



# **VELAMMAL MEDICAL COLLEGE**

## **HOSPITAL AND RESEARCH INSTITUTE**

### **MADURAI - 625009**

8.1.7

Medical graduate attributes as described in the website of the College

#### **Indian Medical Graduate Training Programme (Medical Graduate attributes)**

##### **Indian Medical Graduate Training Programme**

The undergraduate medical education programme is designed with a goal to create an "Indian Medical Graduate" (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant. To achieve this, the following national and institutional goals for the learner of the Indian Medical Graduate training programme are hereby prescribed:

##### **National Goals (POs)**

At the end of undergraduate program, the Indian Medical Graduate should be able to:

- (a) Recognize "health for all" as a national goal and health right of all citizens and by undergoing training for medical profession to fulfil his/her social obligations towards realization of this goal.
- (b) Learn every aspect of National policies on health and devote her/him to its practical implementation.
- (c) Achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of common diseases.
- (d) Develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living.
- (e) Become exemplary citizen by observance of medical ethics and fulfilling social and professional obligations, so as to respond to national aspirations.

##### **Institutional Goals (PSOs)**

- (1) In consonance with the national goals each medical institution should evolve institutional goals to define the kind of trained manpower (or professionals) they intend to produce. The Indian Medical Graduates coming out of a medical institute should:

Prof. T. THIRUNAVUKKARASU, M.D.,D.A.  
Dean

Velammal Medical College Hospital  
and Research Institute

"Velammal Village"

Madurai - 625009

Anupamam, Madurai - 625009





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- (a) be competent in diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
- (b) be competent to practice preventive, promotive, curative, palliative and rehabilitative medicine in respect to the commonly encountered health problems.
- (c) appreciate rationale for different therapeutic modalities; be familiar with the administration of "essential medicines" and their common adverse effects.
- (d) be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude towards the patients in discharging one's professional responsibilities.
- (e) possess the attitude for continued self-learning and to seek further expertise or to pursue research in any chosen area of medicine, action research and documentation skills.
- (f) be familiar with the basic factors which are essential for the implementation of the National Health Programmes including practical aspects of the following:
  - (i) Family Welfare and Maternal and Child Health (MCH)
  - (ii) Sanitation and water supply
  - (iii) Prevention and control of communicable and non-communicable diseases
  - (iv) Immunization
  - (v) Health Education
  - (vi) Indian Public Health Standards (IPHS), at various levels of service delivery
  - (vii) Bio-medical waste disposal
  - (viii) Organizational and/or institutional arrangements.
- (g) acquire basic management skills in the area of human resources, materials and resource management related to health care delivery, hospital management, inventory skills and counselling.

**Prof. T. THIRUNAVUKKARASU, M.D., D.A.**  
Dean  
Velammal Medical College Hospital  
and Research Institute  
"Velammal Village"  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.M.





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(h) be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures.

(i) be able to work as a leading partner in health care teams and acquire proficiency in communication skills.

(j) be competent to work in a variety of health care settings.

(k) have personal characteristics and attitudes required for professional life such as personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

#### **Goals and Roles for the Learner (COs)**

In order to fulfil the goal of the IMG training program, the medical graduate must be able to function in the following roles appropriately and effectively: -

2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.

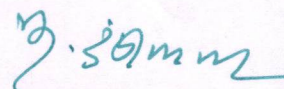
2.3.2. Leader and member of the health care team and system with capabilities to collect analyse, synthesize and communicate health data appropriately.

2.3.3. Communicator with patients, families, colleagues and community.

2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.

2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed above the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

  
**Prof. T. THIRUNAVUKKARASU, M.D., D.A.**  
**Dean**  
**Velammal Medical College Hospital**  
**and Research Institute**  
**"Velammal Village"**  
**Madurai-Tuticorin Ring Road**  
**Anuppanadi, Madurai-625 009, T.N.**





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#### **1. Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion**

- Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioural and social perspective.
- Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.
- Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.
- Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.
- Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.
- Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.
- Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.
- Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.
- Demonstrate effective clinical problem solving, judgement and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.
- Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frame works.

