Integrated Applied Medicine 1 (IAM 1)– MED2218

Year 2 Semester 2

Number of credits - 2

Module Coordinators : Prof. Vasanthi Pinto

Topic	**Time**	**Objectives** Students should be able to	**Departments involve**	**Responsible department**	**T/L activity**	**Comments**
Introduction to Integrated Applied Medicine module and working out common signs and symptoms in medicine and surgery **MED2218/1**	2 hours	1. understand the concept of integrating basic sciences (anatomy, physiology and biochemistry) in clinical practice. 2. explain the common clinical signs and symptoms related to practice of medicine / surgery based on the derangement of anatomy, physiology and biochemistry; eg, chest pain, oliguria, icterus, abdominal pain, haematuria etc.. 3. interpret the combinations of clinical signs and symptoms related to surgery and narrow down the involved organ or systems.	Module coordinators Medicine	Module coordinators Head - Surgery	Lecture	Conduct by module coordinators and academics from medicine and surgery department
Anaemia **MED2218/2**	1 hour 2 hour	1. define anaemia 2. list the common causes for anaemia 3. apply the knowledge of physiology and biochemistry to diagnose the causes for anaemia 4. outline management principles in managing anaemia	Medicine Biochemistry	Head-Medicine	Lecture (case oriented) Student presentation based on **patient presented with tiredness and pallor**	

Oedema **MED2218/3**	2 hours	1. recall the basis for the formation of oedema based on the derangement physiology *increased hydrostatic pressure* *reduced intravascular or oncotic pressure* *increased tissue colloidal or oncotic pressure* *increased blood vascular permeability* *obstruction of lymphatic system* 2. list the causes for generalized oedema 3. apply this knowledge to explain the clinical manifestations of oedema	Applied Physiology / Anaesthesiology and Critical Care Paediatrics Medicine	Head - Anaesthesiology and Critical Care	Student presentation based on **Child presented with Oedema**	
Jaundice **MED2218/4**	1 hour 2 hours	1. recall the definition of jaundice 2. explain the mechanisms of jaundice based on the pre-hepatic, intra-hepatic and post hepatic origin integrating to the anatomy and physiology. 3. explain the clinical symptoms and signs in each of the above types of jaundice 4. apply the knowledge on bilirubin metabolism, to determine the investigations used to differentiate the types of jaundice 5. outline the basic treatment options for the causes of pre-hepatic, intra-hepatic and post hepatic jaundice.	Medicine Surgery Biochemistry	Head - Medicine	Lecture – (case oriented) Student presentation based on **Patient presented with icterus and abdominal plain**	

Shock **MED2218/5**	1 hour 2 hours	1. explain the term shock 2. recall the types of shock *hypovolemic shock (hemorrhages and dehydration)* *distributive shock (sepsis and anaphylaxis)* *cardiogenic shock* *Obstructive* 3. describe the mechanisms and pathophysiology of different types of shock. 4. explain the pathological and functional changes that occur in the organs systems in different types of shock. *hypovolemic shock* 5. recall the concepts learned under heart as a pump, cardiac output and venous return & flow dynamics 6. explain how the clinical features are related to the physiological changes and compensatory mechanisms that occur in varying degrees of blood loss 7. recall the regulatory mechanisms which maintain extracellular fluid (ECF) volume and osmolarity *cardiogenic shock* 8. explain the haemodynamics and the basis of clinical features in right and left heart failure *distributive shock* 9. explain the pathophysiology and haemodynamics in relation to the clinical presentation in anaphylaxis and sepsis.	Paediatrics Surgery Medicine Applied Physiology / Anaesthesia and Critical Care	Head - Anaesthesia and Critical Care	

Dyspnoea and respiratory failure **MED2218/6**	1 hour 2 hours	1. recall the causes for hypoxia based on the principles of deranged *regulation of respiration* *mechanics of breathing* *gas exchange, diffusion of gasses* *V/Q mismatch and transport of gasses* 2. explain the causation of type 1 and type 2 respiratory failures and explain how the diagnostic tests can be used to differentiate these. 3. outline the basic management principles of lung diseases based on the deranged physiology.	Applied Physiology / Anaesthesiology and Critical care Medicine	Head - Anaesthesiology and Critical care	Lecture - (case oriented) Student presentation based on **54 years of patient presented with difficult in breathing and cyanosis**	
Chest pain **MED2218/7**	1 hour 2 hours	1. recall the regional anatomy, physiology, blood supply of the heart and electrical conducting system 2. apply the above knowledge to differentiate the causes of chest pain 3. explain the mechanisms of ischemic heart disease 4. outline the basic management options for ischemic heart diseases based on the derangement of physiology.	Medicine Anatomy Applied Physiology/ Anaesthesiology and Critical care	Head - Medicine	Lecture – (case oriented) Student presentation based on **60 years old hypertensive patient presented with sudden onset of chest pain**	
Bleeding / haemostatic disorders **MED2218/8**	1 hours	1. recall the concepts learned under composition of blood & haemostasis and their regulations 2. explain the symptoms and signs of different bleeding / haemostatic disorders 3. workout the basis of investigations used to diagnose different haemostatic disorders based on the knowledge on mechanism of haemostasis	Pathology Paediatrics Applied Physiology / Anaesthesiology and	Head - Pathology	Lecture based on **15 years old boy presented with bleeding gums and painful knee joints**	

