COMPETENCY BASED TRAINING IN CRITICAL CARE MEDICINE

Introduction and scope:

The **Competency Based Training in Critical Care Medicine** program at RFH is designed to improve the quality of care delivered to critically ill patients and their families. This programme has been developed on lines of Competency Based Training in Intensive Care Medicine in Europe [CoBaTrICE] which is conducted under aegis of the European Society of Intensive Care Medicine [ESICM]. CoBaTrICE underscores the importance of a shift from duration-based to competency-based medical training.

The course includes:
1. Knowledge, skills, and aptitude of essential domains in Critical Care Medicine
2. Competence in these domains
3. Assessment of competence in these domains

The Competency Based Training in Critical Care Medicine is a one and a half year (1 and 1/2 years) Certification program designed to advance the knowledge and skills of doctors working in adult critical care units.

Aim:

To design a Certification program aimed at facilitating structured training in sync with contemporary norms for doctors working in an adult intensive care unit.

Need of the Program:

To produce adequately qualified, appropriately skilled, and professionally mature critical care professionals who practice safe medicine and add to patient as well as family experience.

Goal:

To create a pool of formally trained critical care doctors who can effectively manage all aspects of critically ill patients including organ support. This will add quality to the ICU team at RFH as well as enrich patient experience.

Duration of the Program:

One and a half year

Mode of Study:

Residential, Full time

Entry Requirements:

1) Minimum Criteria is a MBBS degree from MCI recognized university in India or MCI registration after completing MBBS from outside India. It is preferred that the candidate registers with Maharashtra Medical Council.

2) Diploma in Anesthesiology

3) MD or DNB in General Medicine, Chest, Anesthesiology, Emergency Medicine

4) Full time employee of RFH

Fellowship Centre:

Sir HN Reliance Foundation Hospital

Entry Criteria:

The candidate shall apply directly to the Director Critical Care or through HR of the hospital. The selection will be based upon the interview conducted by the ICU Team of RFH and HR personnel.

Faculty:

Program Director – Dr Mayur H Patel

Coordinators – Dr Darshana Rathod, Dr Vivek Kumar, Dr Mehul Shah

Faculty – Dr. Ketan Kargirwar, Dr. Balkrishna Nimavat

Other Faculty – from various departments

Syllabus:

The syllabus is divided into Critical Care domains. There are 11 domains and each domain has several defined competencies. They are listed below.

CRITICAL CARE DOMAINS

1. **1:** Resuscitation and initial management of the acutely ill patient
2. **2:** Diagnosis: assessment, investigation, monitoring and data interpretation
3. **3:** Disease management
    - ♦ Acute disease
    - ♦ Co-morbid disease
    - ♦ Organ system failure
    - Infectious Diseases
4. **4:** Therapeutic interventions / organ system support in single or multiple organ failure
5. **5:** Practical procedures
    - ♦ Respiratory system
    - ♦ Cardiovascular system
    - ♦ Central nervous system
    - ♦ Gastrointestinal system
    - ♦ Renal / Genitourinary system
6. **6:** Peri-operative care
7. **7:** Comfort and recovery
8. **8:** End of life care
9. **9:** Transport
10. **10:** Patient safety and health systems management
11. **11:** Professionalism
    - ♦ Communication skills
    - ♦ Professional relationships with patients and relatives
    - ♦ Professional relationships with colleagues
    - ♦ Self governance

Course Division:

The first year:

1. The program will be targeted towards knowledge, skills, and aptitude of essential domains in critical care
2. Assessment of competence in these domains
3. Mandatory rotation in EMS, Anaesthesia, Radiology, Lab including microbiology, Neurology, Nephrology, GI, etc.
4. Compulsory certification for BLS, ACLS, ATLS, GCP, etc.
5. Communication skills

At the end of rotation in each specialty, the Director/Mentor will certify the basic competency of the candidate.

