

Syllabus and Training for Super Speciality Clinical fellowship programme in Toxicology/Critical Care Medicine (TCCM)

Duration of Fellowship : One Year

Qualification :

The candidate should have completed
MD/DNB (Anesthesiology) or
MD/DNB (Emergency Medicine) or
MD/DNB (Critical care medicine) or
MD/DNB (General Medicine) or
MD/DNB (Pediatrics) or
MD/DNB (DTCD) or
MD/DNB (Family Medicine) or
MD/DNB (Forensic Medicine and Toxicology).

Objectives:

1. Two candidates are admitted to the one year programme.
2. The course which is affiliated to The Tamil Nadu Dr.M.G.R. Medical University, Chennai, allows the candidates to sit for the University Examinations.
3. The goal of the course is to develop highest caliber of academic physicians who will acquire top-notch clinical skills. In addition the candidates will receive scholarly training to think critically, evaluate the current literature, actively participate in the conferences (including formal presentation) and engage meaningfully in translational research. In order to acquire relevant clinical skills, under appropriate clinical supervision, the candidates will spend time in Toxicology Critical Care Units, General Critical Care unit, Surgical and Pediatric Critical care unit related to Toxicology and Critical care procedures.
4. Strength of this training program is the large clinical volume of critical care patients and the large volume of available procedures. In order to learn the cognitive skills, fellows will participate in a variety of mandatory core conference as well as engage in substantial self-study of the literature and text book. Finally, to accomplish research expectations, fellows will engage in appropriate clinically oriented research endeavors with a goal of presentation at national meetings as well as peer-reviewed publications. However, the expectation is much higher and there is in fact no "ceiling" as to excellence.

5. The Candidates will be trained in the arts and science of:
 - a. Toxicology/ Critical care Medicine
 - b. Airway Training
 - c. Mechanical Ventilators
 - d. Hemodialysis / Hemoperfusion
 - e. Bedside Echocardiography & Ultrasound
 - f. Central Venous Catheterization
 - g. Decontamination

6. After Successful completion of the course the candidate will:
 - a. Toxicology/ Critical care Medicine
 - b. Learn the fundamental and practical aspects of Critical Care.
 - c. Managing Patients on Mechanical Ventilators
 - d. Significance of Hemodialysis, Echocardiography & Ultrasonography in practical Critical Care.
 - e. Applications of Percutaneous Tracheostomy, Central Venous Catheterization and other procedures in Critical Care.

Training Schedule:

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| 1. Toxicology/ Critical care unit Consultation | - | 5 Months |
| 2. General / Surgical / Pediatric critical care unit | - | 4 Months |
| 3. Elective/ Research | - | 1 Month |
| 4. Toxicology outpatient/ Community Toxicology | - | 2 Months |

Academic Requirements:

1. Minimum of 6 Journal / articles reviews
2. Minimum of 6 topic reviews
3. Preferable: One research project involving data collection, analysis and Writing a paper / abstract presentation
4. Log book of Clinical Work, Presentations, etc.,

Syllabus:

1. Pre Hospital Care:

- a. Pre-hospital Information and telephonic advice
- b. Assessment and scene survey
- c. Basic Resuscitation, Rapid decontamination and appropriate triage
- d. Tubes & lines – the need and care
- e. Seeking medical advice and handing over

2. General Management of Poisoning:

- a. Focused History and Toxidromes
- b. Hemodynamic Stabilization
- c. Gastric Lavage and Methods of toxin elimination
- d. Activated charcoal and Antidotes
- e. Basics and significance of Analytical Toxicology

3. Critical Care Poisoning:

- a. Clinical Assessment of Poisoned Victims – What to look for?
- b. Fluids & Electrolytes – Critical & Crucial
- c. Role of Hemodialysis in Toxicology
- d. Consultation, Intervention & Counseling
- e. Basics and significance of Analytical Toxicology

4. Agrochemical & Plant Poisoning:

- a. Organophosphate and Carbamate poisoning
- b. Endosulphan & Other Organochlorines
- c. Pyrethrins & Herbicides
- d. Aluminum and Zinc phosphide poisonings
- e. Common plant poisonings

5. Tablet Overdosage:

- a. Antidepressants
- b. Paracetamol & Salicylates
- c. Anti-Hypertensive (Calcium Channel Blockers & Beta Blockers)
- d. Sedatives, Hypnotics & Anxiolytics
- e. Hypoglycemic Agents

6. Bites & Stings:

- a. Snakebites
- b. On site primary survey
- c. Rapid Transport
- d. Treatment in hospital
- e. Clinical Assessment and Resuscitation
- f. Lab Investigation
- g. Anti-Snake Venom
- h. Treatment for further Complication and Supportive treatment
- i. Rehabilitation
- j. Scorpion Stings
- k. Dog & Cattle bites
- l. Bees, Wasp & Others
- m. Prevention & Prophylaxis

7. Tablet Over Dosage:

- a. Caustic Poisoning
- b. Hydrocarbons
- c. Alcohols
- d. Heavy Metal Poisoning
- e. Other drug overdoses – Cocaine, Amphetamines & Antiepileptic drugs

8. Poisoning in Special Circumstances:

- a. Approach to a poisoned Paediatric patient
- b. Poisoning in Pregnancy
- c. Physiological Variation and Poisoning in Elderly
- d. Cyanide Poisoning & Methhemoglobinemia
- e. Approach to Inhalational Poisoning
- f. Paediatric Airway Management & Oxygen therapy
- g. Bronchoscopy

9. Pearls & Pitfalls in Poisoning:

- a. Pearls in the management of Poisoned Victims
- b. Pitfalls in Poisoned Victims
- c. Management of Shock in Various Poisoning
- d. Analytical Toxicology

10. Ethics & Medico legal Aspects of Toxicology:

- a. Ethics and Ethical Committee
- b. Myths and Facts
- c. Rules and Regulations
- d. Basics in writing in Medico legal Certificates
- e. Postmortem Analysis

Competency Skills:

The fellowship program provides educational and clinical opportunities to acquire the six core competencies to become experts in the management of Toxicology/ Critical care patients.

