



STUDY GUIDE

FCPS PEDIATRIC CRITICAL

CARE MEDICINE COURSE

Department of Pediatric Critical
Care Medicine

University of Child Health Sciences & The Children's
Hospital, Lahore

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INTRODUCTION TO STUDY GUIDE

Dear Post Graduate Resident,

Welcome to the FCPS Pediatric Critical Care Medicine (PCCM). The Department of PCCM will be facilitating the course. The purpose of the study guide is to help you learn the subject of PCCM. It is designed to help you manage your learning and access the resources available to you. It takes you through the general objectives of learning the subject, divides the subject into year wise study modules for easy learning and helps you understand the course work, clinical skills and attitudes that are desired of a good doctor.

This course of PCCM will help you in better understanding of the subject and its application to actual patients. We advise you to refer back to these subjects if there are any issues in understanding the subject. We hope you will realize how integrated these topics are to your clinical practice.

Methods of assessment have also been written so that you can relate teaching to assessment and have a fair idea of the assessment methods and what internal and external assessment is all about.

We hope the students take time out to go through the guide and to use it effectively to learn the subject of PCCM. We look forward to the feedback from the students and faculty so that the guide can be improved further.

For any assistance please do not hesitate to contact the department of PCCM. Alternatively, please feel free to visit the office of the Director of Medical Education for any issues that you face in learning of the subject or otherwise.

We hope that your Training in PCCM will be very fruitful and enjoyable and will equip you for future practical life.

With compliments from:

Head of Department PCCM

University of Child Health Sciences & The Children's Hospital, Lahore

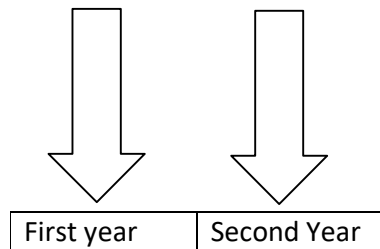
OBJECTIVES OF THE STUDY GUIDE

General objectives of fellows PCCM teaching and training are to equip the students with essential knowledge, skills and attitudes, so that they are able to:

- Identify common Pediatric diseases and their complications, including emergencies and intensive care.
- Perform essential required skills.
- Communicate effectively with the patient, the family and the community regarding disease and its relevant issues.
- Understand medical ethics and its application and maintain the confidentiality of the patient.
- Apply principles of patient safety and quality of care.
- Understand the principles of medical research including fundamentals of information technology.

STUDY GUIDE MAP

You will study details here



Here you are going to study general principles in PCCM along with mandatory rotations and relevant specialties. In two years of training, you are supposed to take active part in Weekly teaching central roster, mandatory rotations and do relevant research as guided by your supervisor. You will undergo formative assessments during your training period so you will be fully prepared to appear in the final university exam. So, learn carefully and revise it very often till your final exit exam.

STRUCTURE OF TWO YEARS OF FCPSPCCM

| Program duration | Course contents | Assessment method |
|-----------------------------------|--|--|
| At the end of 1st year of program | <ul style="list-style-type: none"> • Revision of core Pediatric Emergencies and Intensive Care components. • Basic knowledge and Acquiring skill related to the PCCM Course Module made. • Workshops as described in course outline • Clinical training • Synopsis submission (within 6 months of training) | <p>Structured Internal/Formative assessment to be conducted by the department. This will include: Written. MCQS/TOACS/LOGBOOK. MARKS= 100</p> |
| At the end of 2nd year | <ul style="list-style-type: none"> • Advanced training of clinical knowledge and skills in specialty of PCCM according to the defined outcome. • Clinical Training with compulsory rotations in Cardiology/ SCICU/CICU and Anesthesia as required by the program. • Workshops as described in course outline. | <p>Exit Exam to be taken by CPSP It will include MCQs = 100 TOACS and Short Cases = 100</p> |

MODALITIES OF LEARNING

- The structure of the Yearly modules taught in PCCM will be:
 - Bed side teaching including case presentation and devising plan of management
 - Presentation/Case discussion on every Monday and Wednesday
 - Research/ Journal Club on every Tuesday
 - Mortality review meetings on Thursdays
 - Ward class on every Friday
 - Case Presentation Class (CPC) every Saturday
 - Supervisor meetings monthly

LEGEND OF ICONS USED IN STUDY GUIDE

The following icons have been used to help you identify the various experiences you will be exposed to.



