 12	1 - L4; 2 - L4; 5 - L4; 6 - L3; 8 - L4; 11 - L4; 12 - L4
	PC/PS	1, 2, 3, 6, 7, 9, 10, 11	1 - L4; 2 - L4; 3 - L3; 6 - L4; 7 - L3; 9 - L3; 10 - L4; 11 - L4
	SBP	1, 2, 3	1 - L4; 2 - L3; 3 - L3
	PBLI	1, 2	1 - L3; 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS, SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in CTVS posting.		

EPA16.Neuroanaesthesia

Managing anaesthesia for Neurosurgery			
Description for the activity	Assess, prepare and manage anaesthesia administration for neurosurgery patients, including ICP management, implementation cerebral protective strategies and adapt appropriate extubation protocol. Recognize and manage complications.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	1, 2, 5, 6, 8, 11, 12	1 - L4; 2 - L4; 5 - L3; 6 - L3; 8 - L2; 11 - L4; 12 - L4
	PC/PS	1, 2, 3, 6, 7, 9, 10, 11	1 - L4; 2 - L4; 3 - L3; 6 - L4; 7 - L3; 9 - L3; 10 - L4; 11 - L4
	SBP	1, 2, 3	1 - L4; 2 - L3; 3 - L3
	PBLI	1, 2	1 - L3; 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in Neurosurgery posting.		

EPA17.Paediatric Surgery

Managing anaesthesia for Paediatric patients			
Description for the activity	Assess, prepare and manage anaesthesia administration (general and regional) for paediatric/neonatal patients. This includes appropriate OT preparation, drug administration, fluid therapies, airway management, monitoring, postoperative pain and complication management strategies, specific to paediatric population.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	1, 2, 3, 4, 5, 6, 8, 10, 11, 12	1 - L4; 2 - L4; 3 - L4; 4 - L4; 5 - L4; 6 - L3; 8 - L2; 10 - L4; 11 - L4; 12 - L4
	PC/PS	1, 2, 3, 6, 7, 9, 10, 11	1 - L4; 2 - L4; 3 - L3; 6 - L4; 7 - L3; 9 - L3; 10 - L4; 11 - L4
	SBP	1, 2, 3	1 - L4; 2 - L3; 3 - L3
	PBLI	1, 2	1 - L3; 2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback 4. Assessment done in Plastic surgery, ENT and Paediatric surgery.		

EPA18.Obstetric Anaesthesia

Managing anaesthesia in Obstetrics patients			
Description for the activity	Assess, prepare and administer anaesthesia for obstetric patients. This includes appropriate OT preparation, implementation of aspiration prophylaxis, neonatal resuscitation, provide pain relief during labour, adapt resuscitation protocols for obstetric and non - obstetric surgeries.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	1, 2, 3, 5, 11	1 - L3; 2 - L3; 3 - L3; 5 - L3; 11 - L3
	PC/PS	1, 2, 4, 6, 7, 11	1 - L3; 2 - L3; 4 - L3; 6 - L3; 7 - L3; 11 - L3
	SBP	1, 2	1 - L3; 2 - L4
	PBLI	2	2 - L3
	IPCS	1, 2	1 – L3, 2 - L3
	P	2, 3, 4	2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio. 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback. 4. Assessment done in OG and Labour OT posting.		

EPA19.Critical Care Management

Managing the critically ill patient			
Description for the activity	Recognise, assess and diagnose the critically ill patients. Direct the treatment towards primary pathology. Implement appropriate supportive care to the vital organ function (includes respiratory, hemodynamic, renal and nutrition), and general supportive care. Effective communication with patient's relatives and other health care workers. To implement institute resuscitation protocols.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	7, 5, 6, 12	7 - L3; 5 - L3; 6 - L4; 12 - L4
	PC/PS	2, 3, 7, 9, 10	2 - L4; 3 - L3; 7 - L3; 9 - L4; 10 - L4
	SBP	1, 2, 3	1 - L4; 2 - L4; 3 - L3
	PBLI	2	2 - L3
	IPCS	1, 2	1 – L4, 2 – L4
	P	1, 2, 3, 4	1 – L4, 2 – L3, 3 – L3, 4 – L3
Method of Assessment	1. MK assessment will be done by the faculty either by direct interaction, written exam or eportfolio. 2. PC/PS,SBP & PBLI assessment will be done by the Faculty at the workplace and eportfolio. 3. Communication skills & Professionalism will be assessed by Multisource feedback. 4. Assessment done in CCM and A0 posting.		

EPA20.Teaching Skills

Conversant with pedagogic and andragogic methods of teaching and learning			
Description for the activity	Collect and comprehend learning resources, adapt different teaching methods, effectively communicate with medical and paramedical students.		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	14	14 - L4
	PC/PS	14	14 - L4
	IPCS	3	3 – L4
	P	1, 2, 3, 4	1 - L3; 2 – L3, 3 – L3, 4 - L3
Method of Assessment	1. PC/PS assessed by the faculty 2. Communication skills & Professionalism will be assessed by Multisource feedback.		

EPA21.Research

Formulating a research protocol, performing literature search, data collection and analysis			
Description for the activity	Develop and execute a protocol for a scientific research project, collect, analyze the data and scientifically communicate to others .		
Resident will be entrustable when these sub-competency Milestone Levels are attained	Relevant domains of competency	Sub - competencies within each domain	Milestone level (L) in sub - competency
	MK	14	14 - L4
	PC/PS	15	15 - L4
	PBLI	1	1 - L4
	IPCS	3	3 – L2
	P	1, 2, 3, 4	1 - L3; 2 – L3; 3 – L3 4 – L3
Method of Assessment	1. PC/PS assessed by the faculty 2. Communication skills & Professionalism will be assessed by Multisource feedback.		

9.1.4 Mapping of EPA to Programme Outcomes (PO)

Table 4 showing mapping of the EPA's to the Programme outcomes

	PO1.	PO2.	PO3.	PO4.	PO5.	PO6.	PO7.	PO8.
EPA1.	✓	✓	✓	✓	✓	✓		
EPA2.	✓	✓	✓	✓	✓	✓		
EPA3.	✓	✓	✓	✓	✓	✓		
EPA4.	✓	✓	✓	✓	✓	✓		
EPA5.	✓	✓	✓	✓	✓	✓		
EPA6.	✓	✓	✓	✓	✓	✓		
EPA7.	✓	✓	✓	✓	✓	✓		
EPA8.	✓	✓	✓	✓	✓	✓		
EPA9.	✓	✓	✓	✓	✓	✓		
EPA10.	✓	✓	✓	✓	✓	✓		
EPA11.	✓	✓	✓	✓	✓	✓		
EPA12.	✓	✓	✓	✓	✓	✓		
EPA13.	✓	✓	✓	✓	✓	✓		
EPA14.	✓	✓	✓	✓	✓	✓		
EPA15.	✓	✓	✓	✓	✓	✓		
EPA16.	✓	✓	✓	✓	✓	✓		
EPA17.	✓	✓	✓	✓	✓	✓		
EPA18.	✓	✓	✓	✓	✓	✓		
EPA19.	✓	✓	✓	✓	✓	✓		
EPA20.					✓	✓	✓	
EPA21.					✓	✓		✓

9.2 Summative assessment

9.2.1 Dissertation

Objectives

1. The student should be able to acquire capability in research by planning and conducting systematic scientific inquiry & data analysis and deriving conclusion.
2. Communicate scientific information for health planning.

Guide for dissertation

1. Chief guide will be allocated from the Department of Anesthesiology.
2. Co - guides can be selected from within the department or from other disciplines related to the dissertation topic.

Submission of dissertation protocol

It should be submitted at the end of six months after admission in the course, in the format prescribed by the institute:

1. Protocol in essence should consist of:
    a) Introduction and objectives of the research project.
    b) Brief review of literature
    c) Suggested materials and methods, and (scheme of work)
    d) Statistician should be consulted at the time of selection of groups, number of cases and method of study. He should also be consulted during the study.
    e) Bibliography
2. The protocol must be presented in the Department of Anesthesiology before being forwarded to the Institutional Research Committee (IRC) for review.
3. Protocol must be approved by the research committee, which is appointed by the Dean / Principal to scrutinize the dissertation protocol in references to its feasibility, statistical validity, ethical aspects, etc.

4. Once approved by the IRC, the protocol will be forwarded to the Institutional Human Ethics Committee (IHEC) for review.
5. After presentation and approval of the protocol by the IHEC, the dissertation must be registered in the Clinical Trial Registry of India - http://ctri.nic.in, following which data collection may be initiated.

Submission of dissertation

1. The dissertation shall relate to the candidates own work on a specific research problem or a series of clinical case studies in accordance with the approved plan.
2. The dissertation shall be written in English, printed or typed double line spacing, on white bond paper 22x28 cm with a margin of 3.5 cm, bearing the matter on one side of paper only and neatly bound with the title, the name of the College and University printed on the front cover.
3. The dissertation shall contain: Introduction, review of literature, material and methods, observations, discussion, conclusion and summary and reference as per index medicus.
4. Each candidate shall submit to the Dean four copies of dissertation, through their respective Heads of the Department not later than six months prior to the date of commencement of theory examination in the subject.

