

Guidelines
For
Competency Based Training Programme
In
FNB- Pediatric Intensive Care



NATIONAL BOARD OF EXAMINATIONS

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INTRODUCTION

In past decade Pediatric Critical Care has rapidly grown in India but still remains a developing branch as far as Indian scenario is concerned and there are not many places in India where satisfactory critical care is being delivered to the needy children. As an effort to promote this field of pediatric intensive care in India, IAP Intensive Care Chapter was established in 1998.

One of the primary missions of the Section of Pediatric Intensive Care Medicine is to train the next generation of academically-minded pediatricians, who will help care for children with the most complex and critical conditions

Vision of the Program

We envision that our graduates will positively impact the health of critically ill children through their leadership, research contributions, and excellence in patient care.

Mission of the Program

There are three missions:

Patient Care: We strive to improve the standard of practice and ensure the highest quality of care to children in our hospitals and around the world. We care for children with the highest respect for their precious lives in a family-centered, compassionate, and caring environment, and utilize evidence-based approaches to treatments that are evaluated and updated regularly.

Research: We pursue new knowledge through high-quality research that explores unanswered questions and challenges and refines previously established ideas on mechanisms of disease and clinical aspects of pediatric critical care. We engage in world class clinical, translational and basic science research, aimed at improving children's lives throughout their lifespan. We work collaboratively within and outside our institution to generate important discoveries that enhance medical practice and inform the medical community and the public of evidence-based approaches to pediatric critical care medicine.

Education: Our Pediatric Critical Care Fellowship Program imparts knowledge, instills excitement for learning, and translates and refines questions into focused areas of research for our trainees. We train future leaders in pediatric critical care medicine who work in academic or private settings and deliver the highest-quality care to their patients. We accomplish this by:

- Allowing fellows to pursue their interests in a structured manner in order to produce quality research addressing significant questions in pediatric critical care medicine.
- Promoting a collegial environment that provides ample opportunity for fellows to grow and learn from their own and others' experiences.

Aims of program

To provide the Fellow with:

- An individually tailored training programme appropriate to each Fellow's experience and goals
- A sound theoretical knowledge base in normal physiology and pathophysiology of critical illness in children
- Up to date knowledge of treatment and technologies used in Paediatric Intensive care
- Clinical experience in the resuscitation, triage assessment and treatment of critically ill children
- Clinical experience in pediatric transport medicine
- The opportunity to perform ethical clinical research relevant to the practice of Paediatric Intensive Care
- Opportunity to develop right attitude toward patient care, colleague, other staff and parental counseling in difficult times

Purpose of the Training Program

The purpose of the fellowship is to train Pediatricians as knowledgeable pediatric intensivists, competent in the comprehensive management of any life-threatening condition in children and young adults.

This includes in-depth training in:

- Various modes of advanced life support and cardiopulmonary resuscitation
- Transport
- Triage and trauma
- Management of renal and hepatic failure including CRRT and hemofiltration
- Treatment of poisoning
- Appropriate use of drugs and dose modifications
- Hematological and infectious problems
- Perform invasive procedures under supervision & independently
- Continuous monitoring and interpretation of investigations
- Nutritional support
- Sophisticated support of the cardio respiratory failure including mechanical ventilation and advanced management of neuro-critical patients
- Management of perioperative cardiac patients with complex congenital heart disease and ECMO(if available)
- Risk reduction and infection control measures
- Bronchoscopy and bedside ultrasonography

PROGRAMME GOAL

The Pediatric Critical Care Fellowship Program integrates a strong background in basic and/or clinical research with excellent clinical training in pediatric critical care medicine and is compliant with all regulations.