Learning objectives






Assessments






Specific Learning Objectives

MODULES




MODULE 01: Emergency Care and Acute Management

| Title | PCCM | Student Notes |
|--|---|---------------|
| Target Students | First year | |
| Course Title | Module 1: Emergency Care and Acute Management | |
|  <p>Learning Objectives</p> | <p>To acquire appropriate knowledge, skills and attitude in relation to topics mentioned below:</p> <ul style="list-style-type: none"> • Initial Stabilization • Environment Crises • Life-Support Technologies | |
| <p>Specific learning Objectives</p>  | <p>At the end of the module the students should be able to</p> <ul style="list-style-type: none"> • Airway management • Cardiopulmonary Resuscitation • Stabilization and Transport • Invasive Procedures • Recognition and initial management of Shock • Rapid Response System • Multiple Trauma • Drowning • Burns and Smoke Inhalation • Mass Casualty Events • Poisoning • Envenomation Syndromes • Mechanical Ventilation • Non Invasive Ventilation • Extracorporeal Organ Support • Blood Products and transfusion therapy | |
| Teaching & Learning Strategies (MIT) | <ul style="list-style-type: none"> • SGD,CBL | |
|  <p>Assessments</p> | MCQs, OSPE, Short cases | |




MODULE 02: Critical Care Integration

| Title | PCCM | Student Notes |
|---|--|---------------|
| Target Students | First Year | |
| Course Title | Module 2:Critical Care Integration | |
|  <p>Outcomes</p> | <p>To understand and demonstrate the required knowledge, skill and attitude in relation to</p> <ul style="list-style-type: none"> • Professionalism • Leadership • Ethics • Quality improvement | |
| <p>Specific learning Objectives</p>  | <p>At the end of the module the students should be able to</p> <ul style="list-style-type: none"> • Professionalism and Leadership in PCCM • Simulation training and team dynamics • Research design and statistics analysis • Evidence based medicine • Quality improvement, patient safety and medical errors • Ethics and palliative concerns in critically ill • Pain and Sedation management | |
| Teaching & Learning Strategies (MIT) | <ul style="list-style-type: none"> • small group discussion, CBL | |
|  <p>Assessments</p> | MCQs, OSPE, Short Cases | |




MODULE 03: Respiratory Diseases

| Title | PCCM | Student Notes |
|---|--|---------------|
| Target Students | First year | |
| Course Title | Module 3: Respiratory | |
|  <p>Outcomes</p> | <p>To understand and demonstrate appropriate skills and attitude in relation to</p> <ul style="list-style-type: none"> • Paediatric respiratory physiology • Paediatric respiratory pathology • Critical care of children with respiratory problems | |
| <p>Specific learning Objectives</p>  | <p>At the end of the module the students should be able to</p> <ul style="list-style-type: none"> • Respiratory Physiology • The Molecular Biology of Acute Lung Injury • Respiratory Monitoring • Status Asthmaticus • Respiratory Failure • Pneumonia and Bronchiolitis • Acute Lung Injury and Acute Respiratory Distress Syndrome • Chronic Respiratory Failure • Sleep and Breathing disorders | |
| Teaching & Learning Strategies (MIT) | <ul style="list-style-type: none"> • SGD, CBL | |
|  <p>Assessments</p> | <ul style="list-style-type: none"> • MCQS, OSPE, Short Cases | |