Evaluation of Dissertation:

1. The dissertation shall be referred by the University for Evaluation, to External Examiners appointed by the University. The examiners will evaluate and report independently to the Controller of Examinations using Proforma for Dissertation Evaluation Form and recommend whether the dissertation
    a. Accepted as submitted
    b. Accepted pending modification as suggested
    c. Not Accepted for reasons specified

2. The dissertation shall be deemed to be accepted when it has been approved by at least two external examiners, who will allocate marks from which an average will be taken.
3. If the dissertation is rejected by one of the external examiners it shall be referred to another external examiner (other than the one appointed for initial evaluation) whose judgment shall be final for purposes of acceptance or otherwise of the dissertation.
4. Where improvements have been suggested by the external examiners, the candidate shall be required to re - submit the dissertation, after making the required improvements for evaluation.
5. When a dissertation is rejected by the examiners, it shall be returned to the candidate who shall have to rewrite it. The second version of the dissertation, as and when submitted shall be treated as a fresh dissertation and processed.
6. Acceptance of dissertation submitted by the candidate is a pre - condition for his / her admission to the written, oral and practical / clinical part of the examination.
    a. Provided that under special circumstances if the report from one or more examiners is not received by the time the Post - Graduate examination is due, the candidate may be permitted provisionally to sit for the examination but the result be withheld till the receipt of the report, subject to the condition that if the dissertation is rejected then the candidate in addition to writing a fresh dissertation, shall have to reappear for the examination.
7. A candidate whose dissertation stands approved by the examiners but fails in the examination, shall not be required to submit a fresh one if he/she appears in the examination in the same branch on a subsequent occasion.

9.2.2 Eligibility Criteria

- Candidates will be eligible to appear for the university examinations after completion of 3years and when following criteria are fulfilled:
    1. Attendance of 80%
    2. Submission of dissertation and acceptance by external examiner
    3. One research Publication based on the Dissertation
    4. One poster and one Podium presentation at National or Regional conferences, recognised by Theory (Subject contents already outlined in syllabus)

9.2.3 Theory

- Final Theory Papers: 4 papers
- All papers should have 10 short answer questions.
- Question papers are prepared based on the prescribed blueprint described later (see blueprint section)
- Model question paper is attached for ready reference.

9.2.4 Practical

- The practical examination is structured and consists of 2 sessions - morning and afternoon.

Morning Session – one hour fifteen minutes			
Clinical Cases	Number	Duration	Marks
Long case	1	30 min.	100
Short cases	2	15 min each	100

- Structured Assessment (For Long Case)

Segment	Marks
Oral skills / Presentation	20
Diagnosis / Investigations	10

Preanesthetic Preparation	10
Anaesthetic management	40
Post operative complications & management	20

- Structured Assessment (For short Cases)

Segment	Marks
Diagnosis / Investigations	5
Preanesthetic Preparation	5
Anaesthetic management	30
Post operative complications & management	10

Afternoon Session				
Station		Examiner	Duration	Marks
		Session 1		
A.	4 OSCE stations – ECG,CXR,ABG,Capnography	1	10 min	4x5
B.	Viva voce – Drugs	2	10 min	20
C.	Viva voce - Anaesthesia Machine and Equipment	3	10 min	20
D.	CPR	4	10 min	20
		Session 2		
E.	Pedagogy	1,2	10 min	10
F.	E-Portfolio	3,4	10 min	10

- Total Marks allotted:

Segment	Total Marks
Theory (Papers 1 - 4)	400

Practical	200
Viva Voce + OSCE stations + Pedagogy + E-portfolio	100
Grand Total	700

Rotation Pattern

Session 1						
Stations	**A**	**B**	**C**	**D**	**Rest**	**Rest**
1 st Round	**1**	**2**	**3**	**4**	**5**	**6**
2nd Round	**6**	**1**	**2**	**3**	**4**	**5**
3 rd Round	**5**	**6**	**1**	**2**	**3**	**4**
4th Round	**4**	**5**	**6**	**1**	**2**	**3**
5th Round	**3**	**4**	**5**	**6**	**1**	**2**
6^{Th} round	**2**	**3**	**4**	**5**	**6**	**1**
Session 2						
Stations	**E**	**F**	**Rest**	**Rest**	**Rest**	**Rest**
7th Round	**1**	**2**	**3**	**4**	**5**	**6**
8th Round	**6**	**1**	**2**	**3**	**4**	**5**
9th Round	**5**	**6**	**1**	**2**	**3**	**4**
10th Round	**4**	**5**	**6**	**1**	**2**	**3**
11th Round	**3**	**4**	**5**	**6**	**1**	**2**
12^{th} Round	**2**	**3**	**4**	**5**	**6**	**1**

Department of Anaesthesiology
Mahatma Gandhi Medical College and Research Institute
Session- Pedagogy

Rating scale: • 1-3 > Needs improvement, 4-7 > Meets expectations, 8-10 > Exceeds expectations

Name of Teacher:
1._____
2._____
3._____
4._____
5._____
6._____

Topic:
1._____
2._____
3._____
4._____
5._____
6._____

Skill	Teacher's action	Teacher Number					
		1	2	3	4	5	6
1. Set induction	1.1 Aroused interest in the beginning by relating to previous learning, throwing a new idea, questioning, etc.						
	1.2 Specified the objectives of presentation						
2.Planning	2.1 Organised material in a logical sequence						
	2.2 Used relevant content matter						
3.Presentation	3.1 Changed the pace of presentation by shifting emphasis,jokes,etc.						
	3.2 Used non-verbal cues, eye contact, etc.						
4. Pupil participation	4.1 Allowed questions from students						
	4.2 Solicited /Raised questions						
	4.3 Rewarded pupil effort						
5. Use of AV aids	5.1 Used proper AV aids effectively						
6. Closure	6.1 Summarised most important points at the end of the session						
7. Lesson on the whole was effective							
Overall score out of 100 averaged to 10							

- Recommendations for passing:

1. The candidate will be required to secure minimum 50% marks in theory and 50% marks in clinicals and viva - voce separately, which is mandatory for passing the whole examination.
2. There will be enough gap between theory and practical examination as recommended by MCI rules.
3. There university practical examination will be conducted by 2 external and 2 internal examiners.

10 Blueprint of Theory exam paper

PAPER	SUBJECT	ALLOCATION
BASIC SCIENCES AS APPLIED TO ANAESTHESIOLOGY		
PAPER I	Anatomy	20%
	Physiology	20%
	Pharmacology	30%
	Physics and Equipment	20%
	History, Statistics, Ethics &medico legal aspects	10%
CLINICAL ANAESTHESIOLOGY (ANAESTHESIA IN RELATION TO ASSOCIATED SYSTEMIC DISEASES)		
PAPER II	Preoperative evaluation & optimization of patient with concurrent illness of respiratory system, cardiovascular system, renal system, central nervous system, hepato biliary system, diabetes mellitus and thyroid.	10%
	Obstetric anaesthesia and analgesia	10%
	Central neuraxial anaesthesia	10%
	Peripheral nerve blocks	10%
	Orthopaedic surgeries in elective & emergency situation	10%
	Anaesthesia for endocrine diseases	10%
	Anaesthesia for ENT	10%
	Anaesthesia for Laparoscopic/endoscopic surgeries	10%
	Airway assessment and difficult airway management	10%
	Post anaesthesia care unit and Postoperative complications arising out of any anaesthetic procedure or surgery with areas concerned in this paper	10%
ANAESTHESIA IN RELATION TO SUB SPECIALITIES		
PAPER III	Anaesthesia for cardiovascular surgery	20%
	Anaesthesia for Thoracic surgeries	10%
	Anaesthesia for neurosurgery	20%
	Paediatric Anaesthesia	10%
	Anaesthetic Management for neonatal surgeries	10%
	Anaesthesia for Urogenital, Hepatic, Gastroenterological surgeries.	10%
	Anaesthesia for Ophthalmic, Maxillofacial, Dental surgeries, geriatric, bariatric and organ transplant surgeries	10%
	Plastic surgery and burns	10%
RECENT ADVANCES, CRITICAL CARE AND PAIN		
PAPER IV	Resuscitation and organization of its facilities	20%
	Intensive care medicine	20%
	Pain management(acute and chronic)	20%
	Anaesthesia for Day care anaesthesia	10%
	Anaesthesia services at remote locations – Endoscopy suite, Radiology suites.	10%
	Recent advances in Anaesthesiology	20%

11 Model Question Paper

PAPER I

M. D. ANAESTHESIOLOGY
PAPER I
Applied Basic Sciences in Relation to Anaesthesiology
Answer all questions.
Draw diagrams where necessary

Time: 3 Hours Maximum Marks: 10 x 10 = 100

1.	Describe the applied anatomy of human larynx Cartilages and ligaments. (3) Innervation. (2) Different types of vocal cord palsies. (3) Clinical implication. (2)	Anatomy 20%
2.	Describe anatomy of coronary circulation with the help of diagrams. (4) Determinants of coronary blood flow. (4)	
3.	Write steps of Acetylcholine synthesis and metabolism. (3) Pre - synaptic and postsynaptic events in neuromuscular transmission (5) and applied aspects of neuromuscular physiology. (2)	Physiology 20%
4.	Describe countercurrent mechanism in loop of Henley (5) diagrammatic representation of multiplication and establishment of osmotic gradient(3) Discuss its clinical applications (2).	
5.	Compare and contrast Sevoflurane and Desflurane in terms of: Pharmacokinetics (MAC, Blood –gas solubility) (5) Effects on various organ systems in humans (5).	Pharmacology 30%
6.	Enumerate local anaesthetic systemic toxicity of bupivacaine in terms of: Central nervous system symptoms(2) Cardiovascular symptoms(3) Why is it difficult to treat bupivacaine toxicity(2) Management of LAST(2)	
7.	Define MAC, MAC - BAR, MAC - Awake (4), MAC of commonly used volatile agents and gases (2) Describe the factors affecting MAC (4).	
8.	Describe Venturi effect and its derivation from Bernoulli's principle with diagram (6) Write on the clinical implications of Venturi effect(4)	Physics and equipment 20%
9.	Functional analysis of Bain's circuit in spontaneous respiration (3) Controlled ventilation (3) Checking integrity of inner and outer tube of Bain's circuit(4).	
10.	Sir Ivan Magill's contributions to anaesthesia Anaesthetic breathing systems (3) Airway devices and laryngoscopes (4) Other contributions(3)	History 10%