		4. outline the basic management options for common bleeding and haemostatic disorders	Critical care Medicine Biochemistry			
Acid-base and electrolyte disturbances **MED2218/9**	1 hour 2 hours	1. recall the necessity and mechanisms of regulation of acid base balance 2. recall the terms respiratory and metabolic acidosis and alkalosis 3. workout the causation of acid base imbalances brought about by different clinical conditions and resultant physiological changes and biochemical derangements 4. state the compensatory changes that occur in acid base imbalances 5. outline the basic management options of respiratory and metabolic acidosis and alkalosis 6. explain the consequences of acid base derangements 7. outline the cause for electrolyte disturbances and their clinical implications (Sodium, Potassium, Calcium, Magnesium) 8. outline the basic management options of disturbances of Sodium, Potassium, Calcium homeostasis.	Anaesthesiology and Critical Care Applied Physiology / Anaesthesiology and Critical care	Head - Anaesthesiology and Critical Care	Lecture (case oriented) Student presentation based on Patient presented with hyperventilation following drug overdose **Patient presented with a head injury and low respiratory rate** **Diabetic patient presented with vomiting and rapid respiration** **Patient presented with excessive vomiting**	

Fractures / metabolic response to trauma **MED2218/10**	2 hours	1. recall the neural, hormonal and metabolic responses to stress and trauma 2. apply the above knowledge to describe the clinical symptoms and signs in trauma 3. state the beneficial effects of the stress response in coping with trauma and other emergency situations	Surgery Applied Physiology / Anaesthesiology and Critical care	Head - Surgery	Student presentation based on **patient presented with fracture femur**	
Loss of consciousness **MED2218/11**	1 hour 2 hours	1. recall the relevant neuroanatomy and neurophysiology 2. list the causes for loss of consciousness 3. explain the causes for loss of consciousness based on the alteration of neuroanatomy and neurophysiology. 4. explain the assessment of a patient with loss of consciousness 5. outline the basic management options of a patient with loss of consciousness	Medicine Applied Physiology / Anaesthesiology and Critical care Psychiatry Radiology	Head - Medicine	Lecture based on loss of conciseness– (case oriented) Student presentation based on both LOC and convulsions Student presentation; **70 years old patient presented with LOC following fall and** **12 years old child**	Lecture based on LOC from Medicine department and student presentations is a combination of LOC and convulsions from Medicine and Paediatrics departments

Convulsions **MED2218/12**		1. recall the neuroanatomy and neurophysiology of brain 2. list the causes for convulsions based on the above concepts 3. determine the affected region of the brain based on the clinical presentations of convulsions 4. outline the basic management options of convulsions	Medicine Paediatrics Applied Physiology / Anaesthesiology and Critical care	Head - Paediatrics	**presented with generalized fits**	
Headache **MED2218/13**	2 hours	1. recall the pain pathway and physiological derangement in headache 2. list the causes of headache based on the derangement of neuroanatomy or physiology 3. explain the presentation of of headache as a symptom in in relation to medical diseases, raised intracranial pressure, ENT and oro-maxillofacial causes 4. outline the basic management options of headache	Medicine Anatomy Applied Physiology / Anaesthesiology and Critical care	Head- Medicine	Student presentation based on **28 years old lady presented with frontal headache with vomiting**	

Paralysis **MED2218/14**	1 hour 2 hours	1. recall the neuroanatomy and neurophysiology of the central and peripheral nervous systems 2. list the surgical and medical causes of flaccid and spastic paralysis 3. explain the clinical features of different types of paralysis based on the knowledge on basic sciences 4. explain the possible site of the lesion based on the signs and symptoms of paralysis 5. outline the basic management options of different types of paralysis	Medicine Pediatrics Applied Physiology /Anaesthesiology and Critical care	Head - Medicine	Lecture – (case oriented) Student presentation based on **60 years old hypertensive patient presented with sudden onset of hemiplegia and 34 years old presented with weakness and loss of sensations of lower limbs**	
Acute abdominal pain **MED2218/15**	2 hours	1. explain the basis of causes for acute abdominal pain in relation to the surgical anatomy and general pathology knowledge as inflammation, ischemia, neoplasia, bleeding of the abdomen 2. describe how clinical features are useful in diagnosis of causes of acute abdominal pain. 3. explain the basis of investigations in diagnosing the causes for acute abdominal pain. 4. outline the basic management options of different causes of acute abdominal pain.	Surgery Anatomy pathology radiology	Head - Surgery	Student presentation based on **Patient presented with sudden onset, severe abdominal plain**	
Acute and chronic pain **MED2218/16**	1 hour	1. recall the neuroanatomy and the physiology of pain 2. list the causes of acute and chronic pain 3. describe the ways of assessing pain	Anaesthesiology and Critical Care	Head- Anaesthesiology and	Lecture (case oriented)	