The overall goals of the Pediatric Critical Care Fellowship Program are to provide an environment that permits each trainee to:

- Develop expertise in the complex care of all critically ill children.
- Develop skills in the design, understanding, and performance of clinical and/or laboratory research that will result in a better understanding of mechanisms of disease, physiology, and pathology, and the completion of at least one mentored research or scholarship project under the supervision of a scholarship oversight committee.
- Develop expertise at organization, analysis, preparation, and presentation of data.
- Develop knowledge of physiology and evidenced-based approaches to therapy.
- Develop expertise in all six core ACGME competencies.
- Be prepared for a successful academic or clinical career, and have the opportunity to pursue her/his own development in a research, clinical scholar, or clinical educator academic track, or to develop all skills required for a private career in pediatric critical care medicine.
- Fulfill all the requirements to obtain certification in Pediatric Critical Care Medicine by the American Board of Pediatrics; develop the self-discipline required for life-long learning, maintenance of certification, and compliance with regulations; and develop the expertise, administrative skills, and insight required for career planning, adaptation, leadership, and excellence in patient care.

One of the goals is to provide fellow trainees with an opportunity to participate in and contribute to ground-breaking and paradigm shifting research. There are opportunities to develop expertise in basic laboratory research, pediatric health services research, and translational and clinical research

The goal is to have fellows conceive an original research hypothesis, develop and execute an investigative protocol, present findings at a national conference, and submit a manuscript to a peer-reviewed medical journal prior to completion our program. We believe that with the training, mentorship, and opportunities available in our program, trainees will be attractive and highly competitive to the full cadre of professional opportunities, including academic positions, at leading facilities.

PROGRAMME OBJECTIVES

The primary objective of the fellowship program is to provide fellows with a learning environment that will enable them to become expert practitioners and leaders in the field of Pediatric Critical Care Medicine. The fellowship director works closely with each fellow throughout their three years of training to tailor his/her experience to meet individual career aspirations. In the past this has included the design of ABP-approved dual subspecialty training in PCCM and other pediatric subspecialties, including emergency medicine and pulmonology.

The goals of the program are four-fold:

- To provide fellows with an understanding of the pathophysiology of life-threatening disease and injury, and the cognitive and technical skills necessary to independently diagnose and manage critically ill infants, children and adolescents.
- To foster an environment of intellectual curiosity, advance the fellows' knowledge of the basic principles of research and mentor each fellow in the pursuit of scholarly activity related to pediatric critical care.
- To enable fellows to become effective educators in pediatric critical care medicine.
- To help the fellows become efficient administrators, through supervised acquisition of experience in management and problem-solving in a multidisciplinary pediatric intensive care unit

ELIGIBILITY CRITERIA FOR ADMISSIONS TO THE PROGRAMME

(A) FNB Pediatric Intensive Care Course:

1. Any medical graduate with **MD/DNB Pediatrics** qualification , who has qualified the **Entrance Examination** conducted by NBE and fulfill the eligibility criteria for admission to Fellowship courses at various NBE accredited Medical Colleges/ institutions/Hospitals in India is eligible to participate in the Centralized counseling for allocation of FNB Pediatric Intensive Care seats purely on merit cum choice basis.
2. Admission to 2 years Fellowship course is only through Entrance Examination conducted by NBE and Centralized Merit Based Counseling conducted by National Board of Examination as per prescribed guidelines.

Duration of Course : 2 Years

Every candidate admitted to the training programme shall pursue a regular course of study (on whole time basis) in the concerned recognized institution under the guidance of recognized post graduate teacher for assigned period of the course.

TEACHING AND TRAINING ACTIVITIES

The fundamental components of the teaching programme should include:

1. Bedside case discussion - Daily
2. Difficult Case presentations & discussion- once a week
3. Seminar – Once a week
4. Journal club- Once a week
5. Grand round presentation (by rotation departments and subspecialties)- once a week
6. Faculty lecture teaching- once a month
7. Mortality & morbidity meeting – once a week
8. Clinical Audit-Once a Month
9. A poster and have one oral presentation at least once during their training period in a recognized conference.

The rounds should include bedside sessions, file rounds & documentation of case history and examination, progress notes, round discussions, investigations and management plan) interesting and difficult case unit discussions.

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

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.

Symposia: Trainees would be required to present a minimum of 20 topics based on the curriculum in 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 presentation.

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 in rehabilitation practice.

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

Journal Clubs: This would be a weekly academic exercise. A list of suggested Journals is given towards the end of this document. The candidate would summarize and discuss the scientific article critically. A faculty member will suggest the article and moderate the discussion, with participation by other faculty members and resident doctors. The contributions made by the article in furtherance of the scientific knowledge and limitations, if any, will be highlighted.