Next six months:

1. Practical training in POCUS, Echocardiography, various bedside procedures, wound management, bundle care, etc.
2. Clinical research, data collection, paper publication
3. Participation in conferences: presenting posters/oral presentation
4. Medico-legal aspects
5. Clinical Research and Methodology Course

DOMAIN BASED COMPETENCY STATEMENT

DOMAIN	COMPETENCE STATEMENT	
1. RESUSCITATION & INITIAL MANAGEMENTOF THE ACUTELY ILL PATIENT	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 with burns
	1.7	Describes the management of mass casualties
2. DIAGNOSIS: ASSESSMENT, INVESTIGATION, MONITORING ANDDATA INTERPRETATION	2.1	Obtains a history and performs an accurate clinical examination
	2.2	Undertakes timely and appropriate investigations
	2.3	Describes indications for echocardiography (transthoracic / Transoesophageal)
	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 results from blood gas samples
	2.7	Interprets chest x-rays
	2.8	Liaises with radiologists to organize and interpret clinical imaging
	2.9	Monitors and responds to trends in physiological variables
	2.10	Integrates clinical findings with laboratory investigations to form a differentialdiagnosis
3. DISEASE MANAGEMENT	**ACUTE DISEASE**	
	3.1	Manages the care of the critically ill patient with specific acute medical conditions
	CHRONIC DISEASE	
	3.2	Identifies the implications of chronic and co-morbid disease in the acutely ill patient
	ORGAN SYSTEM FAILURE	
	3.3	Recognises and manages the patient with circulatory failure
	3.4	Recognises and manages the patient with, or at risk of, acute renal failure
	3.5	Recognises and manages the patient with, or at risk of, acute liver failure
	3.6	Recognises and manages the patient with neurological impairment
	3.7	Recognises and manages the patient with acute gastrointestinal failure
	3.8	Recognises and manages the patient with acute lung injury syndromes (ALI / ARDS)
	3.9	Recognises and manages the septic patient
	3.10	Recognises and manages the patient following intoxication with drugs orenvironmental toxins
	3.11	Recognises life-threatening maternal peripartum complications and manages careunder supervision
4. THERAPEUTIC INTERVENTIONS	4.1	Prescribes drugs and therapies safely
	4.2	Manages antimicrobial drug 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	Initiates, manages, and weans patients from invasive and non-invasive ventilatorysupport
	4.7	Initiates, manages and weans patients from renal replacement therapy
	4.8	Recognises and manages electrolyte, glucose and acid-base disturbances
	4.9	Co-ordinates and provides nutritional assessment and support

DOMAIN		COMPETENCE STATEMENT
5. PRACTICAL PROCEDURES	**RESPIRATORY SYSTEM**	
	5.1	Administers oxygen using a variety of administration devices
	5.2	Performs fibreoptic laryngoscopy under supervision
	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 fibreoptic bronchoscopy and BAL in the intubated patient under supervision
	5.7	Performs percutaneous tracheostomy under supervision
	5.8	Performs thoracocentesis via a chest drain
	CARDIOVASCULAR SYSTEM	
	5.9	Performs peripheral venous catheterization
	5.10	Performs arterial catheterization
	5.11	Describes a method for surgical isolation of vein / artery
	5.12	Describes ultrasound techniques for vascular localization
	5.13	Performs central venous catheterization
	5.14	Performs defibrillation and cardioversion
	5.15	Performs cardiac pacing (transvenous or transthoracic)
	5.16	Describes how to perform pericardiocentesis
	5.17	Demonstrates a method for measuring cardiac output and derived haemodynamic variables
	CENTRAL NERVOUS SYSTEM	
	5.18	Performs lumbar puncture (intradural / 'spinal') under supervision
	5.19	Manages the administration of analgesia via an epidural catheter
	GASTROINTESTINAL SYSTEM	
	5.20	Performs nasogastric tube placement
	5.21	Performs abdominal paracentesis
	5.22	Describes Sengstaken tube (or equivalent) placement
	5.23	Describes indications for, and safe conduct of gastroscopy
	GENITOURINARY SYSTEM	
	5.24	Performs urinary catheterization
6. PERI-OPERATIVE CARE	6.1	Manages the pre- and post-operative 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 care of the patient following solid organ transplantation under supervision
	6.5	Manages the pre- and post-operative care of the trauma patient under supervision
7. COMFORT & RECOVERY	7.1	Identifies and attempts to minimize the physical and psychosocial consequences of critical illness for patients and families
	7.2	Manages the assessment, prevention and treatment of pain and delirium
	7.3	Manages sedation and neuromuscular blockade
	7.4	Communicates the continuing care requirements of patients at ICU discharge to health careprofessionals, patients and relatives
	7.5	Manages the safe and timely discharge of patients from the ICU

