Curriculum

FNB Fellowship

Onco-Anaesthesia

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I. OBJECTIVES OF THE PROGRAMME

1. Programme Goal

The goal of this training program is to provide competency-based training to anesthesiologists in the principles and practice of Onco-Anesthesiology. The programme will enable the students to work in multi-disciplinary oncology team and learn the perioperative care of oncology patients, management of critically ill oncology patients in ICU, learn communication skills, interventional radiology procedures in oncology setup, anesthesia for specialized oncology procedures like brachytherapy, learn skills of relevant procedures, teaching and research. It will train the anesthesiologist to provide a holistic care as per the need of the patients catered by different super specialty and sub specialty in the field of cancer prevention and cancer treatment such as Surgical Oncology, Medical Oncology, Radiation Oncology Intervention Radiology w.r.t oncology, Pain and Palliative care and other allied sciences related to cancer patients.

2. PROGRAMME OBJECTIVES

At the end of the course, the candidate should be able to:

i. To function as a specialist onco-anaesthesiologist, well trained in practice of onco- Anaesthesia, Critical Care, Pain Management, with knowledge of Resuscitation of all acute or acute on chronic conditions and command over the core concepts of Palliative medicine.

ii. To possess skills of prehabiltation, enhanced recovery protocols, cardio-pulmonary exercise testing, risk optimization and risk mitigation for oncology surgery, assessment and management of difficult airway issues, manage toxicity related to radiation and chemotherapy drugs and have a clear grasp of return to intended oncology treatment.

iii. To possess skill to investigate, diagnose and manage independently all types of cancer patients admitted to Onco-critical care ICU (Surgical oncology, Medical oncology, Radiation oncology, palliative care). Other adjunct specialties like various diagnostic procedures including stereotactic procedures, radiological interventions, nuclear medicine interventions may also require a support of critical care. Basically to understand trajectory of various malignancies and the complications expected due to the malignancy per se and its treatment.

iv. To possess skill to know various paediatric malignancies and their anticancer therapies and management of critical care of various paediatric malignancies

v. Possess skills for procedures, use of technology like USG, TEE, sensible interpretation in various clinical settings based on in depth knowledge of all basic sciences and all disciplines of oncology and clinical medicine.

vi. Thorough grasp of the pharmacokinetics, and pharmacodynamics and interaction of all anaesthetic and allied drugs which he will be using or which the patient with cancer in perioperative period, critical care, pain management and palliative medicine.

vii. Knowledge related anatomy and physiology of cardiovascular, respiratory, renal, hepatobiliary, hormonal and neurologic systems of the body along with cancer biology with regards to various tissues, organs, and systems.

viii. Knowledge of the physical principles on which are based the anaesthetic, monitoring and resuscitation gadgets one is likely to use, understanding the functioning of each and feasibility of their use in different clinical presentations of a cancer patient.

ix. Understand the theoretical basis of organ dysfunction and critical illness like febrile neutropenia and tumor lysis syndrome in oncology patients.

x. Develop the knowledge and skills to diagnose oncological emergencies like SVC syndrome, spinal cord compression etc. and manage them.

xi. Learn to practice evidence-based medicine in managing oncology patients.

xii. Develop skills of communication with family members of critically ill patients.

xiii. Apply the highest ethical standards in the practice of medicine.

xiv. Precise concepts of doing basic clinical research and application of statistical analysis, in clinical medicine, medical audit, and medical record maintenance in oncology setting with respect to anesthesiology and critical care in oncology patients.

II. TEACHING AND TRAINING ACTIVITIES

The fundamental components of the teaching programme should include:

1. Case presentations & discussion- once a week
2. Seminar – Once to twice a week
3. Journal club- Once a week
4. Grand round presentation (by rotation departments and subspecialties)- once a week
5. Faculty lecture teaching- once a month

Given below is the Model Formal Teaching Schedule that can be modified by the individual institution to meet their requirement.

Teaching programs held on all working days 8.30 AM to 9.30 AM or any other convenient time

Day	Duration	Activity
Monday	1 hour	Journal Club
Tuesday	1 hour	Didactic Lecture
Wednesday	1 hour	Subject Seminar
Thursday	1 hour	Hospital (Grand Rounds/Clinical meeting)
Friday	1 hour	Clinical Case Presentation

The training program would focus on knowledge, skills and attitudes (behavior). It is divided into theoretical, clinical, and practical training in all aspects of the delivery of care. It also includes methodology of research and teaching.

i. **Theoretical:** The theoretical knowledge would be imparted to the candidates through discussions, journal clubs, symposia and seminars. The students are exposed to recent advances through discussions in journal

clubs. These are considered necessary in view of an inadequate exposure to the subject in the undergraduate curriculum.