**Prof. T. THIRUNAVUKKARASU, M.D., D.A.,**  
*Dean*

**Velammal Medical College Hospital  
and Research Institute  
"Velammal Village"  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.**





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– Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.

-Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:

(i) Disease prevention,

(ii) Health promotion and cure,

(iii) Pain and distress alleviation, and

(iv) Rehabilitation.

– Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.

– Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.

– Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

## **2. Leader and member of the health care team and system**

– Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.

– Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.

-Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.

– Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with the national health care priorities and policies, as well as be able to collect, analyse and utilize health data.

**Prof. T. THIRUNAVUKKARASU, M.D.**  
*Dean*

**Velammal Medical College Hospital  
and Research Institute**

**"Velammal Village"**

**Madurai-Tuticorin Ring Road**

**Anuppanadi, Madurai-625 009.**





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-Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.

– Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancers, in collaboration with other members of the health care team.

### **3. Communicator with patients, families, colleagues and community**

– Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.

– Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.

– Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

-Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

### **4. Lifelong learner committed to continuous improvement of skills and knowledge**

– Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

– Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

– Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

– Demonstrate ability to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient.

  
Prof. T. THIRUNAVUKKARASU, M.D., D.A.,  
Dean  
Velammal Medical College Hospital  
and Research Institute  
"Velammal Village" 6  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.





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#### **Physiology:**

The undergraduates must demonstrate:

1. Understanding of the normal functioning of the organs and organ systems of the body,
  2. Comprehension of the normal structure and organization of the organs and systems on basis of the functions,
  3. Understanding of age-related physiological changes in the organ functions that reflect normal growth and development,
  4. Understand the physiological basis of diseases.
- Integration: The teaching should be aligned and integrated horizontally and vertically in organ systems in order to provide a context in which normal function can be correlated both with structure and with the physiological basis, its clinical features, diagnosis and therapy.

#### **Biochemistry: \_**

The learner must demonstrate an understanding of:

1. Biochemical and molecular processes involved in health and disease,
  2. Importance of nutrition in health and disease,
  3. Biochemical basis and rationale of clinical laboratory tests, and demonstrate ability to interpret these in the clinical context.
- Integration: The teaching/learning programme should be integrated horizontally and vertically, as much as possible, to enable learners to make clinical correlations and to acquire an understanding of the cellular and molecular basis of health and disease.

#### **Introduction to Community Medicine:**

The undergraduate must demonstrate:

1. Understanding of the concept of health and disease,
2. Understanding of demography, population dynamics and disease burden in National and global context,
3. Comprehension of principles of health economics and hospital management,
4. Understanding of interventions to promote health and prevent diseases as envisioned in National and State Health Programmes

**Prof. T. THIRUNAVUKKARASU, M.D., D.A.**  
*Dean*  
**Velammal Medical College Hospital  
and Research Institute  
"Velammal Village"  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.**





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– Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

**5. Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession**

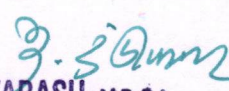
- Practice selflessness, integrity, responsibility, accountability and respect.
- Respect and maintain professional boundaries between patients, colleagues and society.
- Demonstrate ability to recognize and manage ethical and professional conflicts.
- Abide by prescribed ethical and legal codes of conduct and practice.
- Demonstrate a commitment to the growth of the medical profession as a whole.

<u>Course/Subject-wise</u>	<u>outcomes</u>	<u>(Competencies)</u>
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**Anatomy: \_**

The undergraduate must demonstrate:

1. Understanding of the gross and microscopic structure and development of human body,
  2. Comprehension of the normal regulation and integration of the functions of the organs and systems on basis of the structure and genetic pattern,
  3. Understanding of the clinical correlation of the organs and structures involved and interpret the anatomical basis of the disease presentations.
- Integration: The teaching should be aligned and integrated horizontally and vertically in organ systems with clinical correlation that will provide a context for the learner to understand the relationship between structure and function and interpret the anatomical basis of various clinical conditions and procedures.