		4. explain the pathological and psychological basis of causes of acute and chronic pain. 5. outline the basic management options of acute and chronic pain	Applied Physiology/Anaesthesiology and Critical care	Critical Care		
Abnormal uterine bleeding **MED2218/17**	2 hours	1. explain the pathophysiological basis of abnormal uterine bleeding 2. list the etiological factors for abnormal uterine bleeding 3. explain how to differentiate abnormal uterine bleeding from physiological heavy menstrual bleeding	Gynaecology and Obstetrics Applied Physiology/Anaesthesiology and Critical care	Head - Gynaecology and Obstetrics	Student presentation based on **28 years old female presented with heavy menstrual bleeding**	
Polyuria **MED2218/18**	2 hours	1. define polyuria 2. explain the pathophysiological basis for the causes for polyuria 3. (diabetes mellitus, diabetes insipidus) 4. list the types of Diabetes mellitus and outline the cause for each 5. recall the physiology of blood glucose homeostasis 6. explain how insulin is involved in diabetes mellitus 7. describe the metabolic changes which occur in uncontrolled diabetes mellitus and explain these in relation to clinical presentation in diabetes	Medicine Biochemistry	Head - Medicine	Student presentation based on **17 years old boy presented with increased frequency of urine and loss of weight** **Patient presented with increased urine output following a head trauma**	

Oliguria **MED2218/19**	2 hours	1. define oliguria 2. list the causes for oliguria 3. describe the physiological basis for the causes for oliguria 4. apply the pathological explanations for the causations 5. describe the basis for the investigations performed to arrive at a diagnosis 6. outline the management options of causes for oliguria 7. explain the pathophysiology and basis of management of acute and chronic renal failure	Anaesthesiology and Critical care Pediatrics Applied Physiology/Anaesthesiology and Critical care Medicine	Head - Anaesthesiology and Critical care	Student presentation based on **54 years old patient presented with fever and low urine output**	
Growth retardation **MED2218/20**	1 hour	1. define underweight, stunting and wasting 2. explain anatomical, physiological and biochemical basis of growth and growth failure 3. enumerate the reasons of common causes of growth failure during neonatal period, infancy, preschool age and school age	Paediatrics Biochemistry	Head - Paediatrics	Lecture – Pediatrics Student presentation	Student presentation is based on both growth retardation and short stature

Short stature **MED2218/21**	1 hour 2 hours	1. enumerate the common causes of short stature during childhood 2. explain anatomical, physiological and biochemical basis of short stature 3. describe the assessment of a child with a short stature	Paediatrics Biochemistry	Head - Paediatrics	Lecture – Pediatrics Student presentation based on **4 years old child presented with delayed milestones and underweight and 6 years old body presented with short stature**	
Acute confusional state **MED2218/22**	1 hour	1. recall the anatomy and physiological basis of cognitive functions of the brain 2. define acute confusional state 3. list the causes of an acute confusional state 4. describe the anatomical, biochemical and physiological derangements in an acute confusional state due to the causes mentioned	Psychiatry Applied Physiology /Anaesthesiology and Critical care	Head - Psychiatry	Lecture (case oriented) Student presentation based on **24 years old lady presented with acute confusional state**	
Applied anatomy related to common surgical conditions **MED2218/23**	4 hours	1. apply the knowledge on regional anatomy and pathology for common surgical conditions Head and neck Thorax Breast and Axilla Upper abdomen Lower abdomen and pelvis Limbs	Surgery Anatomy	Head- Surgery	Demonstration of surgical anatomy by a video based lecture demonstration	

		Genito-urinary and inguinal canal				

Lectures = 15 lectures (15 hours)

Student presentations = 16 (16 X 2 hours = 32 hours) + 4 hours Lecture [video demonstration] = 36 hours

The details of the objectives, teaching learning activity, duration and other information were based on the module development committee meetings composed of three module coordinators and representatives from all relevant departments.

Module Coordinators

Prof. Vasanthi Pinto