ii. **Symposia:** Trainees would be required to present a minimum of 20 topics based on the curriculum over a period of three years to the combined class of teachers and students. A free discussion would be encouraged in these symposia. The topics of the symposia would be given to the trainees with the dates for their presentation.

iii. **Clinical**: The trainee would be attached to a faculty member to be able to pick up methods of history taking, examination, prescription writing and management. The trainee will have rotation in all branches of onco-surgery (Head & Neck, Robotic, Thoracic, GI surgery, Uro-Gynae, Neurosurgery, Pediatric, Breast, Plastic and Reconstructive etc.) for learning peri-operative anaesthetic care. The trainee will also be rotated to out of OT procedures (Radiotherapy, CT scan, MRI etc.). The trainee will also be posted in critical care units, acute pain services and chronic pain outpatient department and chronic pain procedure rooms.

iv. **Bedside**: The trainee would work up cases, learn management of cases by discussion with faculty of the department.

v. **Journal** Clubs: This would be a weekly academic exercise. A list of suggested Journals is given towards the end of this document. A faculty member will suggest the article and moderate the discussion, with participation by other faculty members and resident doctors. The trainee will present a journal article, either an original article (RCT/Systematic review) or a short study along with a review article. The trainee is expected to present the article citing the relevance, background/context, study methods and statistical analysis, interpret results and discussion, summarize, present limitation and critically analyze the study methods and outcomes.

vi. **Bed side teaching**

All the postgraduate trainees pursing FNB Onco-Anaesthesia will carry out their clinical work under supervision of faculty/Senior Registrar. This involves around teaching during anesthesia for oncology patients, perioperative care,

dedicated teaching ward rounds for pain management in these patients and management of oncology emergencies.

vii. Additional Teaching/Training

All the postgraduate trainees pursing this course are expected to attend regular CMEs, Conferences, Workshops; Small group teaching organized by local/national /international institutes and required to be abreast with the current knowledge and recent advances in the field of Onco-Anaesthesia.

III. SYLLABUS

1. Basic Sciences:

i. Clinical anatomy and physiology of various tissues, organs and organ systems.

ii. Clinical Anatomy and its clinical implications:
   a. Systems: Respiratory, CVS, CNS (Brain, spinal cord and cranial/spinal/peripheral nerves and plexuses), GI Tract, Hepatobiliary, Urology, Gynecological.
   b. Sensory and motor dermatome distribution and innervations

iii. Physiology and its clinical implications:
   a. Understanding various organ and system functional physiology and its clinical implication in perioperative period, critical care, advanced diseases and pain (acute and chronic)
   b. Physiology related to Theories of anaesthesia; Respiratory, cardiovascular, hepatobiliary, renal and endocrine system, blood, muscle and N-M junction, Nerve impulse transmission, Cardiac conduction, regulation of temperature and metabolism, stress response, cerebral blood flow and ICP; Central, autonomic and peripheral nervous systems; Metabolic response to stress and trauma.

iv. Physics in perioperative care in cancer patients: Physics for anaesthesiologists including basics of oxygen therapy, equipments related physics, anaesthesia workstations, airway equipment.
   a. Gas laws
   b. Anaesthesia machine; machine check and assembly of necessary machine related accessories.

c. Airway equipment including
d. Tracheostomy/Equipment's for airway management-mask, SGAs, fibreoptic endoscopes/laryngoscopes, video laryngoscopes; other devices like Combitube etc.
e. Breathing systems continuous flow systems, draw over system.
f. Physics related to equipments used in anaesthesia monitors, ventilators, vaporizers, fibroptics; Laser; Pacemaker and defibrillator; Monitoring equipment used for assessment of cardiac functions, temperature, respiratory functions, blood gases, intracranial pressure, depth of anaesthesia and neuromuscular block; Sterilization of equipment.
g. Fluidics; Electricity and diathermy

2. Pharmacology:

i. Pharmacology related to General Principles, concepts of pharmacokinetics and pharmacodynamics; Drug interactions in anesthesiology, anaphylactoid reactions; Drugs used for premedication, induction of anaesthesia, general anaesthetics, intra-venous and inhalational, neuromuscular block and reversal of muscle relaxants. Pharmacology of drugs used in cardiovascular, respiratory, endocrine, renal diseases, and CNS disorders.
ii. General Pharmacological principles, concept of pharmacodynamics and pharmacokinetics.
iii. Inhalational, intravenous anaesthetics, drugs used in premedication, postoperative pain, neuromuscular blocking drugs, and in the ICU, autonomic drugs, vasopressor and vasodilators.
iv. Drugs used for different diseases.
v. Drug Interactions in Anesthesiology.
vi. Drugs used for spinal, epidural and local anaesthesia.
vii. Interaction of drugs used in perioperative period on cancer biology, cancer recurrence and metastasis

3. Chemotherapy:

i. To know details of anticancer chemotherapy drugs (Curative / palliative) Pharmacology (pharmacokinetics, pharmacodynamics).
ii. Various chemotherapy regimen and side effects profiles of chemotherapy agents.
iii. Implications of chemotherapeutic drugs and their impact on anaesthesia.

iv. Effects and toxicities of chemotherapeutic drugs.