  
Prof. T. THIRUNAVUKKARASU, M.D., D.A.  
Dean

Velammal Medical College Hospital  
and Research Institute  
"Velammal Village"  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.





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#### **Pathology: \_**


The undergraduate must demonstrate:

1. Comprehension of the causes, evolution and mechanisms of diseases,
  2. Knowledge of alterations in gross and cellular morphology of organs in disease states,
  3. Ability to correlate the natural history, structural and functional changes with the clinical manifestations of diseases, their diagnosis and therapy,
- Integration: The teaching should be aligned and integrated horizontally and vertically in organ systems recognizing deviations from normal structure and function and clinically correlated so as to provide an overall understanding of the etiology, mechanisms, laboratory diagnosis, and management of diseases.

#### **Microbiology:**

The undergraduate learner demonstrates:

1. Understanding of role of microbial agents in health and disease,
  2. Understanding of the immunological mechanisms in health and disease,
  3. Ability to correlate the natural history, mechanisms and clinical manifestations of infectious diseases as they relate to the properties of microbial agents,
  4. Knowledge of the principles and application of infection control measures,
  5. An understanding of the basis of choice of laboratory diagnostic tests and their interpretation, antimicrobial therapy, control and prevention of infectious diseases.
- Integration: The teaching should be aligned and integrated horizontally and vertically in organ systems with emphasis on host-microbe-environment interactions and their alterations in disease and clinical correlations so as to provide an overall understanding of the etiological agents, their laboratory diagnosis and prevention.

  
Prof. T. THIRUNAVUKARASU, M.D., D.A.,  
Dean

Velammal Medical College Hospital  
and Research Institute  
"Velammal Village"  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009. N.





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#### **Pharmacology:**

The undergraduate must demonstrate:

1. Knowledge about essential and commonly used drugs and an understanding of the pharmacologic basis of therapeutics,
  2. Ability to select and prescribe medicines based on clinical condition and the pharmacologic properties, efficacy, safety, suitability and cost of medicines for common clinical conditions of national importance,
  3. Knowledge of pharmacovigilance, essential medicine concept and sources of drug information and industry-doctor relationship,
  4. Ability to counsel patients regarding appropriate use of prescribed drug and drug delivery systems.
- Integration: The teaching should be aligned and integrated horizontally and vertically in organ systems recognizing the interaction between drug, host and disease in order to provide an overall understanding of the context of therapy.

#### **Forensic Medicine and Toxicology:**

The learner must demonstrate:

1. Understanding of medico-legal responsibilities of physicians in primary and secondary care settings,
  2. Understanding of the rational approach to the investigation of crime, based on scientific and legal principles,
  3. Ability to manage medical and legal issues in cases of poisoning / overdose,
  4. Understanding the medico-legal framework of medical practice and medical negligence,
  5. Understanding of codes of conduct and medical ethics.
- Integration: The teaching should be aligned and integrated horizontally and vertically recognizing the importance of medico-legal, ethical and toxicological issues as they relate to the practice of medicine.

  
Prof. T. THIRUNAVUKKARASU, M.D., D.A.  
Dean  
Velammal Medical College Hospital  
and Research Institute  
"Velammal Village" 10  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.