Research: The student would carry out the research project and write a thesis/ dissertation in accordance with NBE guidelines. The trainee would also be given exposure to partake in the research projects going on in the departments to learn their planning, methodology and execution so as to learn various aspects of research.

SYLLABUS

Domains in Paediatric Intensive Care Medicine curriculum

- History of Pediatric Critical Care
- Basic sciences
- Resuscitation and initial management of the acutely ill child
- Clinical assessment, investigation,
- Data interpretation and monitoring
- Organ system support and therapeutic interventions
- Peri-operative care
- Compassionate and family oriented care
- End of life care
- Patient safety
- Transport
- Acute disease management
- Trauma and burns
- Sepsis
- Professionalism
- The Intensivist in the New Hospital Environment: Patient Care and Stewardship of Hospital Resources
- The Nursing care in Pediatric Critical Care
- Research in Pediatric Critical Care
- Proving the Point: Evidence-Based Medicine in Pediatric Critical Care
- Outcomes in Pediatric Critical Care Medicine:
- Implications for Health Services Research and Patient Care
- Safety and Quality Assessment in the Pediatric Intensive Care Unit
- Information Technology in Critical Care
- Family-Centered Care in the Pediatric Intensive Care Unit
- Ethics in Pediatric Intensive Care
- Ethical Issues in Death and Dying
- Palliative Care

- The Process of Organ Donation and Pediatric Donor Management
- Pediatric Transport: Shifting the Paradigm to Improve Patient Outcome
- Pediatric Vascular Access
- Pediatric Intensive Care in Developing Countries
- Educating the intensivist
- Critical Care in Public Health Emergencies
- Psychosocial Aspects of Pediatric Critical Care
- Analgesia, Sedation, and Neuromuscular Blockade in Pediatric Critical Care
- The Dying Child in the Intensive Care Unit
- Structure and Function of the Heart
- Regional Circulation
- Principles of Invasive Monitoring
- Assessment of Cardiovascular Function
- Echocardiography and Noninvasive Cardiac Diagnostics
- Diagnostic and Therapeutic Cardiac Catheterization
- Pharmacology of the Cardiovascular System
- Cardiopulmonary Interactions
- Myocardial Dysfunction, Ventricular Assist Devices and Extracorporeal Membrane Oxygenation
- Disorders of Cardiac Rhythm
- Shock States
- Cardiac Bypass for Repair of Congenital Heart Disease in Infants and Children
- Critical Care After Surgery for Congenital Cardiac Disease
- Cardiac Transplantation
- Physiologic Foundations of Cardiopulmonary Resuscitation
- Performance of CPR in Infants and Children
- Structure and Development of the Upper Respiratory System in Infants and Children
- Structure of the Respiratory System – Lower Respiratory Tract
- Physiology of the Respiratory System
- Control of Breathing and Acute Respiratory Failure
- Assessment and Monitoring of Respiratory Function
- Ventilation-Perfusion Inequality

- Mechanical Dysfunction of the Respiratory System
- Overview of Breathing Failure
- Noninvasive Monitoring in Children
- Specific Diseases of the Respiratory System: Upper Airway
- Asthma
- Neonatal Respiratory Disease
- Pneumonitis and Interstitial Disease
- Diseases of Pulmonary Circulation
- Mechanical Ventilation and Respiratory Care
- Noninvasive Ventilation: Concepts and Practice
- Diseases of Pulmonary Circulation
- Acute Respiratory Distress Syndrome in Children
- Extracorporeal Life Support
- Pediatric Neurocritical Care
- Pediatric Neurological Assessment and Monitoring
- Neuroimaging
- Development, Structure, and Function of the Brain and Neuromuscular Systems
- Coma and Depressed Sensorium
- Intracranial Hypertension and ICP Monitoring
- Status Epilepticus
- Severe Traumatic Brain Injury in Infants and Children
- Hypoxic-Ischemic Encephalopathy: Pathobiology and Therapy of the Post-Resuscitation Syndrome in Children
- Stroke and Intracerebral Hemorrhage
- Acute Neuromuscular Diseases and Disorders in Pediatric Critical Care
- Acute Central Nervous System Infections
- Renal Structure and Function
- Fluid and Electrolyte Issues in Pediatric Critical Illness
- Acid-Base Balance and Disorders
- Tests of Kidney Function in Children
- Renal Pharmacology
- Glomerulo-tubular Dysfunction and Acute Kidney Injury
- Pediatric Renal Replacement Therapy in the Intensive Care Unit