4. Biochemistry:

i. Acid base homeostasis with focus on cancer patients: Impact of cancer and its treatment
ii. Shock- pathophysiology, clinical diagnosis, and management
iii. Fluids physiology, fluid assessment, blood and blood products and management in perioperative period and critical care set up.
iv. Monitoring in Anaesthesia with concepts of minimal and advanced monitoring.
v. Principles of oximetry, capnography, and neuromuscular monitoring.
vi. Principles of different monitoring equipments used in perioperative period and critical care set up.
vii. Safety in Anaesthesia equipment
viii. Medical gases; storage and central pipeline system and cylinders.
ix. Pulmonary function tests: principles, assessment and interpretations and its applications in optimization and perioperative management.
x. Theoretical background on systemic disorders: Cardiovascular, respiratory, hepatobiliary, Renal, Neurologic, Degenerative, Endocrine and Metabolic syndromes, DIC, and ARDS.
xi. Oxygen therapy.
xii. Basics of various imaging modalities including X-rays, Ultrasound, MRI, CT Scan, PET scan and other relevant imaging for cancer patients.
xiii. Understanding the concept cancer cellular and tissue biology
xiv. Basic and Advanced life support measures.
xv. Temperature regulation and management in perioperative period and effect on oncology patients.
xvi. Airway assessment including history, examination and imaging including latest advancements in airway management and assessment including Ultrasound and reconstructed images, virtual endoscopies.
xvii. Principles of mechanical ventilation including physics of ventilator, understanding of loops and graphics, various ventilatory modes, initiations of ventilation and weaning.
xviii. Artificial ventilation, ventilators, currently used modes, choice of ventilators, care of patient on ventilator.
xix. Sterilization and disinfectants for various machines, equipments and tools for perioperative and critical care of cancer patients.

xx. Acute and Chronic Pain: Pathophysiology and Management
xxi. Monitor and assessment depth of anaesthesia.

5. Clinical Sciences:

i. Details related to appropriate preanaesthetic check of patients including history, physical examination, examining the reports of relevant laboratory tests, and imaging and their interpretation.
ii. Patient's assessment, anaesthesia related various scoring systems for assessment, risk stratification and prognostications.
iii. General principles of premedication
iv. Understand the problems and anesthetics implications of the various comorbid conditions and situation including:
    a. Endocrine disorders: Including Thyroid, pheochromocytoma, para-neoplastic syndrome
    b. Chronic respiratory disease; respiratory crises situations
    c. Hypertension and coronary artery disease
    d. Congenital heart disease
    e. Geriatric anaesthetic problems

v. Anaesthesia in difficult situations/outside OR/remote locations/NORA: Radiology including EBUS, MRI, CT Scans (especially in relation to dye allergy and embolization, Ultrasound guided biopsies; endoscopic and airway-sharing procedures including pulmonary interventions, GI interventions; day care surgery, laser surgery, radiotherapy, neuro-radiologic procedures.
vi. Oncologic procedures for focused specialties: laparoscopic, robotic, neurosurgical, neonatal, paediatric, gynecological, orthopedic, thoracic (thoracic surgeries including lung, mediastinum and esophageal surgeries, chest wall resection and reconstructions), reconstructive plastic, head and neck, base of skull, and ENT procedures. It includes all relevant situations for perioperative care and critical care management for cancer patients.
vii. Recognize anaesthetic problems in high-risk patients and select further investigations and referral for expert opinion for dealing with specific problems. Further optimization a preparation for surgical interventions.
viii. Perioperative care of peritoneal surface malignancies and Specialized procedures like HIPEC, PIPAC.

ix. Perioperative care for emergency surgery, recognize perioperative complication and institute therapy in oncology patients.

x. Nutrition in critically ill patients by parenteral and enteral nutrition and preoperative nutritional optimization.

xi. Understanding of basics, assessment, optimization and perioperative management of associated comorbidities for oncologic surgeries: CADs, Thyroid disorders, Neurological disorders like stroke, hypertension, renal, hepatobiliary, diabetes mellitus, chronic obstructive airway disease, including bronchial asthma, myasthenia gravis, obesity, paraplegia, neuromuscular disorders, burns resuscitation and critical care, intensive care management of all assorted patients.