8. END OF LIFE CARE	8.1	Manages the process of withholding or withdrawing treatment with the multidisciplinaryteam
	8.2	Discusses end of life care with patients and their families / surrogates
	8.3	Manages palliative care of the critically ill patient
	8.4	Performs brain-stem death testing
	8.5	Manages the physiological support of the organ donor

DOMAIN	COMPETENCE STATEMENT	
9. TRANSPORT	9.1	Undertakes transport of the mechanically ventilated critically ill patient outside the ICU
10. PATIENT SAFETY AND HEALTH SYSTEMS MANAGEMENT	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 & staff
	10.4	Identifies and minimizes risk of critical incidents and adverse events, includingcomplications of critical illness
	10.5	Organizes a case conference
	10.6	Critically appraises and applies guidelines, protocols and care bundles
	10.7	Describes commonly used scoring systems for assessment of severity of illness, casemix and workload
	10.8	Demonstrates an understanding of the managerial & administrative responsibilities ofthe ICM specialist
11. PROFESSIONALISM	**COMMUNICATION SKILLS**	
	11.1	Communicates effectively with patients and relatives
	11.2	Communicates effectively with members of the health care team
	11.3	Maintains accurate and legible records / documentation
	PROFESSIONAL RELATIONSHIPS WITH PATIENTS AND RELATIVES	
	11.4	Involves patients (or their surrogates if applicable) in decisions about care andtreatment
	11.5	Demonstrates respect of cultural and religious beliefs and an awareness of their impacton decision making
	11.6	Respects privacy, dignity, confidentiality and legal constraints on the use of patientdata
	PROFESSIONAL RELATIONSHIPS WITH PATIENTS AND RELATIVES	
	11.7	Collaborates and consults; promotes team-working
	11.8	Ensures continuity of care through effective hand-over of clinical information
	11.9	Supports clinical staff outside the ICU to enable the delivery of effective care
	11.10	Appropriately supervises, and delegates to others, the delivery of patient care
	SELF GOVERNANCE	
	11.11	Takes responsibility for safe patient care
	11.12	Formulates clinical decisions with respect for ethical and legal principles
	11.13	Seeks learning opportunities and integrates new knowledge into clinical practice
	11.14	Participates in multidisciplinary teaching
	11.15	Participates in research or audit under supervision

Multimodal Proficiency assessment:

ASSESSING COMPETENCE

1. Continuous assessment in daily activities
2. Formal assessment in monthly boards

LEARNING AGREEMENTS

A learning agreement with trainer. A discussion between the trainee and trainer at the start of a training programme, at regular intervals during training, and at the start of a new placement. This two-way conversation can clarify both the opportunities for the acquisition and assessment of competencies that the programme/training post offers as well as the learning needs of the trainee. Such an appraisal meeting will make use of the evidence collated in the portfolio to help clarify a learning plan for the placement. The objectives agreed in the learning plan can be reviewed during and at the end of that training period.