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#### **General Medicine:**

The student must demonstrate ability to do the following in relation to common medical problems of the adult in the community:

1. Demonstrate understanding of the pathophysiologic basis, epidemiological profile, signs and symptoms of disease and their investigation and management,
  2. Competently interview and examine an adult patient and make a clinical diagnosis,
  3. Appropriately order and interpret laboratory tests,
  4. Initiate appropriate cost-effective treatment based on an understanding of the rational drug prescriptions, adverse effects, medical interventions required and preventive measures,
  5. Follow up of patients with medical problems and refer whenever required,
  6. Communicate effectively, educate and counsel the patient and family,
  7. Manage common medical emergencies and refer when required,
  8. Independently perform common medical procedures safely with an understanding of patient safety issues.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to provide sound biologic basis and incorporating the principles of general medicine into a holistic and comprehensive approach to the care of the patient.

#### **General Surgery:**

The student must demonstrate:

1. Understanding of the structural and functional basis, principles of diagnosis and management of common surgical problems in adults and children,
2. Ability to choose, calculate and administer appropriately intravenous fluids, electrolytes, blood and blood products based on the clinical condition,

  
Prof. T. THIRUNAVUKKARASU, M.D., D.A.

Dean

Velammal Medical College Hospital  
and Research Institute  
"Velammal Village"

11

Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.





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3. Ability to apply the principles of asepsis, sterilization, disinfection, rational use of prophylaxis, therapeutic utilities of antibiotics and universal precautions in surgical practice,
  4. Knowledge of common malignancies in India and their prevention, early detection and therapy,
  5. Ability to perform common diagnostic and surgical procedures at the primary care level,
  6. Ability to recognize, resuscitate, stabilize and provide Basic & Advanced Life Support to patients following trauma,
  7. Ability to administer informed consent and counsel patient prior to surgical procedures,
  8. Commitment to advancement of quality and patient safety in surgical practice.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to provide a sound biologic basis and a holistic approach to the care of the surgical patient.

### **Obstetrics and Gynaecology:**

**Obstetrics:** The student must demonstrate ability to:

1. Provide pre-conceptional counselling and antenatal care,
2. Identify high-risk pregnancies and refer appropriately,
3. Conduct normal deliveries, using safe delivery practices in the primary and secondary care settings,
4. Prescribe drugs safely and appropriately in pregnancy and lactation,
5. Diagnose complications of labour, institute primary care and refer in a timely manner,
6. Perform early neonatal resuscitation,
7. Provide postnatal care, including education in breast-feeding,
8. Counsel and support couples in the correct choice of contraception,
9. Interpret test results of laboratory and radiological investigations as they apply to the care of the obstetric patient,
10. Apply medico-legal principles as they apply to tubectomy, Medical Termination of Pregnancy (MTP), Pre-conception and Prenatal Diagnostic Techniques (PC-PNDT Act) and other related Acts.

Prof. T. THIRUNAVUKKARASU, M.D., D.A.

Dean

**Velammal Medical College Hospital  
and Research Institute**  
"Velammal Village"

Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.





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**Gynaecology:** The student must demonstrate ability to:

1. Elicit a gynaecologic history; perform appropriate physical and pelvic examinations and PAP smear in the primary care setting,
  2. Recognize, diagnose and manage common reproductive tract infections in the primary care setting,
  3. Recognize and diagnose common genital cancers and refer them appropriately.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to provide comprehensive care for women in their reproductive years and beyond, based on a sound knowledge of structure, functions and disease and their clinical, social, emotional, psychological correlates in the context of national health priorities.

#### **Paediatrics:**

The student must demonstrate:

1. Ability to assess and promote optimal growth, development and nutrition of children and adolescents and identify deviations from normal,
  2. Ability to recognize and provide emergency and routine ambulatory and First Level Referral Unit care for neonates, infants, children and adolescents and refer as may be appropriate,
  3. Ability to perform procedures as indicated for children of all ages in the primary care setting,
  4. Ability to recognize children with special needs and refer appropriately,
  5. Ability to promote health and prevent diseases in children,
  6. Ability to participate in National Programmes related to child health and in conformation with the Integrated Management of Neonatal and Childhood Illnesses (IMNCI) Strategy,
  7. Ability to communicate appropriately and effectively.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to provide comprehensive care for neonates, infants, children and adolescents based on a sound knowledge of growth, development, disease and their clinical, social, emotional, psychological correlates in the context of national health priorities.