MODULE 04: Cardiac Diseases

| Title | PCCM | Student Notes |
|---|--|---------------|
| Target Students | First Year | |
| Course Title | Module4: Cardiology | |
|  <p>Outcomes</p> | <p>To understand and demonstrate appropriate skills and attitude in relation to</p> <ul style="list-style-type: none"> • Paediatric cardiology physiology • Paediatric cardiology pathology • Critical care of children with cardiac problems | |
| <p>Specific learning Objectives</p>  | <ul style="list-style-type: none"> • Cardiac Anatomy • Cardiovascular Physiology • Cardiorespiratory Interactions in Children with Heart Disease • Hemodynamic Monitoring • Heart Failure: Etiology, Pathophysiology, and Diagnosis • Cardiomyopathy, Myocarditis, and Mechanical Circulatory Support • Treatment of Heart Failure: Medical Management • Treatment of Heart Failure: Mechanical Support • Cardiac Conduction, Dysrhythmias, and Pacing • Preoperative Care of the Pediatric Cardiac Surgical Patient • Postoperative Care of the Pediatric Cardiac Surgical Patient • Pulmonary Hypertension | |
| Teaching & Learning Strategies (MIT) | <ul style="list-style-type: none"> • Small group discussion • Case base learning • Case presentation/ bed side teaching | |
|  <p>Assessments</p> | <ul style="list-style-type: none"> • MCQs, OSPE, short cases | |




MODULE 05: Nutritional and Gastrointestinal Disorders

| Title | PCCM | Student Notes |
|--|--|---------------|
| Target Students | Second year | |
| Course Title | Module 5: Nutrition and GIT | |
|  <p>Outcomes</p> | <p>To understand and demonstrate appropriate skills and attitude in relation to</p> <ul style="list-style-type: none"> • Paediatric GIT physiology • Paediatric GIT pathology • Critical Care of children with GIT problems • Nutrition | |
| <p>Specific learning Objectives</p>  | <ul style="list-style-type: none"> • Principles of Gastrointestinal Physiology, Nutrition, and Metabolism • Nutritional Support • Secretory and Motility Issues of the Gastrointestinal Tract • Gastrointestinal Bleeding • Abdominal Compartment Syndrome • The Acute Abdomen • Diagnostic Imaging of the Abdomen • Acute Liver Failure and Liver Transplantation | |
| <p>Teaching & Learning Strategies (MIT)</p> | <ul style="list-style-type: none"> • Case Presentation • Group discussion • Case base learning | |
|  <p>Assessments</p> | <p>MCQs, OSCE, Short cases</p> | |




MODULE 07: Pediatric Infectious Diseases

| Title | PCCM | Student Notes |
|--|--|---------------|
| Target Students | Second year | |
| Course Title | Module 7: Infections and Immunology | |
|  <p>Outcomes</p> | <p>To understand and demonstrate appropriate skills and attitude in relation to</p> <ul style="list-style-type: none"> • FUO • Infectious aetiologies • Sepsis • Principles of Antimicrobial Therapy • Immunology | |
| <p>Specific learning Objectives</p>  | <ul style="list-style-type: none"> • Dengue and Other Hemorrhagic Viral Infections • Critical Viral Infections • Central Nervous System Infections • Nosocomial Infections • International and Emerging Infections • Toxin-Related Diseases • Opportunistic Infections • The Immune System • Neurohormonal Control in the Immune System • The Immune System and Viral Illness • Immune Deficiency Disorders | |
| <p>Teaching & Learning Strategies (MIT)</p> | <ul style="list-style-type: none"> • Group discussion • CBL | |
|  <p>Assessments</p> | <p>MCQS, SEQs, Short cases</p> | |

MODULE 08: Oncologic and Hematologic Disorders

| Title | PCCM | Student Notes |
|---|---|---------------|
| Target Students | Second year | |
| Course Title | Module 08:Hematology/ Oncology | |
|  <p>Outcomes</p> | <p>To understand and demonstrate appropriate skills and attitude in relation to</p> <ul style="list-style-type: none"> • Anemias • Bleeding disorders • Childhood malignancies and related emergencies | |
| <p>Specific learning Objectives</p>  | <ul style="list-style-type: none"> • Oncologic Emergencies and Complications • Hematologic Emergencies • Hematopoietic Cell Transplantation • Coagulation Issues in the PICU | |
| <p>Teaching & Learning Strategies (MIT)</p> | <ul style="list-style-type: none"> • Small group discussion • Bedside teaching | |
|  <p>Assessments</p> | <p>MCQS, SEQs, Short cases</p> | |