PAPER II

M. D. ANAESTHESIOLOGY

PAPER – II

Clinical Anaesthesiology - Anaesthesia in relation to Associated Systemic diseases

Answer all questions

Draw diagrams where necessary

Time: 3 Hours Maximum Marks: 10 x 10 = 100

1.	A patient with chronic obstructive pulmonary disease is posted for inguinal hernioplasty - Discuss the preoperative evaluation (3), Preoperative optimisation (5), Post - operative analgesia plan (2)	Preoperative Evaluation and preparation 10%
2.	Discuss the anaesthetic management of 30 year old primipara at 36 weeks of gestation with eclampsia posted for emergency LSCS.	Obstetric 10%
3.	Discuss the central neuraxial opioids in terms of mechanism of action,(3) indications (3) and adverse effects (4)	Central neuraxial blockade 10%
4.	Draw a labelled diagram of brachial plexus. (4) Discuss supraclavicular approach for brachial plexus block in terms of indications, contraindications (2) technique, (2) and complications. (2)	Peripheral nerve blocks 10%
5.	Discuss the pathophysiology, (2) diagnosis (2) and management (4) of Bone cement syndrome.	Orthopaedic 10%
6.	Discuss the manifestation and management of thyroid storm.	Endocrine 10%
7.	Post tonsillectomy bleeding Discuss anaesthetic concerns (5), induction technique (5)	ENT 10%
8.	Discuss the physiological effects of Capnoperitoneum on various organ systems.	Laparoscopy 10%
9.	Percutaneous tracheostomy - Indications (2), contraindications (2), technique (3), complications (3).	Difficult airway 10%
10.	Describe the post anaesthesia discharge scoring system.	PACU 10%

PAPER III

M. D. ANAESTHESIOLOGY

PAPER III

Anaesthesia in relation to sub - specialities

Answer all questions.

Draw diagrams where necessary

Time: 3 Hours Maximum Marks: 10 x 10 = 100

1.	Discuss the anaesthetic considerations of off pump coronary artery bypass surgery in terms of: Indication (2) Preoperative evaluation (2) Maintenance (6)	Cardiovascular surgery 20 %
2.	Classify aortic aneurysm , (2) describe the clinical presentation (2) explain the various strategies of spinal cord protection during thoracic aortic aneurysm (6)	
3.	Discuss the indication of one lung ventilation, (2) Enumerate the type of bronchial blocker, (2) Placement of DLT and confirmation checklist(3) Methods to improve oxygenation in one lung ventilation(3)	Thoracic surgery 10%
4.	Enumerate and briefly describe the complications anticipated during posterior cranial fossa surgery. (5) Discuss the diagnosis, prevention and management of venous air embolism. (5)	Neurosurgery 20%
5.	A 16 - year - old girl is undergoing corrective surgery for thoracolumbar scoliosis. Discuss methods available to monitor integrity of spinal cord function (6) Advantages and disadvantages of each method. (2) + (2)	
6.	Draw the types of trachea - esophageal fistula. (2) Describe the anaesthetic considerations of a 2 - day old neonate posted for repair of Tracheo - esophageal fistula. induction and intubation (2)	Neonatal surgery 10%
7.	Discuss various options available for postoperative analgesia after cleft palate surgery.	Paediatric anaesthesia 10%
8.	Enumerate the various irrigation fluids used for TURP with advantages and disadvantages of each. (3) Discuss the signs and symptoms of TURP syndrome (3) Discuss the management of TURP syndrome(4)	Urogenital surgery. 10 %
9.	Describe the pre - anaesthetic evaluation (5) and anaesthetic concerns (5) for 85 - year - old male posted for inguinal hernioplasty.	Geriatric 10 %
10.	Describe estimation of percentage of burns with the help of diagram. (3) Discuss immediate fluid resuscitation in a 5 kg patient of burns (2) Discuss inhalational burns injury - signs, management.(5)	Plastic surgery/burns 10%

PAPER IV

M. D. ANAESTHESIOLOGY

PAPER IV

Resuscitation, Critical Care, Pain management, and recent advance in Anaesthesiology

Answer all questions

Draw diagrams where necessary

Time: 3 Hours | Maximum Marks: 10 x 10 = 100

1.	Discuss the differences between 2010 and 2015 AHA guidelines for Basic life support. (10)	Resuscitation and organization of its facilities 20%
2.	Discuss primary survey in advance trauma life support. (10)	
3.	Total parenteral nutrition - Discuss the initiation,(2) maintenance,(2) monitoring (3) and common complications.(3)	Intensive care medicine 20%
4.	Non - invasive ventilation - Discuss the, indications,(2) settings,(3) contraindications(2) and complications (3)	
5.	Draw a neat labelled diagram of pain pathway. (3) Define multimodal analgesia? (2) Discuss the rationale and methods to administer multimodal analgesia.(5)	Pain management Acute & chronic 20%
6.	Draw a diagram of clinical anatomy of Coeliac plexus, (3) indications and contraindications block, (2) technique, (3) complications (2).	
7.	Discuss the anaesthetic considerations for patients undergoing day care surgery (10)	Anaesthesia for day care surgery 10%
8	Discuss the considerations and anaesthetic management for 6 year old child undergoing MRI for a spinal tumour. (10)	Anaesthesia for remote locations 10%
9	Dexmedetomidine - Discuss the pharmacokinetics,(3) pharmacodynamics,(3) indications (2) and adverse effects (2).	Recent advances 20%
10	Describe physical principle of ultrasound (5). Briefly describe about FAST SCAN (5)	

12 Recommended reading

List of recommended books

S. No	Name of the book	Author name
1	Anaesthesia for infants and children	R.M. Smith
2	A practice of anaesthesia	Wylie and Churchill
3	Anaesthesia – Vol - I	Miller
4	Anaesthesia – Vol - II	Miller
5	Clinical Anaesthesia	Barash
6	Cardiac anaesthesia	Kaplan
7	ICU Book	Paul Marino
8	Pharmacology & Physiology in anaesthetic practice	Robert k. Stoelting
9	Anaesthesiology	David E. Longnecker
10	Obstetric Anaesthesia	David Chestnut
11	Text Book of Anaesthesia	Aitken Head, Row Botham
12	Clinical Anaesthesiology	Morgan Mikhail
13	Ward's Anaesthesia Equipments	Moyle & Davy
14	Practical Applications of Mechanical Ventilation	Shaila Shodhan Kamat
15	Atlas of sonoanatomy for regional anaesthesia and pain medicine	Manoj K karmakar
16	Anaesthesia & Co - existing disease	Stoelting
17	Equipment in Anaesthetic Practice	Dorsch & Dorsch
18	Hand Book of Neuro Anaesthesia	Phillipa New Field
19	Anesthesiologists manual of surgical procedures	Jaffe R.A
20	Understanding Paediatric Anaesthesia	Rebecca Jacob

List of recommended journals

S. No	Name of the Journal
1	Anesthesia & Analgesia
2	British Journal of Anaesthesia
3	Indian Journal of Anaesthesia
4	Journal of Anaesthesia and Pharmacology
5	Indian Journal of Critical Care Medicine
6	Journal of Respiratory and Critical Care
7	Regional Anaesthesia & Pain Medicine

13 Annexures - Assessment and Feedback forms

Description of the forms

The ultimate goal of resident is to achieve proficiency in anaesthesia. Proficiency relates to knowledge, skill and attitude. Summative examination assesses knowledge component only to major extent. But, formative assessment through skill assessment and multisource feedback assess resident skill and attitude also. In addition, certifying the level of resident entrustability for the intended activities upon completing their MD degree is the need of the hour to make resident understand where he or she stands. The following forms are employed to ensure an objectivity in entrustabiliy for resident skills, knowledge and attitude. The questions are mapped to various sub-competencies and milestone levels.

Direct observation of procedural skills form (DOPS) had been used by the faculty to assess the procedural skills. Multisource feedback system gathers input about student attitude from various stakeholders like faculty, peers, patients, and other healthcare professionals.

The questions in the feedback forms are mapped to an appropriate competency level. Software solution is used to compute multiple feedbacks from the faculty, analyze and display the competency level reached by the resident according to the fed algorithm. This output is used for providing feedback to residents during EPA assessment.

The purpose of these feedback mechanisms is to guide residents about their progress in their journey toward becoming highly skilled anaesthesiologists. These feedback processes play a crucial role in shaping the future of anaesthesiology residents, ensuring that they meet the standards of excellence in their field.