- Cellular Respiration
- Nutrition in the Critically Ill Child
- Inborn Errors of Metabolism
- Common Endocrinopathies in the PICU
- Diabetic Ketoacidosis
- Structure and Function of Hematopoietic Organs
- Thromboembolism in Pediatric Intensive Care
- Hematology and Oncology Problems in the Intensive Care Unit
- Transfusion Medicine
- Critical Illness Involving Children Undergoing Hematopoietic Stem Cell Transplantation
- Hemoglobinopathies
- Gastrointestinal Structure and Function
- Disorders and Diseases of the Gastrointestinal Tract and Liver
- Gastrointestinal Pharmacology
- Acute Liver Failure, Liver Transplantation, and Extracorporeal Liver Support
- Acute Abdomen
- The Innate Immune System
- Infection and Host Response
- Congenital Immunodeficiencies
- Acquired Immune Dysfunction
- Antibiotic-Resistant Organisms in the Pediatric Intensive Care Unit
- Life-Threatening Viral Diseases and Their Treatment
- Infectious Syndromes in the PICU
- Healthcare Associated Infection in the PICU:
- Epidemiology and Control – Keeping Patients Safe
- Autoimmune Diseases: Diagnosis, Treatment, and life threatening Complications
- Genomic and Proteomic Medicine in Critical Care
- Molecular Foundations of Cellular Injury: Necrosis, Apoptosis and Autophagy
- Endotheliopathy
- Neuroendocrine Immune Mediator Coordination and Disarray in Critical Illness
- Sepsis

- Inflammation and Immunity: Systemic Inflammatory Response Syndrome, Sepsis, Acute lung Injury and Multiple Organ Failure
- Principles of Toxin Screening, Assessment and Detoxification
- Toxidromes and Their Treatment
- Bites and Stings
- Heat Injury
- Accidental Hypothermia
- Drowning
- Burn and Inhalation Injuries
- Evaluation, Stabilization and Initial Management After Multiple Trauma
- Child Abuse and Neglect
- Thoracic Injuries in Children
- Abdominal Trauma in Pediatric Critical Care
- Principles of Drug Disposition in the Critically Ill Child
- Molecular Aspects of Drug Actions: from Receptors to Effectors
- Adverse Drug Reactions and Drug–Drug Interactions
- Pediatric Airway Management
- Organ System Considerations That Affect Anesthetic Management
- Anesthesia Principles and Operating Room Anesthesia Regimens
- Neuromuscular Blocking Agents
- Sedation and Analgesia
- Malignant Hyperthermia

24-month pediatric critical care fellowship training program include:

- 1 month anesthesia training in the pediatric operating room paired with a pediatric anesthesiologist and critical care faculty
- 10-11 months of clinical pediatric critical care
- 12 months research experience
- The PICU fellowship includes clinical training in the diagnosis and treatment of respiratory, neurologic and cardiac failure as well as critical care transport. Areas of focus include implementation and use of ECMO (extracorporeal membrane

oxygenation), helicopter and ambulance pediatric transport, principles of ventilator management and renal replacement therapy.

Pediatric Critical Care Lectures Series consists of:

- PICU Journal Club and Evidence Based Medicine Lecture series- bimonthly
- PICU Case Review and Goals of Care Conference – occurring every Tuesday
- PICU Case of the Week Conference- occurring every Thursday
- PICU/ Pediatric Surgery joint Conference – occurring six times per year
- PICU Board Review – occurring quarterly
- PICU Morbidity and Mortality conference – occurring bimonthly
- PICU Fellow simulation learning series – five sessions per year
- Molecular Medicine in Critical Care conference series- occurring monthly

During their training all Fellows will spend equal time caring for cardiac and general ICU patients.