The six core competencies are:

1. Patient Care
2. Medical Knowledge
3. Practice-Based Learning and Improvement
4. Interpersonal and Communication Skills
5. Professionalism
6. Systems-Based Practice

1. Patient Care

Toxicology/Critical Care Medicine (TCCM) fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

Fellows will arrive at an appropriate hour, pre-round on previous consultations and begin intakes of new consultations. They will coordinate residents on the service to perform these chores and teach residents patients' problems. Fellows will perform initial assessments as appropriate with residents. Consultations may be requested from any inpatient hospital service and the emergency department.

2. Medical Knowledge

Practical skills pertaining to patient care to be developed further consultation service include:

1. Performing appropriately focused history and physical exam
2. Synthesis of differential diagnoses and plans for patient management
3. Ability to coordinate diagnoses and plans for patient management
4. Understanding the role of consulting physician
5. Treating the various conditions listed above in **Medical Knowledge**

The clinical experience will foster the involvement of sound clinical judgment and efficient clinical practical skills.

- 1) TCCM fellows will further develop skills on history-taking from patients and family members by performing a complete history and physical examination of patients seen.
- 2) Faculty will review the fellows' evaluation and management skill, and provide guidance and instruction.

Faculty will provide one-on-one instruction in the performance of procedures. Diagnostic and therapeutic procedural skills that will be developed during the fellow's rotation on consultation service and Toxicology / Critical Care Medicine subspecialty clinic:

1. Arterial Blood Gas interpretation
2. Pulmonary Function Test interpretation
3. Chest interpretation
4. Chest CT scan interpretation
5. Ventilatory support, weaning and respiratory care techniques
6. Hemodynamic Monitoring techniques
7. Thoracentesis
8. Diagnostic Fiber optic Bronchoscopy
9. Central Line Placement

3. Practice-Based Learning And Improvement

TCCM fellows must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices. They will assist the attending physician in teaching residents as per the residents' curriculum.

Fellows will attend these formal conferences:

1. Toxicology Case Conferences (Once in two months)
2. Weekly Toxicology/ Critical Care Grand Rounds
3. Monthly Toxicology/ Critical Care Journal Club
4. Quarterly Research-in-Progress Conference
5. Monthly Multidisciplinary/Critical Care Conference

Fellows will present at the Toxicology/ Critical Care Grand Rounds, Toxicology Case Conference, and Toxicology/ Critical Care Journal Club as directed by the attending. They will provide appropriate state-of-the-art articles on patient management germane to cases.

TCCM Fellows will examine own practice for errors and quality of care, conformance with evidence-based standards of care. When error is recognized, they write a formal review of the case and how to avoid the error in the future.

4. Interpersonal And Communication Skills

- TCCM fellows will develop interpersonal and communication skills that result in an effective information exchange with patients, patient families, and professional associates.
- Develop methods for appropriately communicating with referring physicians
- Learn to concisely and accurately communicate clinical information both in verbal and written form.
- They will communicate information to patients and family members clearly and compassionately in order to create and sustain a therapeutic and ethically-sound relationship.
- Faculty will serve as role models during bedside rounds, during teaching sessions, and during clinic encounters.

5. Professionalism

TCCM fellows must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. They are expected to coordinate the team's activities (within the constraints of the above schedule) and provide timely updates, as appropriate and required, to the attending faculty member. They are to fulfill a surrogate leadership role with residents in the absence of the Toxicology/ Critical care attending.

6. Systems-Based Practice

TCCM fellows will be able to use the interdisciplinary resources available, including nurse case management, physical therapy, outpatient rehabilitation, and occupational therapy to effectively call on system resources to provide care that is of optimal value. They will also attend weekly multidisciplinary vent-weaning rounds.

Self-Learning Methods

1. Recommended text books:

- Text Book of Critical Care (Shoemaker) Elsevier 6th Edition - 2011
- OH's Intensive Care Manual 6th Edition – Andrew Bersten, Neil Soni
- Critical Care Toxicology – Diagnosis & Management – Jeffrey Brent - 2005
- Gold frank's Toxicological Emergencies 9th Edition 2011 – Lewis Nelson, Neal Lewin, Mary Ann Howland
- Gold frank's Manual of Toxicologic Emergencies – Robert Steven – 2007
- Civetta, Taylor & Kriby's (Critical Care) - 2009
- Irwin & Rippe's Procedure Technique & Minimally Invasive Monitoring in Intensive Care Medicine – 5th Edition – Richard & Irwin

2. Fellows will be instructed to research clinical problems by using text references and computer-assisted literature reviews.

3. Fellows will teach medical students and medicine fellows, and their teaching methods will be assessed and critiqued.