Annexure 1 – Multisource Evaluation forms

Annexure 1A – Faculty

MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH INSTITUTE
PILLAIYARKUPPAM, PUDUCHERRY – 607 402

(To be completed by faculty)

Name of the Resident: UIN No

Name of the Faculty:

2. Date of assessment

3. Being regular and punctual. Makes their presence respectful, with their physical appearance and wearing appropriate attire

P1- Punctuality, honesty and self-discipline	Level 1

4. Follows the standard operating protocols as defined by the department.

SBP1 - Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.	Level 3

5. Gathers the needed information during History taking and physical examination in a respectful manner and gives the necessary information regarding choice of management

IPCS1 - Communication with patients and their care givers	Level 3

6. Communicates the risks involved in understandable language and obtains consent without making the patient/attenders apprehensive and allows them to express their concerns.

IPCS1 - Communication with patients and their care givers	Level 3

7. Makes decisions which are ethically sound

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 3

8. Conveys the required information clearly to the consultants, peers and other health care workers.

IPCS2 - Communication with peers/Faculty/other health care workers/paramedical and support – within speciality and with other specialties	Level 2

9. Has the ability to teach and train peers

PC/PS13 - Demonstrate ability to take seminars, conduct journal clubs and conduct teaching and training sessions	Level 3

10. Shows respect and obedience towards consultants, peers and other health care workers.

P1 - Punctuality, honesty and self-discipline	Level 2

11. Readily accepts constructive feedback from consultants.

P3 - Ability to receive feedback/reflect and respond and give feedback to others respectfully.	Level 2

12. Maintains emotional balance during triggering situations, people and environment.

P1- Punctuality, honesty and self-discipline	Level 4

13. Considers cost effectiveness during case management

SBP3 - Acquire an understanding of cost effectiveness in health care	Level 1

14. General comments

Annexure 1B – Peers

MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH INSTITUTE
PILLAIYARKUPPAM, PUDUCHERRY – 607 402

(To be completed by peers)

Name of the Resident: UIN No

Name of the peers:

2. Date of assessment

3. Communicates the risks involved in understandable language and obtains consent without making the patient/attenders apprehensive and allows them to express their concerns

IPCS1 - Communication with patients and their care givers	Level 3

4. Cares and shows respect towards patients

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 2

5. Conveys clearly the patient clinical condition and management to the peers for continuity of patient care

IPCS1 - Communication with patients and their care givers	Level 3

6. Regular and maintains punctuality

P1 - Punctuality, honesty and self-discipline	Level 2

7. Being respectful with peers

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 2

8. Acknowledges gaps in personal knowledge and expertise. Readily accepts constructive feedback from peers

P3 - Ability to receive feedback/reflect and respond and give feedback to others respectfully.	Level 3

9. Maintains emotional balance during triggering situations, people and environment.

P1- Punctuality, honesty and self-discipline	Level 4

10. Has the ability to teach and train peers

PC/PS13 - Demonstrate ability to take seminars, conduct journal clubs and conduct teaching and training sessions	Level 3

11. Communicates effectively with other health professionals

IPCS2 - Communication with peers/Faculty/other health care workers/paramedical and support staff – within speciality and with other specialties	Level 3

12. General comments

Annexure 1C – Nursing staff

MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH INSTITUTE
PILLAIYARKUPPAM, PUDUCHERRY – 607 402

(To be completed by Nursing staff)

Name of the Resident: UIN No

Name of the Nursing staff:

2. Date of assessment

3. Does the resident communicate the steps involved in patient care in an understandable language without making the patients apprehensive.

IPCS1 - Communication with patients and their care givers	Level 3

4. Does the resident cares and shows respect towards patients while performing procedure.

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 2

5. Does the resident conveys the required information clearly to the staff nurse

IPCS2 - Communication with peers/Faculty/other health care workers/paramedical and support staff – within speciality and with other specialties	Level 3

6. Is the resident regular and punctual

P1 - Punctuality, honesty and self-discipline	Level 2

7. Is the resident respectful with you

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 2

8. Does the resident handles the equipment gently with care

SBP1 - Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.	Level 3

9. Does the resident behave appropriately in stressful situations

P1- Punctuality, honesty and self-discipline	Level 4

10. Does the resident follows safety checklists.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

11. General comments

Annexure 1D – Anaesthesia Technician

2. Date of assessment

3. Does the resident communicate the steps involved in patient care in an understandable language without making the patients apprehensive.

IPCS1 - Communication with patients and their care givers	Level 3

4. Does the resident cares and shows respect towards patients while performing procedure.

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 2

5. Does the resident conveys the required information clearly to the technician.

IPCS2 - Communication with peers/Faculty/other health care workers/paramedical and support staff – within speciality and with other specialties	Level 3

6. Is the resident regular and punctual.

P1 - Punctuality, honesty and self-discipline	Level 2

7. Is the resident respectful with you

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 2

8. Does the resident handles the equipment gently and follows cost effectiveness

SBP3- Acquire an understanding of cost effectiveness in health care	Level 3

9. Does the resident behave appropriately in stressful situations

P1- Punctuality, honesty and self-discipline	Level 4

Annexure 1E - Patient/ Patient relatives

1. Date of assessment

2. Did the doctor explain your clinical condition and treatment plan and the risks involved in understandable language and allows you to express your concerns.

IPCS1 - Communication with patients and their care givers	Level 2

3. Was the doctor respectful with you and your relatives

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 3

4. Did the doctor clear your the doubts while taking informed consent.

IPCS1 - Communication with patients and their care givers	Level 3

5. Was the doctor caring and respectful during your procedure

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 3

6. Was the doctor wearing appropriate attire and introduced themselves

P1- Punctuality, honesty and self-discipline	Level 1

Annexure 2 – Seminar

MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH INSTITUTE
PILLAIYARKUPPAM, PUDUCHERRY – 607 402

Evaluation sheet for postgraduate seminar

(To be marked individually by each faculty)

Name of the Resident: UIN No

Name of the Faculty:

2. Introduction of subject and its importance / Objectives

MK14 - Acquire knowledge required for presenting seminar and journal club.	Level 1

3. Confidently vocalises the topic clearly with good language articulation - both subject oriented and general grammer.

IPCS3 - Communication skills required for teaching and training – Seminars, case presentations and Journal clubs	Level 3
PC/PS13 - Demonstrate ability to take seminars, conduct journal clubs and conduct teaching and training sessions	Level 2

4. Communicates effectively with students, ensuring audience has understood.

IPCS3 - Communication skills required for teaching and training – Seminars, case presentations and Journal clubs	Level 3

5. Consulted all relevant literature

MK14 - Acquire knowledge required for presenting seminar and journal club.	Level 2

6. Use of audio - visual aids

7. Understanding of subject

MK14 - Acquire knowledge required for presenting seminar and journal club.	Level 2

8. Summary and take home message

PC/PS13 - Demonstrate ability to take seminars, conduct journal clubs and conduct teaching and training sessions	Level 3

9. Cites appropriate references / suggests further reading

PBLI1 - Acquire the ability to critically appraise medical literature	Level 2

10. Arrives on time, conducts the class/journal club / Case presentation as per the stipulated time and format.

P1- Punctuality, honesty and self-discipline	Level 3

11. Confidently able to answer questions, raised during the presentation, without a biased reproach.

MK14 - Acquire knowledge required for presenting seminar and journal club.	Level 3

12. General comments

Annexure 3 – Journal Club

2. Relevance of article chosen

MK14 - Acquire knowledge required for presenting seminar and journal club.	Level 1

3. Identifies the problem addressed in the paper

MK14 - Acquire knowledge required for presenting seminar and journal club.	Level 3

4. Confidently vocalises the topic clearly with good language articulation - both subject oriented and general grammar.

IPCS3 - Communication skills required for teaching and training – Seminars, case presentations and Journal clubs	Level 3

5. Analyses and gives comments on methodology and statistics

PBLI1 - Acquire the ability to critically appraise medical literature	Level 3

6. Brief summary of results

PC/PS14 - Demonstrate ability to conduct and assist with research	Level 2

7. Understands how to critically analyse and compare article relevant to topic/practise

MK14 - Acquire knowledge required for presenting seminar and journal club.	Level 3

8. Merits and demerits of the paper

PBLI1 - Acquire the ability to critically appraise medical literature	Level 3

. Summary and take home message

PC/PS14 - Demonstrate ability to conduct and assist with research	Level 4

10. Brings out relevant articles in the journal giving future directions to the specialty

PBLI2 - Cultivate habits for self -directed learning	Level 2

11. Answers relevantly to questions, attitude and confidence during answering.

MK14 - Acquire knowledge required for presenting seminar and journal club.	Level 4

12. General comments

Annexure 4 - Case Presentation

MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH INSTITUTE
PILLAIYARKUPPAM, PUDUCHERRY – 607 402
Evaluation sheet for postgraduate case presentation
(To be marked individually by each faculty)

Name of the Resident: UIN No

Name of the Faculty: Date:

2. Training year

3. Category of case

4. Elicits appropriate history that is accurate and complete pertaining to comorbid conditions, previous anaesthesia, surgery, and pharmacotherapy

MK1 - Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation	Level 1
IPCS1 - Communication with patients and their care givers	Level 2

5. Cogency of presentation (Ability to be clear, logical and convincing)

IPCS3 - Communication skills required for teaching and training – Seminars, case presentations and Journal clubs	Level 2

6. Accuracy and completeness of general and systems/local physical examination

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 1

7. Accuracy and completeness of Airway examination and examination relevant for anaesthetic management

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8. Other systemic examination

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 1

. Summarizes the case and analyses the appropriate differential diagnoses

MK1 - Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation	Level 1

MK1 - Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation	Level 1
PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 1