Clinical responsibilities are all undertaken under direct supervision of a consultant intensivist, with increasing responsibility and autonomy being granted to more experienced trainees. Senior trainees (those with more than 2 years experience of PICU at RCH level) may be offered the opportunity to take first-call responsibility for the unit, in accordance with advanced training requirements.

Cardiac Intensive Care

- Assessment, admission and initial management of newly diagnosed congenital heart disease.
- Post-operative management of cardiac surgical patients, including cardiac transplantation.
- Medical management of heart failure and severe dysrhythmias.
- Initiation and ongoing management of VAD and ECMO for cardiac and respiratory disease.

General Intensive Care

- Assessment, admission and initial management of critically ill children.
- Post-operative management of neurosurgical, orthopaedic, ENT, general surgical patients, liver and intestinal transplant recipients
- Central role in the RCH Trauma Team, responding to high-level trauma calls in the Emergency Department
- Providing advice, assessment and practical help (vascular access, procedures) to other clinical services and areas within RCH.
- Responding to emergency calls for assistance including cardiorespiratory arrest as part of the Medical Emergency Team. This team covers all clinical and non-clinical areas of the hospital campus.

PETS

- Handling telephone calls for advice from outside doctors and hospitals.
- Coordinating and undertaking transfer of critically ill children from referring centres

Teaching

- A core teaching programme runs annually and is delivered during 2 hours of didactic lectures each week. The curriculum is based on the knowledge required to pass the written component of the JFICM fellowship examination.
- Weekly themed meetings discuss cases in a more interactive fashion.
- These rotate through the topics of ECMO, Clinical Ethics, Clinical Nutrition, PETS, Morbidity and Mortality and Case presentations.
- Trainees are required to present cases at these meetings, with the discussion chaired by a consultant intensivist or expert in that field.
- Trainees are given protected time to spend in Anaesthesia where they gain experience in all aspects of airway management under the supervision of a Consultant Anaesthetist.

- Exclusive hands-on echocardiography experience is provided by consultant cardiologists in the ICU each week.
- Trainees are encouraged to attend both the weekly Echocardiography Meeting and Cardiac Scheduling Conference in the Cardiology Department.

Research

Trainees spending 6 months or more undertake a research project under the supervision of a consultant intensivist. These range from simple retrospective reviews to designing and running clinical trials within the PICU, depending on available time and experience of the trainee.

Mentoring and Assessment

Trainees are assigned a consultant mentor at the beginning of their period of training. At an initial meeting the trainee's expectations and requirements are determined and a programme is devised to fulfill these. There are monthly meetings between trainees and mentors to ensure that these are being met. Trainees are assessed by each consultant every 3 months and their progress is discussed by the consultant group. The mentor then provides feedback to the trainee, and they devise an approach to any identified problems or deficiencies. The consultant mentor performs a formal 6 or 12 monthly appraisal for each trainee depending on the period of training.

Description of Clinical Experience

Pediatric Emergency Medicine fellows rotate through the 36-bed C.S. Mott Pediatric Intensive Care Unit and Pediatric Cardiothoracic Unit for one month during the PEM I year. PEM fellows function as Pediatric Intensive Care fellows as they supervise pediatric residents and medical students

Description of Didactic Experience

In addition to daily teaching rounds, there is a weekly (PICU Seminar that fellows are expected to attend including various PICU topics, evidence based medicine, and

research. Fellows are released to attend conferences when there is not a conflict with critical clinical responsibilities.

Biostatistics, Research Methodology and Clinical Epidemiology

Ethics

Medico legal aspects relevant to the discipline

Health Policy issues as may be applicable to the discipline

Competencies

EDUCATIONAL GOALS:

- Fellows will learn how to evaluate and manage critically ill children in a Pediatric Intensive Care setting using evidence to direct patient care and medical decision making in a team setting with
- Fellows will learn, understand and utilize critical care monitoring techniques used to measure pathophysiologic processes during critical illness.
- Fellows will perform (learn indication, contraindication) of life saving/critical procedures required for stabilization and management of critically ill children.
- Fellows will develop knowledge of ethical and social issues encountered in the management of critically ill patients and their families, including end of life decision making/death of a child.

