



Curriculum

FNB Fellowship

2025



Paediatric Cardio Thoracic and Vascular Surgery

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I. INTRODUCTION

National Board of Examinations in Medical Sciences is offering a 2-year post doctorate residential course (Fellowship) in field of Paediatric Cardiac Surgery. The fellow of Paediatric Cardiac Surgery can practice in the field of paediatric cardiac surgery. The minimum qualification required being MCh in cardiothoracic surgery or DNB in cardiothoracic surgery.

II. PROGRAM GOAL AND OBJECTIVES

The trainee in Clinical Paediatric Cardiac Surgery should acquire broad knowledge in all aspects of paediatric cardiac surgery, including but not limited to managing various septal defects, shunts, congenital valvular defects, management of both left ventricular and right ventricular outflow tracts, malposition and transposition of the great arteries, congenital coronary anomalies, anatomical and physiological single ventricles situation, aortic arch, branch pulmonary artery anomalies, and any other congenital anomalies of the heart. The candidate should acquire skills in interpreting paediatric echocardiograms, electrocardiograms, CT scan, MRI scans and other imaging modalities involved in paediatric cardiac surgery. The candidate should have working knowledge and skill in cardiac catheterization and basic intervention which will help him to plan for surgical intervention and provide surgical backup in case of mishaps. The candidate should be conversant with basic principles in the postoperative management in the ICU. The candidate should have exposure to basic electrophysiology, and should be adept in use of pacing, both single chamber and dual chamber. The candidate should have understanding of the logistics involved in planning and executing a paediatric or neonatal procedure, including extracorporeal perfusion. The candidate should train to be a team leader with good surgical skills. The central idea being that the candidate is capable of treating common paediatric cardiac surgical issues independently soon after clearing the exam, and as his confidence improves should progress to address more complex lesions.

III. TEACHING & TRAINING ACTIVITIES



The fundamental components of the teaching programme should include:

Case presentations and discussion:	Once a week
Seminar:	Once a month
Journal club:	Once a month
Grand round presentation	Once a week
Faculty lecture teaching:	Once a month
Clinical Audit:	Once a Month
Cardiology dept posting including Cath lab/ echo	For a month

One poster presentation or one oral presentation at a National or international conference. A copy of the poster or presentation needs to be recorded in the log book+ Thesis to be replaced with a publication in any indexed national or international journal, which is not a case report or letter to the editor

Should attend atleast one per academic year. national/ international level CME programme, workshop conducted by accredited paediatric cardiac surgical body, e.g., SPCHS, WSPCHS, IACTS, PCSI etc. The actual presentations attended, and learning points should be recorded in the log book.

A visit as an observer for atleast 15 days to another advanced centre which does complex surgeries like HLHS, Root transfers, double arterial switch, ventricular recruitment surgeries, is optional but desirable.

The training program would focus on acquiring knowledge, skills and attitudes which are essential components of education and delivery of high-quality patient care. The training should be theoretical, clinical and practical in all aspects of the delivery of comprehensive rehabilitative care, and should include methodology of research and teaching.

- 1. Theoretical:** The theoretical knowledge would be imparted through faculty lectures, discussions, journal clubs, symposia and seminars. The students will be exposed to recent advances through discussion in journal clubs. These are necessary in view of an inadequate exposure to the subject in the undergraduate curriculum.
- 2. Symposia:** Trainees would be required to present a minimum of 12 topics based on the curriculum in a period of two 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 by the teacher.

3. **Clinical:** The trainee would be attached to a faculty member to be able to learn methods of history taking, examination, making a diagnosis and management. Would also need to consent parents, and explain the procedure to the parents.
4. **Bedside:** The trainee would work up cases, learn management of cases by discussion with faculty members in the department.
5. **Journal Clubs:** This would be once a month 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 residents. The contributions made by the article in furthering the scientific knowledge, its clinical implications and limitations, if any, will be highlighted. The presentations should be in slide format and a copy is to be included in the log book.
6. Posting to cardiology dept to acquire working knowledge of cardiac echo, ECG and cardiac Cath/ Angio this should be for a period of 15 days minimum. A record of the procedures done, assisted, and learning points to be recorded in the log book. This should be for a period of 1 month.
7. Would need to take duties in the paediatric post operative ICU. Should record the complications for atleast one major case per week, in the log book
8. Cardiac operation theatre would be the primary learning area., where in addition to performing and assisting at surgery, the candidate should involve himself in overseeing the perfusion team, organizing the residents and junior fellows.
9. Outpatient clinics and followup clinics should be given due importance to ensure a comprehensive care of patient.



IV. SYLLABUS

- Normal anatomy and development of the heart
- Anomalies of Venous Connection
- Anomalies of the Aorta, Aortic Arch, and Coronary Arteries
- Anomalies of the Tricuspid and Mitral Valves
- Anomalies of the Aortic Valve and Left Ventricular Outflow Tract
- Anomalies of the Pulmonary Valve and Right Ventricular Outflow Tract
- Conotruncal Anomalies
- Anomalies of Atrioventricular Connection, Univentricular Heart, and Atrial/Visceral Situs
- Diseases of the Myocardium
- Myocardial preservation strategies, cardiopulmonary perfusion, ECMO and paediatric VAD,
- Paediatric cardiac transplantation
- Pre-, Intra-, and Post-Operative Evaluation and Management of Congenital Cardiac Disease
- Acquired Cardiovascular Diseases in Infants and Children
- Congenital Heart Disease in the Adult
- Atrial Septal Defect and Partial Anomalous Pulmonary Venous Connection
- Total Anomalous Pulmonary Venous Connection
- Cor Triatriatum
- Unroofed Coronary Sinus Syndrome
- Atrioventricular Septal Defect
- Ventricular Septal Defect
- Congenital Sinus of Valsalva Aneurysm and Aortico-Left Ventricular Tunnel
- Patent Ductus Arteriosus
- Ventricular Septal Defect with Pulmonary Stenosis or Atresia
- Pulmonary Stenosis and Intact Ventricular Septum
- Pulmonary Atresia and Intact Ventricular Septum
- Tricuspid Atresia and Management of Single-Ventricle Physiology
- Ebsteins Anomaly
- Truncus Arteriosus
- Aortopulmonary Window
- Origin of the Right or Left Pulmonary Artery from the Ascending Aorta
- Congenital Anomalies of the Coronary Arteries
- Congenital Aortic Stenosis
- Coarctation of the Aorta and Interrupted Aortic Arch