11. Investigations required : Completeness of list, relevant order, interpretation of investigations

12. Management principles and details

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 3

13. Arrives on time, conducts the class/journal club / Case presentation as per the stipulated time and format.

P1- Punctuality, honesty and self-discipline	Level 3

14. Overall performance – relevant answers to questions, attitude during presentation and confidence

Annexure 5 - Work Based assessment forms

Central Neuraxial Blockades

1. Training Year
2. Date of assessment
3. Speciality Posting
4. ASA status of the patient
5. Specialty/Region
6. Procedure
7. Site
8. Status
9. Demonstrates appropriate pre-procedural preparation
1. Measures baseline recording of vitals
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
2. Ensures proper positioning of the patient
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
3. Ensures adequate comfort of the patient / pain relief prior to procedure.
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
4. Practices aseptic technique
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
5. Ability to get intra - thecal space in reasonable number of attempts
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
5. Ability to reach the epidural space in reasonable number of attempts
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
6. Able to comprehend LA volume/ dosage to be administered
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
6. Able to place the catheter in the epidural space
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
7. Demonstrates epidural level assessment
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
7. Performed spinal block independently
PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade
7. Demonstrates spinal level assessment

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

4. Ability to discuss the reasons for not reaching the epidural space in the first attempt

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

8. Ability to get intra - thecal space in reasonable number of attempts PC/PS4 - Demonstrate

ability to perform and manage central neuraxial blockade	

8. Ability to discuss reasons for not reaching intra-thecal space in first attempt

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

9. Demonstrates technical ability in difficult scenario

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

9. Able to comprehend LA volume/ dosage to be administered

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

10. Seeks help when appropriate

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

10. Demonstrates spinal level assessment

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

11. Able to place the catheter in the epidural space

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

11. Troubleshoot inappropriate placement of catheter

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

12. Troubleshoot inappropriate placement of catheter

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

12. Seeks help when appropriate

PC/PS4 - Demonstrate ability to perform and manage central neuraxial blockade	

Department of Anaesthesiology, MGMCRI

General anaesthesia

Resident information:

Name:

1. Training year

2. Speciality Posting

3. ASA status of the patient

4. Complexity / Specialty / Region

Medical Knowledge

Kindly keep in mind the ASA of the patient and the specialty to which the case belongs while filling up this section

1. Knowledge of the dose, pharmacokinetics & pharmacodynamics of the drugs used in the case.

MK2 - Acquire knowledge specific to General Anaesthesia Drug Administration	Level 3

2. Knowledge of dose adjustments, drug interactions and pharmacodynamics in differing patient conditions – Comorbid illness, Geriatrics, Paediatrics.

MK2 - Acquire knowledge specific to General Anaesthesia Drug Administration	Level 3

3. Knowledge of anticipated complications / problems that may arise during conduct of anaesthesia in this case.

MK2 - Acquire knowledge specific to General Anaesthesia Drug Administration	Level 3

4. Knowledge of dose of NMB drugs and neuromuscular monitoring for reversal of neuromuscular blockade.

MK2 - Acquire knowledge specific to General Anaesthesia Drug Administration	Level 3

5. Knowledge of complications that can occur in recovery and their appropriate management.

MK2 - Acquire knowledge specific to General Anaesthesia Drug Administration	Level 3

Preprocedural

1. Effectively communicates with patients to alleviate apprehension before the procedure.

IPCS1 - Communication with patients and their care givers	Level 3

2. Ensures documentation of informed consent.

IPCS1 - Communication with patients and their care givers	Level 1

3. Communicates clearly with consultants / peers / other health care workers, regarding plan of care.

IPCS2 - Communication with peers/Faculty/other health care workers/paramedical and support – within speciality and with other specialties	Level 3

4. Performs anaesthesia machine check, loads emergency drugs and confirms alternate ventilation systems including medical gases prior to procedure.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

5. Follows the WHO surgical safety checklist, prior to procedure.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

6. Appropriately selects and prepares instruments, drugs required for procedure and recovery and follows aseptic technique.

SBP1 - Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.	Level 4

Induction

1. Confirmation and documentation of baseline vitals.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

2. Communication with patient before induction.

3. Practices repeat back of orders, during drug administration and airway management as safety measure.

4. Appropriate selection of airway maintenance technique.

MK5 - Acquire knowledge required for airway management	Level 2
PC/PS2 - Demonstrate procedural skills for airway management	Level 2

5. Ensures sterile precautions during IV injection and handling IV fluids.

PC/PS11 - Demonstrate appropriate fluid management/blood product administration	Level 2

6. Demonstrates appropriate drug dose adjustments according to patient's response.

MK2 - Acquire knowledge specific to General Anaesthesia Drug Administration	Level 2

7. Establishes patent airway smoothly

8. Has chosen appropriate breathing system and flowrates according to the technique and patient requirements.

9. Sets up mechanical ventilation device according to patients' characteristics.

PC/PS10 - Demonstrate management required for mechanical ventilatory care in ICU /positive pressure ventilation (PPV) during general anaesthesia	Level 3
MK8 - Acquire knowledge required for mechanical /controlled ventilation	Level 2

Maintenance

1. Demonstrates care of airway device under anaesthesia.

SBP1 - Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.	Level 3

2. Care of eyes and pressure points

3. Care during patient positioning

4. Monitoring during anaesthesia - Ensures adequate depth of anaesthesia while balancing circulation / oxygenation / ventilation / temperature management and metabolic homeostasis.

MK12 - Acquire knowledge required for monitoring patients	Level 2

5. Attitude / Behavior during conduct of anaesthesia

6. Ability to troubleshoot and manage changes in circulation / oxygenation / ventilation / temperature management and metabolic homeostasis.

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	Level 2

7. Facilitates adequate analgesia and muscle relaxation throughout.

Recovery

1. Appropriate timely discontinuation of inhalational / IV anaesthetic agents.

2. Administers timely appropriate dose of reversal agent.

3. Ensures clinical features of adequate recovery from neuromuscular blockade.

4. Ensures optimal patient positioning for extubation.

5. Ensures adequate oxygenation, ventilation, intact airway reflexes and clear airway prior to extubation.

6. Actively involved in transition of care till the patient reaches the Post Anaesthesia Care Unit

7. Accurate documentation of monitoring/events in the anaesthesia booklet.

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Airway

Resident information:
Name:

1. Training year

2. Speciality Posting

3. ASA status of the patient

4. Specialty/Region

5. Procedure

Medical Knowledge

1. Understands the airway anatomy, and assessment of airway

MK5 - Acquire knowledge required for airway management	Level 1

2. Knowledge equipment related to management of airway – Mask, laryngoscope, endotracheal tubes, supraglottic airway devices, airways, gum elastic bougies

MK5 - Acquire knowledge required for airway management	Level 2

3. Knows the Difficult Airway Guidelines and management

MK5 - Acquire knowledge required for airway management	Level 3

4. Knowledge about Video laryngoscopes and Fibreoptic bronchoscope.

MK5 - Acquire knowledge required for airway management	Level 3

Preprocedural

1. Effectively communicates with patients to alleviate apprehension before the procedure.

IPCS1 - Communication with patients and their care givers	Level 3

2. Ensures documentation of informed consent.

IPCS1 - Communication with patients and their care givers	Level 1

3. Communicates clearly with consultants / peers / other health care workers, regarding plan of care.

IPCS2 - Communication with peers/Faculty/other health care workers/paramedical and support – within speciality and with other specialties	Level 3

4. Performs anaesthesia machine check, loads emergency drugs and confirms alternate ventilation systems including medical gases prior to procedure.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

5. Follows the WHO surgical safety checklist, prior to procedure.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

6. Appropriately selects and prepares instruments, drugs required for procedure and follows aseptic technique.

SBP1 - Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.	Level 4

Prior to Induction

1. Ensures proper airway assessment prior to induction

PC/PS2 - Demonstrate procedural skills for airway management	

2. Chooses appropriate size mask and airway adjuncts for bag mask ventilation PC/PS2 -

Demonstrate procedural skills for airway management	

3. Ability to choose the type of laryngoscope, size, and type of endotracheal tube / supraglottic airway device relevant to surgical requirements

PC/PS2 - Demonstrate procedural skills for airway management	

4. Ensures optimal head elevated laryngoscopy (Sniffng) position (HELP).

PC/PS2 - Demonstrate procedural skills for airway management	

5. Adequately uses C and E technique for holding mask, ensuring satisfactory chest rise and capnography trace during spontaneous breathing

PC/PS2 - Demonstrate procedural skills for airway management	

6. Effectively Preoxygenates patient, ensuring end tidal Oxygen Concentration > 92% before induction?

PC/PS2 - Demonstrate procedural skills for airway management	

7. Verbally confirms ability to assist ventilation after induction and proceed with neuromuscular blockade.

PC/PS2 - Demonstrate procedural skills for airway management	

Endotracheal Intubation

1. Ensures adequate depth of anaesthesia / relaxation for laryngoscopy

PC/PS2 - Demonstrate procedural skills for airway management	

2. Ensure ergonomics by adjusting table height and own posture PC/PS2 -

Demonstrate procedural skills for airway management	

3. Proficiency in performing laryngoscopy in terms of Mouth opening, Handling scope and Laryngeal exposure

PC/PS2 - Demonstrate procedural skills for airway management	

4. Can intubate without any external assistance using conventional Macintosh laryngoscope most of the time

PC/PS2 - Demonstrate procedural skills for airway management	

5. Appropriately uses optimal external laryngeal manipulation/ Airway adjuncts to facilitate smooth intubation,

PC/PS2 - Demonstrate procedural skills for airway management	

6. Ensures adequate inflation of endotracheal cuff.

PC/PS2 - Demonstrate procedural skills for airway management	

7. Confirms proper placement of endotracheal tube through four-point auscultation and capnography

PC/PS2 - Demonstrate procedural skills for airway management	

8. Ensures proper fixation and care of airway device.

PC/PS2 - Demonstrate procedural skills for airway management	

9. Able to discuss the reason for failed attempts of intubation.

PC/PS2 - Demonstrate procedural skills for airway management	

10. Ability to troubleshoot unanticipated diffcult intubation and escalate call appropriately.

PC/PS2 - Demonstrate procedural skills for airway management	

Supraglottic Airway Devices (SGA)

