OBJECTIVES

The objective of the MD-Critical Care Medicine (MDCCM) is to train physicians who are equipped with the knowledge, skills and attitude necessary to recognize and manage critically ill patients, who are accountable to the patients, society and the profession and develop a life-long commitment to academic excellence and professional development.

By the end of 4 years training program, the candidates will be able to;

- Demonstrate cognitive proficiency in the diagnosis and management of organ dysfunction, failure and support.
- Interpret ECG, laboratory data and various imaging modalities.
- Apply the principles of mechanical ventilation and weaning, haemodynamic monitoring, infection control and antibiotic use, nutrition support, analgesia, sedation and muscle relaxation to manage patients in intensive care units.
- Apply the physiological and other basic sciences concepts to explain and manage the organ dysfunctions seen critically ill patients.
- Effectively use the prophylactic therapies and Care Bundles in managing critically ill patients in ICU.
- Score the severity of illness using APACHE II or alternative scoring systems.
- Provide efficient post-resuscitation and post-operative critical care.
- Demonstrate clinical decision-making regarding appropriateness of admission to ICU and readiness of discharge from ICU, withholding and withdrawal of treatment
- Demonstrate psychomotor skills according to the specified level of competence.
- Transport critically ill patients-intra and inter-hospital
- Carry out brainstem function testing and interpretation.
- Display a compassionate attitude towards patients and their families and
- Sensitivity to the patient's cultural and religious beliefs.
- Follow ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information and informed consent.

ELIGIBILITY CRITERIA

Components	Description
Education	M.B.B.S., or equivalent (recognized by PMDC)
Working experience	One-year house job (recognized by PMDC)
Other	Preference will be given to those candidates who have experience of ICU, CCU, Anaesthesia or chest medicine.

SELECTION PROCESS

Components	Weight age in selection process (%)
Written test	30 %
Interview	40 %
Qualification	M.B.B.S marks sheet 10 %
Working experience	House job 10%
Other	Exp. Anesthesia, Medicine or ICU/ CCU 10 %

LEARNING STRATEGIES

Strategy	Example
1. Structured teaching programme	- Faculty lectures - Case presentations by trainees - Journal Club - Morbidity & Mortality Meetings.
2. Simulation Workshops	- BLS - ACLS
3. Short Courses	- Basic Assessment & Support in Intensive Care - Fundamentals of Critical Care Support
4. Self-directed Learning	- Access to UpToDate - Journals
5. Workshops	- Communication Skill - Research Methodology and Paper Writing.
6. Faculty Role Modelling	

ASSESSMENT STRATEGIES

Components	Description / Frequency of evaluation
Attendance	Daily with morning meeting.
Presentations	As per Schedule.
MiniCEX	As given to candidate from time to time.

Log books	Cases and procedural skills with competency level as in Annexure A.
CAT s'	Continuous Assessment test at the end of each module/semester.
Others	Feedback from Supervisors and Faculty of Rotations undertaken

COMPONENTS OF CONTINUOUS ASSESSMENT TEST (CAT) INCLUDING SEMESTER EXAMINATION.

Components	Weight age
Written	Multiple choice (One Best) 30%
Viva	Two examiners 20 %
OSCE	4-6 stations 30%
Log Book	5 cases/skill selected from log book 10 %
MiniCEX	Five per semester 05%
Others	Case presentation and participation in tutorials 05%

OSCE: Objective Structured Clinical examination — Passing marks 60 %

PROMOTION CRITERIA

1. CAT
2. Passing the end-of-year exam will enable the candidate to move to the next year of training.
3. 80% attendance
4. Mandatory workshop.
5. Submission / approval of synopsis

ELIGIBILITY CRITERIA FOR FINAL EXAMINATION

Components	Description / Weight age
Attendance	Minimum 80% regular
Semester examination	Examinations Successfully cleared.

Log book	Satisfactory filled with required competency. Countersigned by Supervisor every third month.
CAT	Satisfactory cleared
Thesis	Letter of acceptance

PROCESS OF FINAL EXAMINATION

Components	Weightage	Description
Written	40 %	One paper of 100 MCQ (one best) and one paper of 10 SEQ.
Viva and long case	20 %	Six examiners.
OSCE	40 %	Ten stations.
Others		Thesis after successful defense

Passing marks 50 % in each component and aggregate 60 %. Part A
Candidate will be declared successful after defence of Thesis. Part B

CRITERIA FOR SUCCESSFUL COMPLETION OF THE PROGRAM

i) Successfully completed the training.
ii) Passing written and clinical examination
iii) Successful defense of Thesis

FACULTY FOR THIS PROGRAM
2024-2028

Name	Qualification (s)	University Designation	Program Designation
Dr. Madiha Hashmi	MBBS, FFARCSI	Professor	DIRECTOR
Dr. Ali Abbas	MBBS, MRCP, CCT	Associate Professor	SUPERVISOR
Dr. Ashok Kumar	MBBS, FCPS (Pulmonology)	Associate Professor	SUPERVISOR