- Aortic Atresia and Other Forms of Hypoplastic Left Heart Physiology
- Congenital Mitral Valve Disease
- Vascular Ring and Sling
- Complete Transposition of the Great Arteries
- Double Outlet Right Ventricle
- Double Outlet Left Ventricle
- Congenitally Corrected Transposition of the Great Arteries and Other Forms of Atrioventricular Discordant Connection
- Double Inlet Ventricle and Atretic Atrioventricular Valve
- Anatomically Corrected Malposition of Great Arteries
- Atrial Isomerism

V 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. Please include learning points
7. Name
8. job /position held
9. Record of case histories
 - Procedures as first assistant Please include learning points
 - Procedures as independent surgeon Please include learning points
 - Symposia, please include learning points
 - Clinical audits, please include learning points.



10. Radiology discussion Please include learning points

- Cath records Please include learning points
- journal club presentations Please include learning points
- faculty teaching seminars Please include learning points.
- conferences attended Please include learning points
- workshops participated Please include learning points.
- publications Abstract to be included
- centre case load per year
- Guide and co guide names

1. brief biodata of guide

2. brief biodata of co guide

3. guide assessment see proforma attached

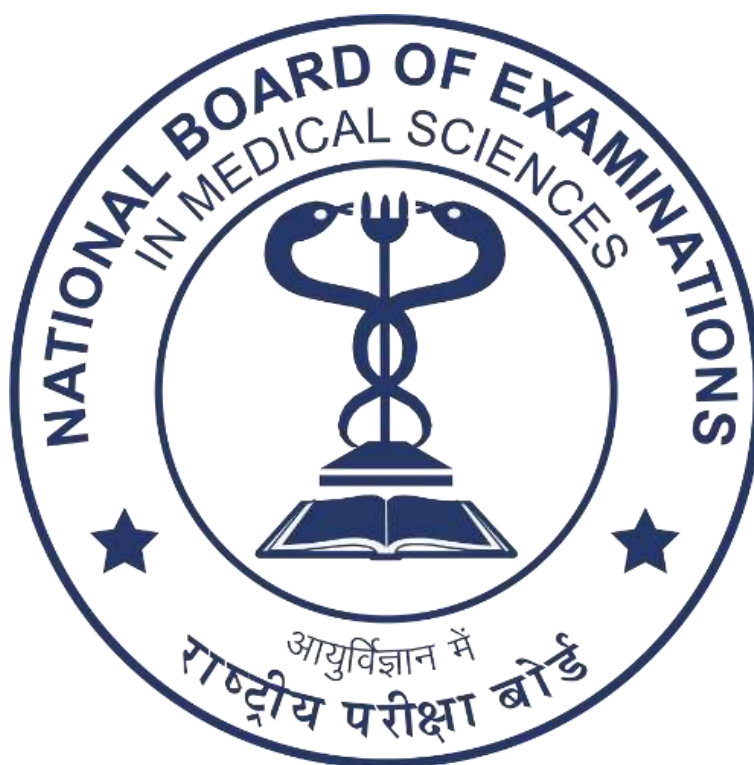
- date of surgery, MR number, Age in months, weight in Kg, presurgical diagnosis surgical plan, post-surgical diagnosis, operation done by role surgeon/assistant/assisting junior/observer, parts of surgery done by me, learning points
- It should preferably be in electronic format,
- Every candidate, 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.
- In the absence of production of log book, the result will not be declared.

VI RECOMMENDED TEXTBOOKS AND JOURNALS

- **Kirklin/Barratt-Boyes Cardiac Surgery**
Expert Consult - Online and Print (2-Volume Set) 4th Edition - October 26, 2012
Authors: James Kirklin, Eugene Blackstone Hardcover ISBN: 9781416063919
eBook ISBN: 9781455746057
- **Surgery of conotruncal anomalies** Francois Lacour-Gayet Edward L. Bove Viktor Hraška Victor O. Morell Thomas L. Spray



- **Comprehensive Surgical Management of Congenital Heart Disease-** by M.D. Jonas, Richard A. (Author), Rebekah Dodson (Illustrator)
- **Surgery for Congenital Heart Defects**, 3rd Edition Jaroslav F. Stark (Editor), Marc R. de Leval (Co-Editor), Victor T. Tsang (Co-Editor), Michael Courtney (Illustrator)
- **A practical Manual of paediatric cardiac intensive care** Edited by Rakhee Balachandran, Aveek Jayant and R Krishna Kumar
- **Manual of paediatric cardiac intensive care** Manoj Luthra
- **Journal of thoracic and cardiovascular surgery** published by Elsevier
- **Annals of thoracic surgery** published by Elsevier
- **Indian journal of cardiovascular and thoracic surgery** published by springer
- **World journal for paediatric and congenital heart surgery** published by Sage publications
- **Annals of Paediatric cardiology** - Wolters Kluwer Medknow
- **Seminars in thoracic and cardiovascular surgery** -Elsevier



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