xii. Perioperative management of cancer patients with Malignant hyperthermia, myasthenia gravis, GB syndrome and other neuromuscular diseases, obesity, COPD, Diabetes Mellitus, bronchial asthma, and hypertensive crises.

xiii. Regional anaesthesia techniques- Learning of thoracic epidural catheter placement for intraoperative and postoperative analgesia for thoracic and GI surgeries, lumbar epidural, segmental block and paravertebral block, Spinal/Intrathecal anaesthesia, Combined spinal and epidural block, Caudal block, Peripheral Nerve block, Brachial plexus block by interscalene, supraclavicular and axillary approach, Intravenous regional anaesthesia and newer fascial plane blocks. Including anatomy for various neural innervations, decision for selection of an appropriate block and administration using anatomical landmark, nerve stimulator, ultrasound, and fluoroscope guided interventions.

xiv. Understanding basics of various regional blocks including indications, contraindications, method/steps, complications and its management, drugs and adjuncts to be administered for the blocks and their advantage, disadvantage and limitations.

xv. Perioperative and periprocedural procedures in neonates and children with cancers: surgeries; biopsies; radiation therapies etc.

xvi. Anaesthetic implication of coagulation disorders: impact of cancer and treatment on coagulopathies.

xvii. Identify conditions like difficult airway by following difficult airway algorithms.

xviii. Understanding the spectrum of critical illnesses requiring admission to ICU.

xix. Understanding, initiation, and interpretation of various invasive and non-invasive monitoring modalities in perioperative and critical care set up for a cancer patient.

xx. Understanding of pain assessment: Acute and chronic including physiology, pathology, assessment, and management.

xxi. Acute Pain management: pharmacological and non-pharmacological (interventions and adjunct therapies). Organization of acute pain service

xxii. Chronic Pain management: pharmacological and non-pharmacological (interventions and adjunct therapies). Physiological changes secondary to Pain

xxiii. Principle of patient-controlled analgesia and assessment of its efficacy

xxiv. Pain control in concurrent medical diseases – COAD, IHD, bleeding tendency, geriatric.

xxv. Practice principles of management of cancer pain, principle of management of non- cancer neuropathic pain - phantom limb pain, post-herpetic neuralgia, complex regional pain syndrome, trigeminal neuralgia. Principle of management of non-cancer nociceptive pain - myofascial pain, lower back pain, intractable angina, burns, chronic pancreatitis, PVD. Recognize complications associated with each blocks and appropriate treatment of each.

xxvi. Palliation in advanced cancers

xxvii. Interventions for palliation in advanced / metastatic cancers like Pleural tap, ascitic tap, pleurodesis etc.

xxviii. Neurolytic Blocks: Nerve and plexus blocks.

xxix. Principles for insertion and management of implantable drug delivery pumps, nerve stimulators implants; Stimulation techniques such as transcutaneous electrical nerve stimulation (TENS), dorsal column stimulation, and deep brain stimulation.

xxx. Chronic pain syndromes: Understanding, pathology, assessment and management including pharmacological/non-pharmacological/adjunct modalities.

xxxi. Knowledge pertaining to palliative care including care of terminally ill, Hospices management, do not resuscitate orders etc.

6. Anaesthetic Considerations Specific for Oncology:

i. Theoretical knowledge about pathophysiology, diagnosis and treatment of cancer.

ii. To know about various cancer treatment modalities
iii. Anaesthetic Considerations in Onco-surgery
   a. Elective postoperative care in major oncological surgeries
   b. Postoperative care of emergency onco- surgery patients
   c. Preoperative optimization of critically ill onco patients
   d. Patients with multiple comorbidities
   e. Major airway surgeries
   f. Major tumor and organ resections
   g. Major reconstructive procedures
   h. Higher ASA status patients
   i. Delayed postoperative sepsis
   j. Analgesia and Sedation
   k. Hemodynamic instability
   l. Airway edema, ventilatory management
   m. Coagulation abnormalities
   n. Thermoregulation
   o. Postoperative Delirium and Agitation (POCD)

iv. Fluid Management in Onco-surgery
   a. Goal directed fluid therapy – near zero balance
   b. Invasive hemodynamic monitoring – CVP, IBP, Flotrac, CO, SVV, SVR etc.
   c. Optimal use of vasopressors and inotropes – low threshold for usage
   d. Optimal use of blood components.