MODULE 09: Renal, Endocrine, and Metabolic Disorders

| Title | PCCM | Student Notes |
|---|---|---------------|
| Target Students | Second year | |
| Course Title | Module 09:Endocrinology | |
|  <p>Outcomes</p> | <p>To understand and demonstrate appropriate skills and attitude in relation to</p> <ul style="list-style-type: none"> • Diabetes mellitus • Hypothyroidism • Short stature • Parathyroid + calcium metabolism | |
| <p>Specific learning Objectives</p>  | <ul style="list-style-type: none"> • Adrenal Dysfunction • Disorders of Glucose Homeostasis • Disorders of Water, Sodium, and Potassium Homeostasis • Disorders of Calcium, Magnesium, and Phosphate • Thyroid Disease • Acute Kidney Injury • Chronic Kidney Disease, Dialysis, and Renal Transplantation • Hypertensive Crisis • Inborn Errors of Metabolism | |
| <p>Teaching & Learning Strategies (MIT)</p> | <ul style="list-style-type: none"> • Case base leaning | |
|  <p>Assessments</p> | <p>MCQS, SEQs, Short cases</p> | |

THEMES OF SKILLS

In every module skills required are mentioned. To highlight the requirement a separate list of skills which you are expected to learn is given below. Procedural Skills will be assessed on manikins/ patients

| Sr. | Skills Topic |
|------------|--|
| 01. | History taking |
| 02. | Physical Examination |
| 03 | Communication skills |
| 04 | BLS + PALS protocols |
| 05 | Tracheostomy Tube change |
| 06 | Cardiopulmonary resuscitation |
| 07 | Defibrillation/ Cardioversion |
| 08 | Procedural sedation and Analgesia |
| 09 | Ultrasound Lung |
| 10 | Ultrasound Eye for Optic sheath diameter |
| 11 | IV cannulation |
| 12 | CVP/Arterial line |
| 13 | Endotracheal Intubation |
| 15 | Lumber puncture |
| 16 | Foley's catheter procedure |
| 17 | Thoracentesis |
| 18 | Peritoneal tap |
| 19 | Nasogastric tube insertion |

THEMES OF ATTITUDES

Attitude is a collection of behaviors. "Attitude is a learned predisposition to respond in a favourable or unfavourable manner towards people, an object, an idea or a situation" - - Martin Fishbein. Attitudes are based on predispositions and emotions and result in specific human behaviors. They are very difficult to learn. However observation and mentoring for attitudes or giving them weightage as in exams can influence learning of attitudes.

| Sr. | Attitude |
|------------|---|
| 01. | Appearance of a doctor – professional dress up |
| 03 | Body language – Behave with dignity |
| 04 | Respectful to patient |
| 05 | Empathetic & humane |
| 06 | Listen & examine (thorough) |
| 07 | Informed consent |
| 08 | Privacy - Covering the patient |
| 09 | Counseling & communication |
| 10 | Hard working |
| 11 | Documentation |

CLINICAL ROTATIONS

ROTATIONS

1. Clinical rotations during a 2-year training program are meant for specific, subject-based knowledge, skill and attitude in order to learn different competencies.
2. There will be two mandatory rotations, Cardiology and Anesthesia. Both are available specialties in children hospital, Lahore.
3. Each rotation shall have an assessment at its end that will be marked and the grade achieved shall be included in internal assessment.

MANDATORY TRAINING WORKSHOPS

Workshops are meant to give hands-on training on mandatory competencies required during the educational program. Every student will have following 2 workshops during training.

1. **BLS (Basic Life Support)**
2. **PALS (Pediatric Advance Life Support)**

LEARNING RESOURCES

BOOKS: (latest editions)

1. Rogers' Textbook of Pediatric Intensive Care
2. Fuhrman and Zimmerman's Pediatric Critical Care
3. Pediatric Critical Care: Text and Study Guide
4. Pediatric ICU Protocols

JOURNALS:

1. Pediatric Critical Care Medicine (PCCM)
2. Journal of Pediatric Intensive Care
3. Frontiers in Pediatrics
4. Critical Care Medicine
5. Pediatric Pulmonology
6. Lancet Respiratory Medicine
7. Intensive Care Medicine
8. American Journal of Respiratory and Critical Care Medicine

Other online resources:

1. National Library of Medicine - National Institutes of Health
<https://www.nlm.nih.gov/>