  
Prof. T. THIRUNAVUKKARASU, M.D., D.A.

Dean

Velammal Medical College Hospital  
and Research Institute  
"Velammal Village"

Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.





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#### **Orthopaedics (including Trauma):**

The student must demonstrate:

1. Ability to recognize and assess bone injuries, dislocation and poly-trauma and provide first contact care prior to appropriate referral,
  2. Knowledge of the medico-legal aspects of trauma,
  3. Ability to recognize and manage common infections of bone and joints in the primary care setting,
  4. Recognize common congenital, metabolic, neoplastic, degenerative and inflammatory bone diseases and refer appropriately,
  5. Ability to perform simple orthopaedic techniques as applicable to a primary care setting,
  6. Ability to recommend rehabilitative services for common orthopaedic problems across all ages.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand the structural basis of orthopaedic problems, their management and correlation with function, rehabilitation and quality of life.

#### **Community Medicine (Phase III MBBS)**

The learner must demonstrate:

1. Understanding of physical, social, psychological, economic and environmental determinants of health and disease,
2. Ability to recognize and manage common health problems including physical, emotional and social aspects at individual family and community level in the context of National Health Programmes,
3. Ability to Implement and monitor National Health Programmes in the primary care setting,
4. Knowledge of maternal and child wellness as they apply to national health care priorities and programmes,
5. Ability to recognize, investigate, report, plan and manage community health problems including malnutrition and emergencies.

  
**Prof. T. THIRUNAVUKKARASU, M.D., D.A.,**  
Dean  
Velammal Medical College Hospital  
and Research Institute  
"Velammal Village" 14  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.





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- Integration: The teaching should be aligned and integrated horizontally and vertically in order to allow the learner to understand the impact of environment, society and national health priorities as they relate to the promotion of health and prevention and cure of disease.

#### **Dermatology, Venereology & Leprosy:**

The undergraduate student must demonstrate:

1. Understanding of the principles of diagnosis of diseases of the skin, hair, nail and mucosa,
  2. Ability to recognize, diagnose, order appropriate investigations and treat common diseases of the skin including leprosy in the primary care setting and refer as appropriate,
  3. A syndromic approach to the recognition, diagnosis, prevention, counselling, testing and management of common sexually transmitted diseases including HIV based on national health priorities,
  4. Ability to recognize and treat emergencies including drug reactions and refer as appropriate.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to emphasize the biologic basis of diseases of the skin, sexually transmitted diseases and leprosy and to provide an understanding that skin diseases may be a manifestation of systemic disease.

#### **Psychiatry:**

The student must demonstrate:

1. Ability to promote mental health and mental hygiene,
2. Knowledge of etiology (bio-psycho-social-environmental interactions), clinical features, diagnosis and management of common psychiatric disorders across all ages,
3. Ability to recognize and manage common psychological and psychiatric disorders in a primary care setting, institute preliminary treatment in disorders difficult to manage, and refer appropriately,
4. Ability to recognize alcohol/ substance abuse disorders and refer them to appropriate centres,
5. Ability to assess risk for suicide and refer appropriately,
6. Ability to recognize temperamental difficulties and personality disorders.

Prof. T. THIRUNAVUKKARASU, M.D., D.A.  
Dean

Velammal Medical College Hospital  
and Research Institute  
"Velammal Village"  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009





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7. Assess mental disability and rehabilitate appropriately,
  8. Understanding of National and State programmes that address mental health and welfare of patients and community.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand bio-psycho-social-environmental interactions that lead to diseases/disorders for preventive, promotive, curative, rehabilitative services and medico-legal implications in the care of patients both in family and community.