v. Coagulation Abnormalities and its effects on peri-operative management.
   a. Thrombo-embolism and DVT Prophylaxis

vi. Difficult Airway management:
vii. Temperature Monitoring and Management
viii. ERAS
ix. ICU admission of cancer patients: Open & Closed ICU setups for cancer patients
   a. Identification of cancer patients benefiting ICU care
   b. Factors leading to delayed ICU admission (e.g., healthcare access, acuteness and severity of the disease, initial admission to a ward vs. the emergency department
   c. Patients with persistent multiple organ failure

x. Ventilatory Management:
   a. Lung protective ventilation strategies – low tidal volume, optimal PEEP, low driving pressures
   b. Prevention of VILI and VAP – closed suction, subglottic suction ET tubes
   c. Early weaning
   d. Customized ventilation strategies for lung volume reduction surgeries

xi. Special Concerns in CRS + HIPEC:
   a. AKI (due to hemodynamic compromise, cisplatin)
   b. Pleural effusion (reactive to peritonectomy of diaphragmatic surfaces)
   c. Thrombocytopenia (cytotoxic chemotherapy drugs), dilutional coagulopathy
   d. Electrolyte imbalance
   e. Postoperative ileus (correct electrolyte imbalance, use Alvimopan)
   f. Sepsis
   g. Pulmonary embolism

xii. Special Concerns in Flap Surgeries:

7. Monitoring:

i. Electrocardiogram with ST-segment analysis
ii. Noninvasive blood pressure
iii. Capnograph: values and changes in values and waveform.
iv. Pulse oximetry: values and changes in values
v. Neuromuscular blockade monitor
vi. Respiratory gas monitors – MAC
vii. Invasive arterial pressure: waveform and changes in the waveform
viii. Central venous pressure: values and waveform
ix. Minimally invasive cardiac output monitoring
x. Pulmonary artery pressure: Values and waveforms, pulmonary capillary wedge tracing.
xi. Cardiac output
xii. Mixed venous oxygen saturation
xiii. Evoked potential
xiv. Transesophageal echocardiography: basic understanding
xv. BIS/Entropy /EEG monitoring

8. Intensive Care:

i. Respiratory management
ii. Principles of ventilatory management
iii. Non- invasive ventilation
iv. Pulmonary edema –
v. Adult respiratory distress syndrome
vi. Severe asthma and COPD
vii. Respiratory infections community and hospital acquired

9. Principles of Cardiac and Hemodynamic Management:

i. Hemodynamic instability and shock
ii. Cardiac arrest
iii. Acute myocardial infarction
iv. Unstable angina
v. Severe heart failure
vi. Common arrhythmias and conduction disturbances – Cardiomyopathies
vii. Cardiac tamponade
viii. Pulmonary embolism

10. Oncology:

i. Oncology emergencies like SVC syndrome, tumor lysis syndrome etc.
ii. Anaesthetic considerations of radiotherapy
iii. Acute pain syndromes during oncology treatment
iv. Management of chemotherapy induced neuropathy
v. Prehabiltation
vi. Anaesthetic considerations of chemotherapy

11. Renal:

i. Oliguria/ anuria
ii. Acute renal failure
iii. Renal replacement therapy (RRT)
iv. Continuous RRT

12. Metabolic and Nutritional:

i. Fluid balance
ii. Electrolyte balance and its disorders
iii. Acid-base disorders

iv. Endocrine disorders (including diabetes mellitus, acute adrenal insufficiency, pituitary disorders, hyper and hypothyroidism)
v. Nutrition in critical illness
vi. Enteral and Parenteral nutrition
vii. Monitoring of nutrition

13. Hematological:

i. Disseminated intravascular coagulation and other coagulation disorders
ii. Thrombocytopenia
iii. Hypercoagulable states and anticoagulation
iv. Haemolytic syndromes
v. Acute blood loss and anaemia
vi. Neutropenia
vii. Blood component therapy
viii. Immunological disorders

14. Infections:

i. Severe infection due to aerobic and anaerobic bacteria
ii. Acute severe viral infection
iii. Fungal and parasites infections with sepsis and organ failure
iv. Nosocomial infection
v. Infection in the immunocompromised host
vi. Tropical disease
vii. Antimicrobial therapy

15. Gastrointestinal and hepatic disorders:

i. Prevention and treatment of acute upper G.I. bleeding
ii. Management of acute lower GI bleeding
iii. Perforated viscus and Peritonitis
iv. Acute hepatic failure and Ascitis

16. Clinical skills to be acquired:

i. Preanaesthetic evaluation for elective and emergency oncosurgery
ii. Anaesthetic and Perioperative management of various oncological conditions
iii. Intensive Care for oncological patients (both surgical and medical)
iv. Palliation and communication in oncology – Integration of Palliative Care including the communication skills and end of life care (EOLC).