EDUCATIONAL OBJECTIVES:

- Demonstrate knowledge of the pathophysiology, evaluation and management of acutely ill pediatric patients.
- Further refine the ability to prioritize diagnostic and therapeutic interventions in the critically ill patient.
- Further refine skill in the resuscitation of children with unstable vital signs.
- Competencies
- Refine skills in the interpretation and use of physiologic parameters, such as ABG's, blood pressure, RR, cardiac output, central venous pressure, etc.
- Develop experience in the performance of invasive procedures, such as orotracheal intubation, central vein cannulation and arterial line placement. Understand the indications and risks of each of these procedures.
- Refine skills in management of patients requiring mechanical ventilation.
- Learn to effectively work with multiple consultants in complex medical cases.
- Develop the communication skills needed to act as an integrated team member with nurses, respiratory technicians, fellows, residents, and faculty.

- Develop an understanding of and participate in the collegial responsibility to provide excellent patient care across the continuum of care from pediatric emergency department to pediatric ICU.
- Demonstrate an awareness of and participate in patient safety efforts and identification/reporting

Responsibilities include participation in daily patient care

Round planning ,management of ventilation, fluids and electrolytes, nutrition, infections, hematologic parameters and hemodynamic parameters.

Procedural experience includes tracheal intubation, central venous catheterization, thoracostomy, arterial catheterization, lumbar puncture, and nasogastric tube placement.

In addition to managing the wide variety of complicated patients in the ICU, fellows also lead the Pediatric Code Team. Fellows take in-house call every 4-5 days in rotation with PICU fellows. Fellows coordinate call schedule creation with the PICU fellows to determine final schedule.

By the completion of training, fellows will exhibit an enhanced degree of maturity in their patient management skills, increased awareness and effort as primary educators and the development of leadership skills such that they can manage the PCCM team of residents, fellows, faculty, nurses and respiratory therapists. They are expected to be technically excellent, competent to function as a pediatric intensivist and leaders among their peers. Their independent research careers will augment their intellectual thought processes and allow them to develop creative solutions to difficult problems.

By the end of the fellowship, the fellows are expected to have achieved competency in the following areas:

Patient Care

- Gather accurate and essential information about their patients.
- Communicate effectively and demonstrate caring respectful behavior when interacting with families and patients.
- Make informed decisions and diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence and clinical judgment.
- Develop and carry out patient management plans.
- Counsel and educate patients and their families.
- Perform competently all medical and invasive procedures considered essential for PCCM training.
- Provide health care services aimed at preventing further health problems.

Medical Knowledge

- Know and apply basic and clinical sciences appropriately to PCCM.
- Demonstrate an investigatory and analytical thinking approach to clinical situations.

Interpersonal Skills and Communication

- Create and sustain a therapeutic and ethically sound relationship with patients.
- Use effective listening skills and elicit and provide information using effective nonverbal, explanatory questioning and writing skills.
- Work effectively with others as members or leader of the health care team.
- Properly utilize ancillary health care professionals, including those from other disciplines, to provide focused patient care.

Professionalism

- Demonstrate respect, compassion and integrity: a responsiveness to the needs of patients, their families, and society that supersedes self-interest; accountability to patients, families, society and the profession; and a commitment to excellence and on-going professional development.
- Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care; confidentiality of patient information, informed consent and business practices.
- Demonstrate sensitivity and responsiveness to patients' culture, age, gender and disabilities.

Practice-Based Learning and Improvement

- Analyze practice experience and perform practice-based improvement activities using a systematic methodology.
- Locate, appraise and assimilate evidence from scientific studies related to their patients' health problems.
- Obtain and use information about PCCM patients and the larger population from which their patients are drawn.
- Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness.
- Use information technology to manage information and access on-line medical information.
- Facilitate the learning of residents, students and other health care professionals.

Systems-Based Practice

- Understand how patient care and other professional practices affect other health care professionals, the health care organization and the larger society and how these elements of the system impact their own practices.
- Know how types of medical practices and delivery systems differ from one another.
- Practice cost-effective health care and resource allocation that does not compromise quality of care.
- Advocate for quality patient care and assist patients in dealing with system complexities.
- Use information technology to support patient care decisions and patient education.