Dr. Quratul Ain Khan	MBBS, MD (CCM)	Associate Professor	SUPERVISOR
Dr. Fatima Zaina	MBBS, FCPS (Pulmonology)	Assistant Professor	Faculty
Dr. Ali Kamran	MBBC, MRCP	Senior Registrar	Faculty

CLINICAL COMPONENT – CoBaTrICE

DOMAIN 1: Resuscitation and initial management of the acutely ill patient

By the end of specialist MDCCM training, the trainee

1.1 Adopts a structured and timely approach to the recognition, assessment and stabilization of the acutely ill patient with disordered physiology
1.2 Manages cardiopulmonary resuscitation
1.3 Manages the patient post-resuscitation
1.4 Triages and prioritizes patients appropriately, including timely admission to ICU
1.5 Assesses and provides initial management of the trauma patient
1.6 Assesses and provides initial management of the patient burns
1.7 Describes the management of the mass casualties

DOMAIN 2: Diagnosis, Assessment, Investigation, Monitoring and Data interpretation

By the end of specialist MDCCM training, the trainee

2.1 Obtains a history and performs an accurate clinical examination
2.2 Undertaking timely and appropriate investigations
2.3 Describes indications for echocardiography (Transthoracic/ Trans esophageal)
2.4 Performs electrocardiography (ECG /EKG) and interprets the results
2.5 Obtains appropriate microbiological samples and interprets results
2.6 Obtains and interprets the result from blood gas samples
2.7 Interprets chest x-rays
2.8 Liaises with radiologist to organize and interpret clinical imaging
2.9 Monitors and responds to trends in physiological variables
2.10 Integrates clinical finding with laboratory investigations to form a differential diagnosis

DOMAIN 3: Disease management

By the end of specialist MDCCM training, the trainee

ACUTE DISEASE:
3.1 Manages the Care of the critically ill patient with specific acute medical condition

CHRONIC DISEASE:
3.2 identifies the implications of chronic and co-morbid disease in the actually ill patient

ORGAN SYSTEM FAILURE:
3.3 Recognizes and manages the patient with circulatory failure
3.4 Recognizes and manages the patient with, or at risk of acute renal failure
3.5 Recognizes and manages the patient with neurological Impairment
3.6 Recognizes and manages the patient with acute gastrointestinal failure
3.7 Recognizes and manages the patient with acute lung injury syndromes
3.8 Recognizes and manages the septic patient
3.9 Recognizes and manages the patient following intoxication with drugs or environmental toxins
3.10 Recognizes life-threatening maternal per partum complications and manages care

DOMAIN 4: Therapeutic Intervention / Organ System Support in Single or Multiple Organ Failure

By the end of specialist MDCCM training, the trainee

4.1 Prescribes drugs and therapies safely
4.2 Manages antimicrobial drugs therapy
4.3 Administers blood and blood products safely
4.4 Uses fluids and vasoactive / inotropic drugs to support the circulation
4.5 Describes the use of mechanical assist devices to support the circulation
4.6 Initiatives manages, and weans patients from invasive and noninvasive ventilator support
4.7 Initiatives manages, and weans patients from renal replacement therapy
4.8 Recognizes and manages electrolyte, glucose and acid-base disturbances
4.9 coordinates and provides nutritional assessment and support

DOMAIN 5: Practical Procedure

By the end of specialist MDCCM training, the trainee

5.1 Administers oxygen using a variety of administration devices
5.2 Performs fiberoptic laryngoscopy
5.3 Performs emergency airway management
5.4 Performs difficult and failed airway management according to local protocols
5.5 Performs endotracheal suction
5.6 Performs fiberoptic bronchoscopy and BAL in the intubated patient under supervision
5.7 Perform percutaneous tracheostomy
5.8 Performs thoracentesis via a chest drain

Cardiovascular System
5.09 Perform peripheral venous catheterization
5.10 Performs arterial catheterization
5.11 Describes ultrasound techniques for vascular localization

5.12 Performs central venous catheterization
5.13 Performs defibrillation and cardio version
5.14 Performs cardiac pacing (Trans venous or Transthoracic)
5.15 Describes how to perform pericardiocentesis
5.16 Demonstrates a method for measuring cardiac output and derived hemodynamic variables

Central Nervous System
5.17 Performs lumbers puncture (Intra. Dural / 'Spinal')
5.18 Manages the administration of analgesia via an epidural catheter

Gastrointestinal system
5.19 Performs nasogastric tube placement
5.20 Performs abdominal paracenteses
5.21 Describes sengstaken tube (Or equivalent) placement
5.22 Describes indication for, and safe conduct of gastroscopy

Genitourinary system
5.23 Performs urinary catheterization

Domain 6: Peri-Operative Care

By the end of specialist MDCCM training, the trainee

6.1 Manages the pre and post-operating care of the high risk surgical patient
6.2 Manages the care of the patient following cardiac surgery under supervision
6.3 Manages the care of the patient following craniotomy under Supervision
6.4 Manages the pre and post-operative care of the trauma patient