IV. COMPETENCIES

1. Procedures, Techniques, And Minimally Invasive Monitoring:

i. Airway Management and Endotracheal Intubation
ii. Central Venous Catheterization
iii. Arterial Line Placement and Care
iv. Temporary Cardiac Pacing
v. Cardioversion and Defibrillation
vi. Chest Tube Insertion and Care
vii. Bronchoscopy
viii. Percutaneous Tracheostomy
ix. Cerebrospinal Fluid Aspiration
x. USG guided regional blocks
xi. Interventional Ultrasound
xii. Cardiopulmonary Resuscitation
xiii. Management of Pain in the Critically Ill Patient
xiv. Routine Monitoring of Critically Ill Patients
xv. Minimally Invasive Hemodynamic Monitoring
xvi. Echocardiography in the Intensive Care Unit
xvii. Mechanical ventilation in neurological patients
xviii. Haemodynamics management in a oncology-ICU patient including ACLS,
xix. Fluid & electrolyte management in oncology-ICU patient
xx. Basics interpretation of EEG, Evoked potential
xxi. Management of blood gases and acid – base status
xxii. Infection control in a oncology-ICU
xxiii. Bedside echocardiography

2. Diagnostic: - Ultrasound evaluation of critically ill patients:

i. Cardiac: Tamponade, ejection fraction estimation, intravascular volume status assessment, assessment of contractility
ii. Abdomen: Detection of fluid/hemoperitoneum, liver/spleen tear
iii. Vascular: Deep vein thrombosis, placement of IV canula, CVP lines, arterial cannula

3. Non-Technical Skills:

i. Orders and prioritizes appropriate investigations
ii. Principles of informed consent
iii. Principles of crisis management, conflict resolution, negotiation and debriefing
iv. Understand nonverbal communication with critically ill patients
v. Principles of delivering bad news to patients and families

vi. Strategies to communicate complicated critical care issues to the general population

a. Biostatistics, Research Methodology:
   - Good clinical practice (GCP) training for carrying out thesis and research.
   - Basic training in biostatistics and research methodology.

b. Ethics
   - Medico legal aspects relevant to the discipline

4. Research Projects:

It is mandatory for every candidate pursuing FNB in Onco-Anaesthesia to undertake a research project and / or an audit which must be completed during his tenure. This should be followed by a publication in a peer reviewed journal or a presentation in a national or international conference.

V. LOG BOOK

Aim & Objective of logbook

The aim of the log-book is to evaluate the training program on a day to day basis so as to ascertain the eligibility of the candidate to appear for the final Institute examination for the degree.

Following are the objectives of maintaining the log book:

1. To help the Resident to maintain the day to day record of work done by him / her.
2. To enable the faculties to have first-hand information about the work done by the resident and suggest improvement for better performance.
3. To confirm the participation in post graduate training activities like ward rounds, presentation of scientific articles at journal club, case clinics, post graduate seminars, clinical symposia and book reviews.
4. Assessing the skills acquired by residents in patient care, teaching and research.
5. To confirm level and degree of participation in research activities.

A candidate shall maintain a logbook of operations (assisted / performed) during the training period, certified by the concerned post graduate teacher / Head of the department / senior consultant.

This logbook shall be made available to the board of examiners for their perusal at the time of the final examination.The logbook should show evidence that the before mentioned subjects were covered (with dates and the name of teacher(s) The candidate will maintain the record of all academic activities undertaken by him/her in log book.

i. Personal profile of the candidate
ii. Educational qualification/Professional data
iii. Record of case histories
iv. Procedures learnt
v. Record of case Demonstration/Presentations
vi. Every candidate, at the time of practical examination, will be required to produce performance record (logbook) containing details of the work done by him/her during the entire period of training as per requirements of the logbook. It should be duly certified by the supervisor as work done by the candidate and countersigned by the administrative Head of the Institution.
vii. In the absence of production of logbook, the result will not be declared.