Tertiary-Care Pediatrics

A diverse patient base with a wide range of pediatric pathologies exposes the fellow to the broad spectrum of tertiary-care pediatrics. Under the supervision of the PCCM attending, the fellow directs the care of every patient admitted to the Pediatric Intensive Care Unit (PICU).

Clinical Research

Intensive introduction to the principles of basic-science and clinical research is an integral part of the fellowship. The fellow may choose to pursue basic science research. Clinical research may be undertaken under the direction of pediatric intensivists or other sub specialists.

LOG BOOK

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

This log book shall be made available to the board of examiners for their perusal at the time of the final examination.

The log book 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 .

1. Personal profile of the candidate
2. Educational qualification/Professional data
3. Record of case histories
4. Procedures learnt
5. Record of case Demonstration/Presentations
6. Every candidate, at the time of practical examination, will be required to produce performance record (log book) containing details of the work done by him/her during the entire period of training as per requirements of the log book. It should be duly certified by the supervisor as work done by the candidate and countersigned by the administrative Head of the Institution.
7. In the absence of production of log book, the result will not be declared.

Leave Rules

1. DNB/FNB Trainees are entitled to avail leave during the course of DNB/FNB training as per the Leave Rules prescribed by NBE.
2. A DNB/FNB Trainees can avail a maximum of 30 days of leave in a year excluding regular duty off/ Gazetted holidays as per hospital/institute calendar/policy. This leave shall be processed at the institutional level.
3. Any kind of study leave is not permissible to DNB/FNB Trainees.
4. Under normal circumstances leave of one year should not be carried forward to the next year. However, in exceptional cases such as prolonged illness, the leave across the DNB/FNB training program may be clubbed together with prior approval of NBE.
5. Unauthorized absence from DNB/FNB training for more than 7 days may lead to cancellation of registration and discontinuation of the DNB/FNB training and rejoining shall not be permitted.
6. Any Leave availed by the candidate other than the eligible leave (30 days per year) shall lead to extension of DNB /FNB training. The training institute has to forward such requests to NBE along with the leave records of the candidate since his/her joining and supporting documents (if any) through the Head of the Institute with their recommendation/comments. NBE shall consider such requests on merit provided the seat is not carried over and compromise with training of existing trainees in the Department.
7. Any extension of DNB/FNB training beyond the scheduled completion date of training is permissible only under extra-ordinary circumstances with prior approval of NBE. Such extension is neither automatic nor shall be granted as a matter of routine.
8. DNB/FNB trainees are required to complete their training by a prescribed cutoff date (as per information bulletin of Exit exam) for being eligible to DNB/FNB Exit examination.
9. The eligibility for DNB/FNB Final Examination shall be determined strictly in accordance with the criteria prescribed in the respective information bulletin.
10. candidates join on or after 2018 can avail Maternity / Paternity leave, as per the Central or State Government policies, whichever is applicable to DNB/FNB training institute.

11. DNB/FNB trainees are eligible for stipend either during the leave period or extension of training period as per the policies of DNB/FNB training institute and prevailing rules.

EXAMINATION

FORMATIVE ASSESSMENT

Formative assessment includes various formal and informal assessment procedures by which evaluation of student's learning, comprehension, and academic progress is done by the teachers/ faculty to improve student attainment. Formative assessment test (FAT) is called as "Formative" as it informs the in process teaching and learning modifications. FAT is an integral part of the effective teaching. The goal of the FAT is to collect information which can be used to improve the student learning process.

Formative assessment is essentially positive in intent, directed towards promoting learning; it is therefore part of teaching. Validity and usefulness are paramount in formative assessment and should take precedence over concerns for reliability. The assessment scheme consists of Three Parts which has to be essentially completed by the candidates.