#### **Respiratory Medicine:**

The student must demonstrate:

1. Knowledge of common chest diseases, their clinical manifestations, diagnosis and management,
  2. Ability to recognize, diagnose and manage pulmonary tuberculosis as contemplated in National Tuberculosis Control programme,
  3. Ability to manage common respiratory emergencies in primary care setting and refer appropriately.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to allow the student to recognize diagnose and treat TB in the context of the society, national health priorities, drug resistance and co-morbid conditions like HIV.

#### **Otorhinolaryngology:**

The learner must demonstrate:

1. Knowledge of the common Otorhinolaryngological (ENT) emergencies and problems,
2. Ability to recognize, diagnose and manage common ENT emergencies and problems in primary care setting,
3. Ability to perform simple ENT procedures as applicable in a primary care setting,
4. Ability to recognize hearing impairment and refer to the appropriate hearing impairment rehabilitation programme.

Prof. T. THIRUNAVUKKARASU, M.D., D.A.  
Dean

Velammal Medical College Hospital  
and Research Institute  
"Velammal Village" 16  
Madurai-Tuticorin Ring Road  
Ahuppanadi, Madurai-625 009, T.N.





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- Integration: The teaching should be aligned and integrated horizontally and vertically in order to allow the learner to understand the structural basis of ENT problems, their management and correlation with function, rehabilitation and quality of life.

#### **Ophthalmology:**

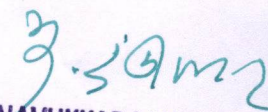
The student must demonstrate:

1. Knowledge of common eye problems in the community
  2. Recognize, diagnose and manage common eye problems and identify indications for referral,
  3. Ability to recognize visual impairment and blindness in the community and implement National programmes as applicable in the primary care setting.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to allow the student to understand the structural basis of ophthalmologic problems, their management and correlation with function, rehabilitation and quality of life.

#### **Radio-diagnosis:**

The student must demonstrate:

1. Understanding of indications for various radiological investigations in common clinical practice,
  2. Knowledge about the radiation hazards and implementation of various radiation protective measures as needed,
  3. Ability to identify abnormalities in common radiological investigations.
- Integration: Horizontal and vertical integration to understand the fundamental principles of radiologic imaging, anatomic correlation and their application in diagnosis and therapy.

  
**Prof. T. THIRUNAVUKKARASU, M.D., D.A.,**  
*Dean*  
**Velammal Medical College Hospital  
and Research Institute  
"Velammal Village"  
Madurai-Tuticorin Ring Road  
Anuppanadi, Madurai-625 009, T.N.**





# **VELAMMAL MEDICAL COLLEGE**

## **HOSPITAL AND RESEARCH INSTITUTE**

**MADURAI - 625009**

### **Anaesthesiology:**

The student must demonstrate ability to:

1. Describe and discuss the pre-operative evaluation, assessing fitness for surgery and the modifications in medications in relation to anaesthesia / surgery,
  2. Describe and discuss the roles of Anaesthesiologist as a peri-operative physician including pre-medication, endotracheal intubation, general anaesthesia and recovery (including variations in recovery from anaesthesia and anaesthetic complications),
  3. Describe and discuss the management of acute and chronic pain, including labour analgesia,
  4. Demonstrate awareness about the maintenance of airway in children and adults in various situations,
  5. Demonstrate the awareness about the indications, selection of cases and execution of cardiopulmonary resuscitation in emergencies and in the intensive care and high dependency units,
  6. Choose cases for local / regional anaesthesia and demonstrate the ability to administer the same,
  7. Discuss the implications and obtain informed consent for various procedures and to maintain the documents.
- Integration: The teaching should be aligned and integrated horizontally and vertically in order to provide comprehensive care for patients undergoing various surgeries, in patients with pain, in intensive care and in cardio respiratory emergencies. Integration with the preclinical department of Anatomy, para- clinical department of Pharmacology and horizontal integration with any/all surgical specialities is proposed.

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