The log book will have the following sections:

S. No	Type of Onco-surgery and Non-Operating Room Anesthesia (NORA)
1.	Breast Surgery
2.	Head & Neck
3.	Gastro surgery
4.	Gynae Oncology
5.	Uro Oncology
6.	Thoracic Oncology
7.	Musculo-skeletal (Bone & Soft tissue)
8.	Pediatric*
9.	Neuro-Oncology*

10.	NORA: • Intervention Radiology • Endoscopic interventions • Radiotherapy • CT /MRI /PET,
11.	Others: • Pain • Palliative Care (including EOLC) • Critical Care • Non-Technical skills etc.
12.	Cardio-Pulmonary Brain Resuscitation

Format for individual surgery witnessed:

Breast Surgery

S. No	Date	Patient ID / Cr No	Name of Patient	Type of Surgery	Anaesthesia Details	Remarks	Signature of faculty

Head & Neck Surgery:

S. No	Date	Patient ID / Cr No	Name of Patient	Type of Surgery	Anaesthesia Details	Remarks	Signature of faculty

So on for Other Specialties listed in the table

End of Training Assessment (Every 6 Months)

S. No		A 1	A2	A3	FINAL EXAM
	From – To				As per the NBEMS pattern
1.	Punctuality and Reliability (5%)				
2.	Dependability (5%)				
3.	Quality of Work (10%)				
4.	Bedside manners (10%)				
5.	Patient Interaction/counseling (5%)				
6.	Case workup (10%)				
7.	Systematic reporting/presentation (5%)				
8.	Case follow-up (5%)				
9.	Documentation (5%)				
10.	Team work/Interpersonal skills (5%)				
11.	Attire and self-presentation (5%)				
12.	Knowledge and preparedness (10%)				
13.	Application of knowledge (5%)				
14.	Procedural skills (5%)				
15.	Teaching initiatives/skills (5%)				
16.	Research interest/initiatives (5%)				
17.	Net Score (100%)				
	Signature and Seal of Head of the Department/Unit Head with Date				

Scoring System	
5	Outstanding (80% and above)
4	Excellent (70-79%)
3	Good (60-69%)
2	Average (50-59%)
1	Below Average (less than 50%)

Journal Club Assessment

Note: Assessment of the Journal Article presentation by the moderator MUST be completed as soon as the presentation is over.

	Topic						
	Date						
1.	Article Relevance (5%)						
2.	Article Authenticity (5%)						
3.	Explained study context and background (5%)						
4.	Understood study methodology(10%)						
5.	Understood statistical analysis (5%)						
6.	Critically analyzed the results (1O%)						
7.	Understood study limitations (10%)						
8.	Able to conclude(10%)						
9.	Cross references examined (5%)						
10.	Answers audience questions (10%)						
11.	Audience Engagement (5%)						
12.	Presentation style (5%)						
13.	Clarity of presentation (5%)						
14.	Effectiveness (5%)						
15.	Audio-visual aids (5%)						
16.	Net Score (100%)						
Signature of the Moderator							

Scoring System	
5	Outstanding (80% and above)
4	Excellent (70-79%)
3	Good (60-69%)
2	Average (50-59%)
1	Below Average (40-49%)

Subject Seminar Presentation

Note: Assessment of the Subject Seminar by the moderator MUST be completed as soon as the presentation is over

	Topic						
	Date						
1.	Comprehensive preparation (10%)						
2.	Flow of presentation (5%)						
3.	Covers all the specified subtopics (10%)						
4.	Depth of knowledge (5%)						
5.	Content authenticity (5%)						
6.	Evidence of extensive search/research (10%)						
7.	Recent advances relevant to seminar topic (5%)						
8.	Summarizes key learning points (10%)						
9.	Time management (5%)						
10.	Answers audience questions (5%)						
11.	Audience Engagement (10%)						
12.	Presentation style (5%)						
13.	Clarity of presentation (5%)						
14.	Effectiveness (5%)						
15.	Audio-visual aids (5%)						
16.	Net Score (100%)						
Signature of the Moderator							

Scoring System	
5	Outstanding (80% and above)
4	Excellent (70-79%)
3	Good (60-69%)
2	Average (50-59%)
1	Below Average (40-49%)

Clinical Case Presentation

Note: Assessment of the clinical case presentation by the moderator MUST be completed as soon as the presentation is over

	Topic						
	Date						
1.	Comprehensive history (10%)						
2.	All relevant points elicited (10%)						
3.	Logical order of presentation (5%)						
4.	Clarity of presentation (5%)						
5.	Nonphysical history elicited comprehensively (5%)						
6.	General and systematic examined carried out logically (10%)						
7.	All physical signs elicited (10%)						
8.	Arrived at diagnosis corroborating H&E (10%)						
9.	Differential diagnoses provided (5%)						
10.	Able to defend the diagnosis (5%)						
11.	Able to plan further management (5%)						
12.	Able to answer questions (5%)						
13.	Subject knowledge (5%)						
14.	Effectiveness (5%)						
15.	Time management (5%)						
16.	Net Score (100%)						
	Signature of the Moderator						

Scoring System	
5	Outstanding (80% and above)
4	Excellent (70-79%)
3	Good (60-69%)
2	Average (50-59%)
1	Below Average (40-49%)