Timetable for implementing a learning agreement when a trainee is appointed to a programme or module:

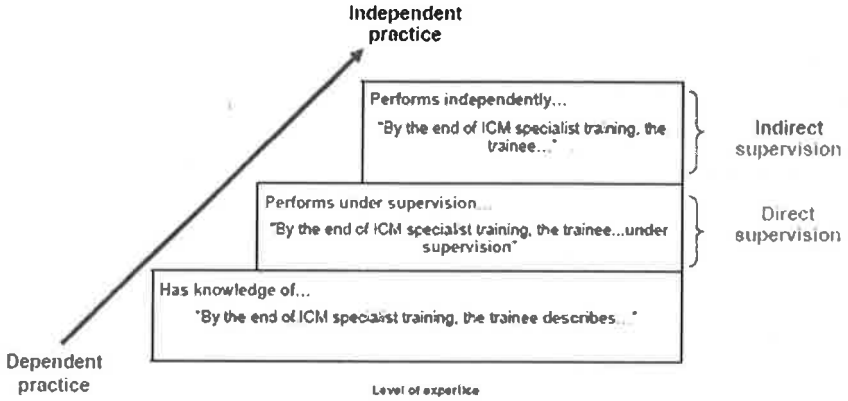
ON APPOINTMENT	WITHIN 2 WEEKS OF START	WITHIN 6 WEEKS OF START	3 MONTHLY INTERVALS	END OF MODULE OR PROGRAMME
Induction of trainee - introduction to team; formal instruction in unit & hospital policies & procedures; pastoral considerations	Formal assessment of training needs; initial learning agreement	Informal assessment of progress; review of experience gained, documentation	Formal review of progress against learning agreement; feedback from other trainers/staff; competencies attained & 'signed off'; un-met needs (including competencies) may require modifications of training timelines; monitor portfolio development & educational activities	Formal review of portfolio (summary of 3 monthly assessments); completion of competencies;

SUPERVISION

It is the responsibility of the specialist to determine the level of supervision required by a trainee in relation to the needs of the patients. Every doctor must therefore be prepared and able to oversee the work of less experienced colleagues. It is the responsibility of specialists and managers to ensure that patients are cared for in a safe environment. Trainees should therefore seek advice and assistance as early as possible whenever they are concerned about patient management, and at all stages of training a supervisor must attend whenever a trainee requests them to do so. From a training perspective, the term '**supervisor**' should be taken to refer to the person with the most appropriate skills for that task and environment. The supervision will be provided by an intensive care specialist with due attention to multidisciplinary practice.

Assessment & level of expertise:

There are three levels of expertise at which competencies may be acquired.



During work-place based observational assessments, trainees should be observed delivering patient care with the relevant level of supervision either provided by the assessor or by another suitable professional. During an assessment the trainee should be allowed to proceed as far as possible without interference, but patient safety must be maintained at all times.

WORKPLACE BASED ASSESSMENT TOOLBOX

There are a number of different work-place based assessment methods currently in use in specialist medical training programmes and means by which evidence of competence may be recorded. These include:

- Workplace-based observation
  - Direct observation of procedural skills
  - Clinical evaluation exercise
  - Multi-source feedback
- Simulation
- OSCE
- Formal examination
- Formal certification
- Structured case summaries

- Case based discussion
- **Log books – to be maintained under guidance of supervisor**

OPPORTUNITIES FOR ASSESSMENT

Clinical scenarios on a daily basis, e.g.

- patient handover
- initiating ventilation
- admitting a patient to ICU
- talking with relatives

An event / task and a patient context:

- admission and first 6 hours of care of a planned post-operative patient
- admission and first 6 hours of care of a patient with a community acquired pneumonia
- admission and first 6 hours of care of a trauma patient.
- Emergency tracheal intubation in the ICU
- Resuscitation
- Transporting a sedated, ventilated patient from ICU to the CT scanner and return.
- Attending a ward round with the microbiology team requiring the communication, processing and recording of information and the prescribing of drugs (antimicrobials etc).
- The assessment and initial management of a critically ill patient on a medical/surgical ward
- Management of the septic patient
- Handover of a group of patients

FINAL ASSESSMENT

Will be based on the following:

1. Internal assessment
2. Theory examination: MCQs
3. Bedside case presentation
4. OSCEs
5. Viva tables
6. Research and publications

CERTIFICATION

Post assessment - "Certification" from the department