1. Follows appropriate stepwise approach to ensure optimal insertion for SGA within two attempts.

PC/PS2 - Demonstrate procedural skills for airway management	

2. Ensures adequate inflation of cuff.

PC/PS2 - Demonstrate procedural skills for airway management	

3. Confirms proper placement of SGA with appropriate tests, four-point auscultation and capnography trace

PC/PS2 - Demonstrate procedural skills for airway management	

4. Ensures proper fixation and care of SGA device.

PC/PS2 - Demonstrate procedural skills for airway management	

5. Able to discuss the reason for failed attempt.

PC/PS2 - Demonstrate procedural skills for airway management	

6. Ability to troubleshoot unanticipated diffcult placement of SGA device.

PC/PS2 - Demonstrate procedural skills for airway management	

7. Following placement of SGA device, able to identify device inadequacy,

malfunction and complications and manage appropriately or escalates call.

PC/PS2 - Demonstrate procedural skills for airway management	

Monitoring

Name:

1. Training year

2. Speciality Posting

3. ASA status of the patient

4. Complexity

5. Comorbid Condition

Medical Knowledge

1. Knowledge about basics and interpretation of monitors

MK12 - Acquire knowledge required for monitoring patients	Level 2

2. Knowledge of IV fluids and Plasma Volume Expanders – indications and complications

MK11 - Acquire knowledge require for Perioperative fluid management/Blood and Blood product administration	Level 3

3. Knowledge of the Medications used for hemodynamic support and when to escalate

MK11 - Acquire knowledge require for Perioperative fluid management/Blood and Blood product administration	Level 3

4. Knowledge about Blood/Blood product transfusions and related complications

MK11 - Acquire knowledge require for Perioperative fluid management/Blood and Blood product administration	Level 3

Procedural Skill

1. Ensures sterile precautions during IV injection and handling IV fluids.

PC/PS11 - Demonstrate appropriate fluid management/blood product administration	

2. Ensures care of the eyes/pressure points during patient positioning

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

3. Takes adequate precautions against hypothermia

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

4. Appropriately monitors and interprets the haemodynamic parameters

PC/PS3 - Demonstrate use and interpretation of monitoring and equipment	

5. Able to maintain a neat and organized work environment, throughout the procedure.

P3 - Ability to receive feedback/reflect and respond and give feedback to others respectfully.	

6. Facilitates adequate analgesia/sedation throughout procedure

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

7. Timely Recognition of volume deficit, blood loss estimation and takes corrective measures.

PC/PS11 - Demonstrate appropriate fluid management/blood product administration	Level 3

8. Monitoring during anaesthesia - Ensures adequate depth of anaesthesia while balancing circulation/ oxygenation/ ventilation / temperature management and metabolic homeostasis.

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

8. Monitoring glycemic control / Urine output / blood pressure / parameters related to comorbid condition

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

9. Ability to troubleshoot and manage changes in circulation/ oxygenation/ ventilation / temperature management and metabolic homeostasis

PC/PS6 - Demonstrate administration of general anaesthesia – induction,	

maintenance and recovery	

9. Attitude / Behavior during conduct of anaesthesia

-	

11. Ensures adequate spinal level regression / recovery from sedation and hemodynamic stability prior to shifting to recovery room

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

12. Ensures adequate oxygenation, ventilation, intact airway reflexes and clear airway in the Post Anaesthesia Recovery Unit.

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

13. Demonstrates effective application of post anaesthesia discharge criteria as per institutional SOP.

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

14. Clear and complete documentation of anaesthesia and surgical record prior to discharge from PACU.

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

15. Identifies and manages complications and appropriately escalates the call

PC/PS6 - Demonstrate administration of general anaesthesia – induction, maintenance and recovery	

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Pain Assessment

1. Training year

2. Speciality Posting

3. ASA status of the patient

4. Patient type

5. Category of pain assessment

Medical Knowledge

1. Knowledge about pain pathway, physiology, and pathophysiology of pain, labour pain.

MK9 - Acquire knowledge required for management of acute and chronic pain	Level 3

2. Knowledge pharmacotherapy for Acute/Chronic/Labour Pain management

MK9 - Acquire knowledge required for management of acute and chronic pain	Level 3

3. Knowledge about the Pain assessment scales.

MK9 - Acquire knowledge required for management of acute and chronic pain	Level 3

4. Knowledge about different techniques available for labour analgesia.

MK9 - Acquire knowledge required for management of acute and chronic pain	Level 3

Preprocedural preparation

1. Communicates patiently in language comprehensible to the patient, allowing two- way communication

IPCS1 - Communication with patients and their care givers	Level 2

2. Shows respect, compassion, empathy and establishes trust

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 3
IPCS1 - Communication with patients and their care givers	Level 2

3. Sensitive to the patient's modesty and comfort and seeks permission prior to examination.

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 3
IPCS1 - Communication with patients and their care givers	Level 1

Pain Assessment

1. Elicits appropriate history that is accurate and complete pertaining to location and intensity of the pain.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

2. Systematically Conducts a thorough and relevant examination

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

3. Synthesizes history and examination to derive the cause of pain

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

4. Reviews the patients records and existing pharmacotherapy

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

5. Initiates appropriate the management – Pharmacological/Interventional - according to the institute protocol

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

6. Reviews the patient after initiation of therapy and ensures functional rehabilitation – sleep incentive spirometry, dietary intake, bowel and bladder and mobilisation.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

7. Identifies therapy inadequacy, complications and manage appropriately.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

8. In case of interventional pain management (epidural/peripheral nerve catheter) able to identify malfunction, complications and manages appropriately.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

9. Able to troubleshoot and escalate the call appropriately.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

10. Regular, complete and neat documentation of all events.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

Labour Analgesia

1. Elicits appropriate history that is accurate and complete pertaining to location and intensity of the pain.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

2. Systematically Conducts a thorough and relevant examination

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

3. Reviews the patients records and existing therapies.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

4. Counsels the patient effectively regarding the appropriate modality of pain management.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

5. Initiates appropriate management according to the patients request and institute protocol.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

6. Reviews the patient after initiation of therapy, ensuring adequate and safe analgesia until baby delivery.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

7. Ability to identify therapy inadequacy, complications and manage appropriately or escalates call.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

8. Appropriately escalates the pain therapy in case of inadequate pain relief.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

9. In case of labour epidurals, ensures removal of epidural catheter, following baby delivery.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

10. Regular, complete and neat documentation of all events.

PC/PS8 - Demonstrate procedural skills required for acute, chronic pain management	

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Peripheral nerve blocks

1. Training year

2. Speciality Posting

3. ASA status of the patient

4. Procedure

5. Specialty/Region

Medical Knowledge

1. Knowledge of surgical innervation - dermatome myotome osteotome(limb), parietal wall, viscera(trunk)

MK4 - Acquire knowledge required for Peripheral Nerve Blockade/Fascial plane blocks	Level 2

2. Knowledge of regional strategies available to block surgical innervation

MK4 - Acquire knowledge required for Peripheral Nerve Blockade/Fascial plane blocks	Level 3

3. Knowledge of Pharmacology of Local Anaesthetics and adjuvants

MK4 - Acquire knowledge required for Peripheral Nerve Blockade/Fascial plane blocks	Level 1

4. Knowledge about potential complications and their management.

MK4 - Acquire knowledge required for Peripheral Nerve Blockade/Fascial plane blocks	Level 2

Preprocedural Segment 1

1. Effectively communicates with patients to alleviate apprehension before the procedure.

IPCS1 - Communication with patients and their care givers	Level 3

2. Ensures documentation of informed consent.

IPCS1 - Communication with patients and their care givers	Level 1

3. Communicates clearly with consultants / peers / other health care workers, regarding plan of care.

IPCS2 - Communication with peers/Faculty/other health care workers/paramedical and support staff – within speciality and with other specialties	Level 3

4. Performs anaesthesia machine check, loads emergency drugs and confirms alternate ventilation systems including medical gases prior to procedure.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

5. Follows the WHO surgical safety checklist, prior to procedure.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

6. Appropriately selects and prepares instruments, drugs required for procedure according to prepared anaesthesia care plan and follows aseptic technique.