Log of Academic activities attended

Courses and Educational meetings attended

Date	Guest Lectures/ CMEs/ Conferences/ Events/ Courses/ Teaching activities/ Symposia/ Workshops

Log of Academic Award/honors received

Guest Lectures/ CMEs/ Conferences/ Events/ Courses/ Teaching activities/ Symposia/ Workshops Date	**Name of the Academic Award/honors received**

Log of other patient related interesting activities

Date	Counseling/ ICU/ OT/ Support group meetings	Care issues addressed

External teaching activities by the resident

Date	Place	Audience	Course	Topic

Any additional information not covered in above sections may be entered here

VI. RECOMMONDED TEXT BOOKS AND JOURNALS:

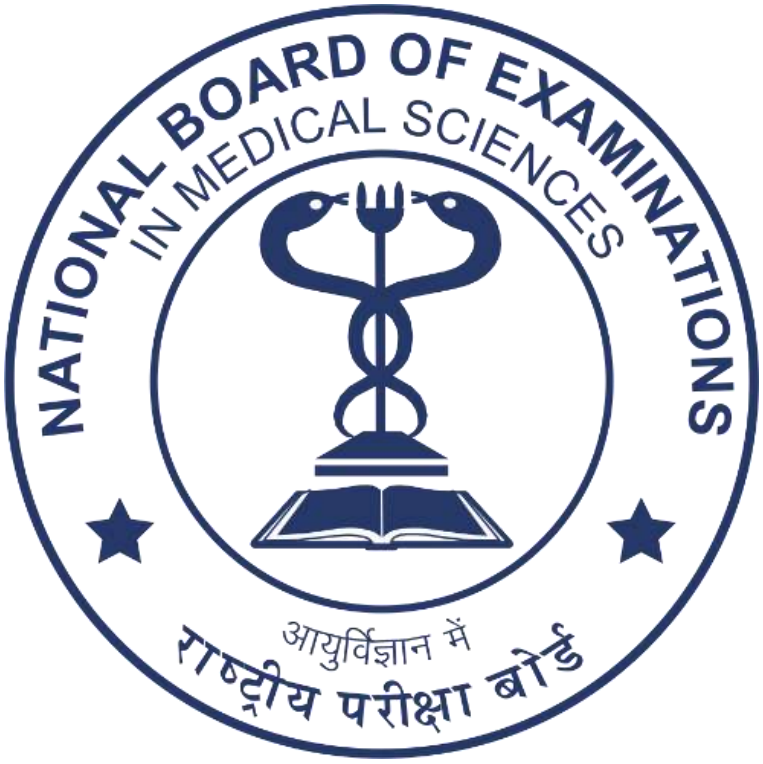
Textbooks

1. Update in Onco-Anesthesiology by Department of Onco-Anesthesia and Palliative Medicine, AIIMS
2. Anaesthesia, intensive care, and pain management for the cancer patient Paperback – 21 July 2011
3. Oncologic Critical Care, Editors: Nates, Joseph L., Price, Kristen J. (Eds.)
4. Textbook of critical care by Shoemaker
5. Perioperative Critical Care. JayPee Medical Publishers 2021
6. Procedures and monitoring for the critically ill patients by William Shoemaker
7. ICU by Paul Marino
8. Atlas of Interventional Pain Management Hardcover –by Steven D. Waldman MD
9. Bonica's management of pain 5ed (hb 2019)
10. Miller's Anesthesia textbook
11. Barash Clinical Anesthesia
12. Dorsch and Dorsch: Anesthesia equipment
13. Textbook of Onco-Anaesthesia: Rakesh Garg, Sushma Bhatnagar (Editors)
14. A complete Guide to Onco-anaesthesia.crtical care and pain : Jyotsna Goswami,Sudipta Mukherjee, Neha Desai, Rudranil Nandi

Journals

1. New England Journal of Medicine
2. Indian Journal of Cancer
3. Anaesthesia (Wiley publication).
4. Lancet
5. Anesthesia and Analgesia
6. British Journal of Anaesthesia
7. Canadian Journal of Anesthesia
8. Journal of Clinical Anesthesia
9. Journal of Clinical Monitoring and Computing
10. European Journal of Anesthesiology
11. Critical Care Medicine
12. Current Opinion in Anesthesiology

13. Intensive Care Medicine
14. Indian Journal of Anaesthesia
15. Journal of Anaesthesiology Clinical Pharmacology
16. Journal of Oncoanaesthesia and Perioperative Medicine (JOAPM)



आयुर्विज्ञान में राष्ट्रीय परीक्षा बोर्ड

स्वास्थ्य एवं परिवार कल्याण मंत्रालय, भारत सरकार

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