Domain 7: Comfort and Recovery

By the end of specialist MDCCM training, the trainee

7.1 Identifies and attempt to minimize the physical and psychosocial consequences of critical illness for the patients and families
7.2 Manages the assessment, prevention and treatment of the pain and delirium
7.3 Manages sedation and neuromuscular blockade
7.4 Communicates the continuing care requirements of patients at ICU discharge to health care professionals, patients and relatives
7.5 Manages the safe and timely discharge of patient from the ICU

Domain 8: End of the Life Care

By the end of specialist MDCCM training, the trainee

8.1 Manages the Process of withholding or withdrawing treatment with the multidisciplinary team
8.2 Discuss end of the life care with patients and their families/surrogates

8.3 Manages palliative care of the critically ill patient
8.4 Performs brain-steam death testing
8.5 Manages bereavement

Domain 9: Transport

By the end of specialist MDCCM training, the trainee

9.1 Undertakes transport of the mechanically ventilated critically ill patient within and outside the ICU

Domain10: Patient Safely and Health System Management

By the end of specialist MDCCM training, the trainee

10.1 Leads a daily multidisciplinary ward round
10.2 Complies with local infection control measures
10.3 Identifies environmental hazards and promotes safety for patients and staff
10.4 Identifies and minimizes risk of critical incidents and adverse events, including complications of critical illness
10.5 Organizes a case conference
10.6 Critically appraises and applies guidelines, protocols and care bundles
10.7 Describe commonly used scoring systems for assessment of severity of illness, case mix and workload
10.8 Demonstrates an understanding of the managerial and administrative responsibility of the ICM specialist

Domain11: Professionalism

By the end of specialist MDCCM training, the trainee

Communication skills
11.1 Communication effectively with patients and relatives
11.2 Communication effectively with members of the health care team
11.3 Maintains accurate and legible records / documentation

Professional Relationship with Patients and Relatives
11.4 Involves patients (or their surrogates if applicable) in decisions about care and treatment
11.5 Demonstrates respect of cultural and religious beliefs and an awareness of their Impact on decision making
11.6 Respects privacy, dignity, confidentiality and legal constraints on the use of patient data

Professional Relationship with Members of the Health care team
11.7 Collaborates and consult; promotes team-working
11.8 Ensures continuity of care through effective handover of clinical information

11.9 Supports clinical staff outsides the ICU to enable the delivery of effective care
11.10 Appropriately supervises, and delegates to others, the delivery of effective

Self- Governance
11.11Takes responsibility for safe patient care
11.12 Formulates clinical decision with respects for ethical and legal principles
11.13 Seeks learning opportunities and integrates new knowledge into clinical practice
11.4 Participates in multidisciplinary teaching
11.15 Participates in research or audit

COMPETENCY LEVEL IN PATIENT MANAGEMENT

The level of competence to be achieved each year is specified as follows:

1. Observer status (first year of training)
2. Assistant status (first year of training)
3. Performed under supervision.
4. Performed independently.

CASES/PROCEDURES	**1st YEAR Cases**	**1st YEAR Level**	**2nd YEAR Cases**	**2nd YEAR Level**	**3rd YEAR Cases**	**3rd YEAR Level**	**4th YEAR Cases**	**4th YEAR Level**
MEDICAL								
RESPIRATORY SYSTEM	20	1	50	2	25	3	25	4
CARDIVASCULAR SYSTEM	10	1	10	2	10	3	10	4
NEPHROLOGY	05	1	05	2	05	3	50	4

NEUROLOGY	05	1	05	2	05	3	05	4
Paediatric/ neonatal	05	1	05	2	05	3	05	4
SURGICAL								
GENERAL SURGERY	20	1	10	3	10	3	10	4
TRAUMA	05	1	05	2	05	3	10	4
OBSTETRIC/GYNAECOLOGICAL	05	1	05	2	05	3	05	4
PAEDIATRIC/ NEONATAL	05	1	05	2	05	3	5	4
THORACIC / VASCULAR	05	1	05	2	05	3	05	4
NEUROMUSCULAR DISORDERS	05	1	05	2	05	3	05	4
SKILLS								
ORAL/NASAL INTUBATION	10	1	10	3	30	4	30	4
L.M.A. INSERTION	10	2 - 3	10	4	10	4	10	4

ARTERIAL LINE	10	1	10	3	50	4	50	4
CENTRAL VENOUS LINE	5	1	10	3	25	4	25	4
BRONCHOSCOPY	-	-	02	1	03	2	05	3
CARDIAC OUTPUT MONITORING (PAC)	-	-	02	3	02	3	02	3
VENTILATOR SETTING / WEANING INVASIVE AND NONINVASIVE	10	1	10	2	25	3	25	4
CHEST TUBE INSERTION	-	-	05	2	05	2	05	3

LOG BOOK

The candidate has to fill the logbook in which he has to enter all the cases he has attended, their management and progress; and all the procedures he has done during training period with competency level.

DATE	**No.**	**NAME OF PATIENT**	**AGE/sex**	**DIAGNOSIS**	**COMORBID**	**Vitals PulseBPRR**	**INOTROPES VENTILATOR**	**COMPLICATIONS OUTCOME**	**COMMENTS**	**COMPETENCY LEVEL**