SBP1 - Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.	Level 4

Patient care / Procedure – Segment 2

1. Identifies and documents pre-existing neurological deficit or coagulation issues.

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

2. Confirmation of site and type of block as per procedural requirement.

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

3. Ensures appropriate ergonomics of machine placement and operator position

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

4. Ensures patient comfort and maintains communication during procedure

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

5. Decides LA volume/ dosage to be administered

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

6. Identifies of all the structures of importance prior to needling.

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

7. Ensures appropriate probe manoeuvres and needling technique.

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

8. Confirmation of LA placement in the appropriate place

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

9. Ability to perform block within reasonable attempts and seek help when appropriate

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

10. Demonstrates assessment of nerve block, and ensures block congruency prior to start of surgery.

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

11. Documentation of procedure and events.

SBP1 - Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.	Level 2

12. Identify block failure and troubleshoot – with rescue block or sedation and appropriately calls for help.

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

13. Identifies complications post block and takes appropriate steps to manage – LAST, Vascular Injury, PNI

PC/PS5 - Demonstrate ability to perform and manage peripheral nerve & fascial plane blocks	

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Vascular Access

1. Training year

2. Speciality Posting

3. ASA status of the patient

4. Procedure

5. Specialty/Region

I. Medical Knowledge

1. Knowledge of basic vasculature, vascular access sites and indication for site selection.

MK6 - Acquire knowledge required for vascular access/invasive lines	Level 1

2. Knowledge of Indications for peripheral, central venous access, invasive monitoring.

MK6 - Acquire knowledge required for vascular access/invasive lines	Level 2

3. Knowledge about gauge, flowrates, length, and lumens of Vascular access devices. (Venflons, CVC, Jelco, Long Peripheral Cannula)

MK6 - Acquire knowledge required for vascular access/invasive lines	Level 2

4. Knowledge regarding the working principles of transducers, interpretation, and fallacies.

MK6 - Acquire knowledge required for vascular access/invasive lines	Level 3

II. Preprocedural Steps

1. Effectively communicates with patients to alleviate apprehension before the procedure.

IPCS1 - Communication with patients and their care givers	Level 3

2. Ensures documentation of informed consent.

IPCS1 - Communication with patients and their care givers	Level 1

3. Communicates clearly with consultants / peers / other health care workers, regarding plan of care.

IPCS2 - Communication with peers/Faculty/other health care workers/paramedical and support – within speciality and with other specialties	Level 3

4. Performs anaesthesia machine check, loads emergency drugs and confirms alternate ventilation systems including medical gases prior to procedure.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

5. Follows the WHO surgical safety checklist, prior to procedure.

SBP2 - Ascertain incorporation of patient safety and quality improvement into clinical practice	Level 2

6. Appropriately selects and prepares instruments, drugs required for procedure and follows aseptic technique.

SBP1 - Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.	Level 4

Peripheral Venous Access

1. Selects appropriate site and size of device according to perioperative requirement.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

2. Ensures appropriate limb positioning and performer ergonomics.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

3. Maintains constant communication and comfort of the patient during the procedure.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

4. Demonstrates appropriate aseptic technique during the entire procedure.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

5. Performs appropriate maneuvers to enhance the visibility of the vein.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

6. Ensures appropriate distance from skin puncture to venous puncture, while maintaining sufficient catheter length in the vein.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

7. Ensures patency and appropriate flow of fluids though the catheter.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

8. Ensures neat and appropriate fixation of the catheter.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

9. Ability to identify device inadequacy, malfunction and complications and manage appropriately or escalates call.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

Central Venous Access

1. Selects appropriate site, size of device and number of lumens according to perioperative requirement.

2. Ensures appropriate patient positioning and performer ergonomics.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

3. Maintains constant communication and comfort of the patient during the procedure.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

4 Demonstrates appropriate aseptic technique during the entire procedure

PC/PS9 - Demonstrate procedural skills required for vascular access – peripheral/central venous access, arterial access	

5. Ability to identify relevant surface landmark/sonoanatomy of desired target vessel.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

6. Demonstrates confirmation of correct needle tip by free aspirate of blood/Imaging

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

7. Ensures smooth guidewire placement and confirms the presence of guidewire in the desired vein.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

8. Demonstrates smooth and atraumatic dilatation of the vessel with free movement of guidewire within the dilator.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

9. Demonstrates neat and meticulous insertion of catheter over the guidewire and confirms free blood aspirate through all the lumens.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

10. Ensures neat and appropriate fixation of the catheter.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

11. Ability to identify device inadequacy, malfunction and complications and manage appropriately or escalates call.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

12. Completely documents the procedure and orders imaging to confirm catheter tip placement when applicable.

PC/PS9 - Demonstrate procedural skills required for vascular access –	

peripheral/central venous access, arterial access	

Arterial line – Radial

1. Selects and prepares appropriate device for securing line.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

2. Confirms the integrity of the collateral circulation. (Allen's Test)

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

3. Ensures appropriate setting up of arterial transducer with airtight connections and calibration (zeroing)

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

4. Ensures appropriate limb positioning and performer ergonomics.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

5. Maintains constant communication and comfort of the patient during the procedure.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

6. Demonstrates appropriate aseptic technique during the entire procedure.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

7. Ability to identify relevant surface landmark/sonoanatomy of desired target vessel.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

8. Demonstrates confirmation of correct needle tip by free jet of blood.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

9. Demonstrates neat and meticulous insertion of catheter confirms free blood jet.

PC/PS9 - Demonstrate procedural skills required for vascular access – peripheral/central venous access, arterial access	

10. Ensures neat and appropriate fixation of the catheter.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

11. Ensures airtight connection of fluid column to the transducer and confirms optimal damping through flush test.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

12. Ensures neat and appropriate fixation of the catheter.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

13. Ability to identify device inadequacy, malfunction and complications and manage appropriately or escalates call.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

14. Completely documents the procedure.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

Arterial Line – Femoral line

1. Selects and prepares appropriate device for securing line.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

2. Ensures appropriate setting up of arterial transducer with airtight connections and calibration (zeroing)

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

3 Ensures appropriate limb positioning and performer ergonomics

PC/PS9 - Demonstrate procedural skills required for vascular access – peripheral/central venous access, arterial access	

4. Maintains constant communication and comfort of the patient during the procedure.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

5. Demonstrates appropriate aseptic technique during the entire procedure.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

6. Ability to identify relevant surface landmark/sonoanatomy of desired target vessel.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

7. Demonstrates confirmation of correct needle tip by free jet of blood.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

8. Ensures smooth guidewire placement and confirms the presence of guidewire in the desired artery.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

9. Demonstrates smooth and atraumatic dilatation of the vessel with free movement of guidewire within the dilator.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

10. Demonstrates neat and meticulous insertion of catheter over the guidewire and confirms free blood aspirate through the lumens.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

11. Ensures neat and appropriate fixation of the catheter.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access arterial access	

13. Ensures neat and appropriate fixation of the catheter.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

14. Ability to identify device inadequacy, malfunction and complications and manage appropriately or escalates call.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

15. Completely documents the procedure.

PC/PS9 - Demonstrate procedural skills required for vascular access– peripheral/central venous access, arterial access	

Department of Anaesthesiology, MGMCRI

Mini Clincal Examination

1. Training year

2. Speciality Posting

3. ASA status of the patient

4. Specialty/Region

Medical Knowledge

Kindly keep the ASA status and the specialty in mind while answering the following questions

1. Understanding of pre-anaesthetic Evaluation and risk stratification for patients of chosen specialty

MK1 - Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation	Level 2

2. Understanding of appropriate pre-operative optimization of different co-existing comorbid illnesses

MK1 - Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation	Level 3

3. Understanding the indications of special investigations and specialist consultations.

MK1 - Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation	Level 3

Segment 1

1. Communicates patiently in language comprehensible to the patient, allowing two- way communication.

IPCS1 - Communication with patients and their care givers	Level 2

2. Shows respect, compassion, empathy and establishes trust.

IPCS1 - Communication with patients and their care givers	Level 2

P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 3

3. Sensitive to the patient's modesty and comfort and seeks permission prior to examination.

IPCS1 - Communication with patients and their care givers	Level 1
P2 - Accountability and responsiveness to needs of patient's, society and speciality, with ethical conduct and professional etiquette.	Level 3

4. Elicits appropriate history that is accurate and complete pertaining to comorbid conditions, previous anaesthesia, surgery, and pharmacotherapy

IPCS1 - Communication with patients and their care givers	Level 3
MK1 - Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation	Level 1

5. Synthesizes history to direct the systemic examination

MK1 - Acquire knowledge required for preoperative Assessment, Risk stratification and preoperative preparation	Level 2

6. Complete and neat documentation in the anaesthesia surgical booklet

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 2
SBP1 - Acquire the ability to follow the standard operating procedures (SOP) relevant to practices of the organisations for patient care.	Level 3

Segment 2

1. Systematically Conducts a thorough and relevant examination

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 2

2. Assessment of Airway

PC/PS2 - Demonstrate procedural skills for airway management	Level 3

3. Orders and reviews appropriate blood, radiological investigations, and specialist consultations according to the departmental Standard operating protocols.

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 2

4. Justification of any special investigations prescribed.

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 1

5. Synthesizes the information gathered for perioperative risk stratification – Patient, Surgical and Anaesthesia risk factors.

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 2

6. Formulates Perioperative care plans as appropriate.

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 3

7. Discusses and counsels the patient as per the risk stratification, facilitate decision making and obtains the informed consent.