The scheme includes:-

- Part I:- Conduction of theory examination
- Part-II :- Feedback session on the theory performance
- Part-III :- Work place based clinical assessment

Scheme of Formative assessment

PART – I	CONDUCT OF THEORY EXAMINATION	Candidate has to appear for Theory Exam and it will be held for One day.
PART – II	FEEDBACK SESSION ON THE THEORY PERFORMANCE	Candidate has to appear for his/her Theory Exam Assessment Workshop.
PART – III	WORK PLACE BASED CLINICAL ASSESSMENT	After Theory Examination, Candidate has to appear for Clinical Assessment.

The performance of the resident during the training period should be monitored

throughout the course and duly recorded in the log books as evidence of the ability and daily work of the student

1. Personal attributes:

- **Behavior and Emotional Stability:** Dependable, disciplined, dedicated, stable in emergency situations, shows positive approach.
- **Motivation and Initiative:** Takes on responsibility, innovative, enterprising, does not shirk duties or leave any work pending.
- **Honesty and Integrity:** Truthful, admits mistakes, does not cook up information, has ethical conduct, exhibits good moral values, loyal to the institution.
- **Interpersonal Skills and Leadership Quality:** Has compassionate attitude towards patients and attendants, gets on well with colleagues and paramedical staff, is respectful to seniors, has good communication skills.

2. Clinical Work:

- **Availability:** Punctual, available continuously on duty, responds promptly on calls and takes proper permission for leave.
- **Diligence:** Dedicated, hardworking, does not shirk duties, leaves no work pending, does not sit idle, competent in clinical case work up and management.
- **Academic ability:** Intelligent, shows sound knowledge and skills, participates adequately in academic activities, and performs well in oral presentation and departmental tests.
- **Clinical Performance:** Proficient in clinical presentations and case discussion during rounds and OPD work up. Preparing Documents of the case history/examination and progress notes in the file (daily notes, round discussion, investigations and management) Skill of performing bed side procedures and handling emergencies.

3. Academic Activity: Performance during presentation at Journal club/ Seminar/ Case discussion/Stat meeting and other academic sessions. Proficiency in skills as mentioned in job responsibilities.

FELLOWSHIP EXIT EXAMINATION

The summative assessment of competence will be done in the form of Fellowship Exit Examination leading to the award of the degree of Fellow of National Board in Pediatric Intensive Care. The FNB final is a two-stage examination comprising the theory and practical part

Theory Examination:

- 1. The Theory examination comprises of one paper with maximum marks of 100.**
- 2. There are 10 short notes of 10 marks each in the Theory paper**
- 3. Maximum time permitted is 3 hours.**

Practical Examination:

- 1. Maximum marks : 300**
 - 2. Comprises of Clinical Examination and viva**
- The candidate has to score a minimum of 50% marks in aggregate i.e. 200 out of total 400 marks (Theory & Practical) with at least 50% marks in theory examination to qualify in the Fellowship Exit Exam.
 - The Theory and Practical of Fellowship Exit Examination shall be conducted at the same examination centre of the concerned specialty.

Declaration of FNB Results

1. Fellowship Exit Examination is a qualifying examination.
2. Results of Fellowship Exit Examination (theory & practical) are declared as PASS/FAIL.
3. FNB degree is awarded to a FNB trainee in the convocation of NBE.

RECOMMENDED TEXT BOOKS AND JOURNALS

Textbooks

- Pediatric Critical Care - 4th Edition - Elsevier
- Rogers' Textbook of Pediatric Intensive Care - LWW.com
- Pediatric Critical Care Study Guide
- Text and Review
- Editors: Lucking, S.E., Maffei, F.A., Tamburro, R.F., Thomas, N.J.
- Wiley: Pediatric Critical Care: The Essentials - Joseph Tobias
- Rogers textbook of pediatric intensive care
- Rogers textbook of pediatric intensive care free download
- Pediatric intensive care books free download
- Zimmerman pediatric critical care
- Manual of Pediatric Intensive Care - Haresh Kirpalani,
- Manual of Pediatric Critical Care - 1st Edition - Elsevier

Journals

- Frontiers in Pediatrics | Pediatric Critical Care
- Pediatric Critical Care
- Journal of Pediatric Critical Care
- Pediatric Critical Care Medicine (journal)
- Journal of Critical Care
- Indian Journal of Critical Care Medicine