PC/PS1 - Demonstrate ability to perform preoperative assessment, risk stratification and preoperative preparation	Level 3

8. Seeks help appropriately during consultation.

P3 - Ability to receive feedback/reflect and respond and give feedback to others respectfully.	Level 3

Annexure 6 - EPA Assessment Form

MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH INSTITUTE

DEPARTMENT OF ANAESTHESIOLOGY

Entrustable professional activity assessment form

Upper half for self-assessment

Lower half for Faculty assessment

STUDENT NAME: UIN No:
PGY: ASSESSMENT No:
FACULTY: DATE:

EPA	MARKING OF SUB-COMPETENCY											
1. Perform preoperative assessment, risk stratification & preoperative preparation in ASA I & II.	MK1 L2	PC1 L2	SBP1 L4	IPCS1 L3	IPCS2 L4	P1 L2	P2 L3	P3 L2	P4 L2			
2. Perform Preoperative assessment, risk stratification & preoperative preparation in ASA III & III	MK1 L3	PC1 L3	SBP1 L4	IPCS1 L4	IPCS2 L4	P1 L4	P2 L4	P3 L4	P4 L3			
3. Secure airway in patients with normal airway anatomy	MK5 L2	PC2 L2	SBP1 L3	SBP2 L3	PBLI2 L2	IPCS1 L2	IPCS2 L4	P3 L3				
4. Secure airway in patients with Difficult airway	MK5 L4	PC2 L4	SBP1 L3	SBP2 L4	PBLI2 L3	IPCS1 L4	IPCS2 L4	P3 L3				
5. Administer General Anaesthesia to patients of ASA I and II physical status.	MK2 L2	MK6 L1	MK8 L2	MK11 L2	MK12 L1	PC3 L1	PC6 L3	PC9 L1	PC10 L2	PC11 L2	SBP1 L4	
	SBP2 L3	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3			
6. Administer General Anaesthesia to patients of ASA III and IV physical status.	MK2 L4	MK6 L3	MK8 L2	MK11 L4	MK12 L3	PC3 L3	PC6 L4	PC7 L1	PC9 L3	PC10 L4	PC11 L4	
	SBP1 L4	SBP2 L3	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3		
7. Manage Central Neuraxial Blockade in patients with ASA I and II physical status	MK3 L3	PC4 L3	SBP1 L4	SBP2 L3	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L2	IPCS2 L3	P2 L3	P3 L3	P4 L3
8. Manage Central Neuraxial Blockade in patients with ASA III and IV physical status	MK3 L4	PC4 L4	SBP1 L4	SBP2 L4	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3
9. Perform Peripheral nerve/Fascial plane blocks	MK4 L3	PC5 L3	SBP1 L4	SBP2 L3	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	

10. Provide Monitored Anaesthesia Care	MK2 L4	MK6 L3	MK8 L2	MK10 L4	MK11 L4	MK12 L3	PC3 L3	PC6 L4	PC7 L1	PC9 L3	PC10 L4
	PC11 L4	SBP1 L4	SBP2 L3	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3
11. Proficient in peripheral and central vascular access including invasive arterial access	MK6 L3	MK12 L3	PC 3 L3	PC9 L3	SBP1 L4	SBP2 L3	SBP3 L3				
	PBLI 1 L3	PBLI 2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3					
12. Ability to manage acute pain conditions	MK9 L3	MK3 L3	MK4 L3	PC8 L3	PC4 L3	PC5 L3	SBP1 L4	SBP2 L3	SBP3 L3		
	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3				
13. Ability to manage chronic pain conditions	MK9 L4	MK3 L3	MK4 L3	PC8 L3	PC4 L3	PC5 L3	SBP1 L4	SBP2 L3	SBP3 L3		
	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3				
14. Ability to conduct anaesthetic management for Cardiac Surgery	MK1 L4	MK2 L4	MK6 L3	MK8 L2	MK11 L4	MK 12 L4	MK13 L3	PC1 L4	PC3 L3	PC6 L4	PC7 L3	PC9 L3
	PC10 L4	PC11 L4	PC12 L4	SBP1 L4	SBP2 L3	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3
15. Ability to conduct anaesthetic management for Thoracic Surgery	MK1 L4	MK2 L4	MK5 L4	MK6 L3	MK8 L4	MK11 L4	MK12 L4	PC1 L4	PC2 L4	PC3 L3	PC6 L4	PC7 L3	
	PC9 L3	PC10 L4	PC11 L4	SBP1 L4	SBP2 L3	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3
16. Ability to conduct anaesthetic management for Neurosurgery	MK1 L4	MK2 L4	MK5 L4	MK6 L3	MK8 L4	MK11 L4	MK12 L4	PC1 L4	PC2 L4	PC3 L3	PC6 L4	PC7 L3	
	PC9 L3	PC10 L4	PC11 L4	SBP1 L4	SBP2 L3	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3

17. Ability to conduct anaesthetic management in Paediatric patients	MK1 L4	MK2 L4	MK3 L4	MK4 L4	MK5 L4	MK6 L3	MK8 L2	MK10 L4	MK11 L4	MK12 L4	PC1 L4	PC2 L4	PC3 L3	PC6 L4
	PC7 L3	PC9 L3	PC10 L4	PC11 L4	SBP1 L4	SBP2 L3	SBP3 L3	PBLI1 L3	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3
18. Ability to conduct Anaesthetic management in Obstetrics patients	MK1 L3	MK2 L3	MK3 L3	MK5 L3	MK11 L3	PC1 L3	PC2 L3	PC4 L3	PC6 L3	PC7 L3	PC11 L3	SBP1 L3	SBP2 L4	
	PBLI2 L3	IPCS1 L3	IPCS2 L3	P2 L3	P3 L3	P4 L3								
19. Ability to manage the critically ill patient	MK7 L3	MK5 L3	MK6 L4	MK12 L4	PC2 L4	PC3 L3	PC7 L3	PC9 L4	PC10 L4	SBP1 L4	SBP2 L4	SBP3 L3		
	PBLI2 L3	IPCS1 L4	IPCS2 L4	P1 L4	P2 L3	P3 L3	P4 L3							
20. Conversant in pedagogic and andragogic methods of teaching and learning	MK14 L4	PC14 L4	IPCS1 L4	IPCS2 L3	P1 L3	P2 L3	P3 L3	P4 L3						
21. Proficient in formulating a protocol, literature search, data collection and analysis for conduct of research.	MK14 L4	PC15 L4	PBLI1 L4	IPCS3 L2	P1 L3	P2 L3	P3 L3	P4 L3						

Grade	1	2	3	4	5
Entrustability	Can observe and assist	Can perform with strict supervision	Can perform with loose supervision	Can perform independently	Expert

Key for assigning Grade of entrustability

EPA	Grade of Entrustability
EPA1.	
EPA2.	
EPA3.	
EPA4.	
EPA5.	
EPA6.	
EPA7.	
EPA8.	
EPA9.	
EPA10.	
EPA11.	
EPA12.	
EPA13.	
EPA14.	
EPA15.	
EPA16.	
EPA17.	
EPA18.	
EPA19.	
EPA20.	
EPA21.	

Comments

Signatures	
Resident	
Faculty	
Head of the Department	

Annexure 7 – EPA Progress sheet

EPA	GRADE OF ENTRUSTABILITY								
	PG Y1					PG Y2		PG Y3	
	1 MONTH	3 MONTHS	6 MONTHS	9 MONTHS	12 MONTHS	6 MONTHS	12 MONTHS	6 MONTHS	12 MONTHS
Date assessed									
EPA1.									
EPA2.									
EPA3.									
EPA4.									
EPA5.									
EPA6.									
EPA7.									
EPA8.									
EPA9.									
EPA10.									
EPA11.									
EPA12.									
EPA13.									
EPA14.									
EPA15.									
EPA16.									
EPA17.									
EPA18.									
EPA19.									
EPA20.									
EPA21.									
Candidates sign									
HOD Sign									

Annexure 8 – Dissertation evaluation form

MAHATMA GANDHI MEDICAL COLLEGE AND RESEARCH INSTITUTE
PILLAIYARKUPPAM, PUDUCHERRY – 607 402
Proforma for evaluation of Dissertation

UIN: ……..

Topic of the study :

_____

_____

DISSERTATION COMPONENTS	Grade		
TITLE			
Title appropriate and clear	A	B	C
INTRODUCTION			
Purpose of the Study	A	B	C
Hypothesis/Research Question	A	B	C
Aims & Objectives	A	B	C
REVIEW OF LITERATURE			
Appropriate	A	B	C
Complete and current	A	B	C
METHODS			
Study subjects, controls, Inclusion and Exclusion criteria	A	B	C
Materials/Apparatus/Cases	A	B	C
Methodology used	A	B	C
Procedure for data collection	A	B	C
Appropriate statistical methods employed	A	B	C
Handling of ethical issues	A	B	C
RESULTS			
Logical organization of data	A	B	C
Appropriate use of charts, tables, Graphs, figures, etc.	A	B	C
Statistical/Clinical interpretation	A	B	C
DISCUSSION			
Appropriate to data	A	B	C
Discussion and implication of results	A	B	C
Comparison with other studies	A	B	C
Satisfactory explanation of deviations if any	A	B	C
Limitations of the study	A	B	C
Recommendation for future studies	A	B	C
CONCLUSION			
Relevance, are they in line with aims	A	B	C
SUMMARY			
Clear and Concise	A	B	C
REFERENCES			
Vancouver Format and appropriately cited in text.	A	B	C

Key for grading – A – Exceeds expectation, B – Meets expectation, C – Needs Improvement

Overall Impression

(Please Check the appropriate box)

☐ Accepted as submitted

☐ Accepted pending modification as suggested below

☐ Not Accepted for reasons specified below

Remarks:

Signature of the examiner with date