University Residency (MD) Program of Emergency Medicine

At

Rawalpindi Medical University

Rawalpindi

"The life so short, the craft so long to learn."

Hippocrates

PREFACE

The horizons of *Medical Education* are widening & there has been a steady rise of global interest in *Post Graduate Medical Education*, an increased awareness of the necessity for experience in education skills for all healthcare professionals and the need for some formal recognition of postgraduate training in Internal Medicine.

We are seeing a rise in the uptake of places on postgraduate courses in medical education, more frequent issues of medical education journals and the further development of e-journals and other new online resources. There is therefore a need to provide active support in *Post Graduate Medical Education* for a larger, national group of colleagues in all specialties and at all stages of their personal professional development. If we were to formulate a statement of intent to explain the purpose of this curriculum we mightsimply say that our aim is to help clinical colleagues to teach and to help students to learn in a better and advanced way.

Emergency medicine is new specialty in Pakistan. There are few qualified specialists in the field of emergency medicine in Pakistan, a country having a population of over 220 million with extra ordinary burden of both the communicable and non-communicable diseases and trauma cases. Even today, there are few hospitals across Pakistan having training opportunity in field of emergency medicine but most of them are private sector hospital. Realizing importance of emergency medicine, **Rawalpindi Medical University has recently established department of emergency medicine.** It will provide a great opportunity to develop a trained workforce for our hospital. It will be a milestone in history of emergency medicine in Pakistan. It will help to improve care of patients presenting in emergency department.

Curriculum for this training program will cover all important clinical and professional aspects of emergency medicine. This book is a state of the art book with representation of all activities of the MD Emergency Medicine program at RMU. Curriculum is incorporated in the book for convenience of supervisors and residents. MD curriculum is based on six Core Competencies of ACGME ***(Accreditation Council for Graduate Medical Education)*** including ***Patient Care, Medical Knowledge, System Based Practice, Practice Based Learning, Professionalism, Interpersonal and Communication Skills***. The mission of Rawalpindi Medical University is to improve the health of the communities and we serve through education, biomedical research and health care. As an integral part of this mission, importance of research culture and establishment of a comprehensive research structure and research curriculum for the residents has been formulated and provided in this book.

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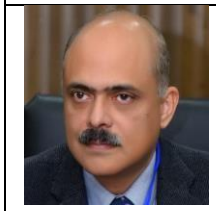
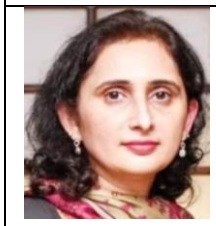
	**Dr Usman Qureshi** Associate Professor of Surgery Head of Department, Emergency Medicine Holy Family Hospital Rawalpindi Medical University	• Overall synthesis, structuring & write up of Curriculum of MD Emergency Medicine, under guidance of Prof. Muhammad Umar Vice Chancellor, Rawalpindi Medical University,Rawalpindi. • Proof reading & synthesis of final print version of Curriculum of MD Emergency Medicine.
	**Dr Saima Ambreen** Associate Professor of Medicine Head of Department, MU-1 Holy Family Hospital Rawalpindi Medical University	Assistance in formulating & synthesis of final print version of Curriculum .

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Glossary

TEACHING METHOD GLOSSARY

ST	-Supervised training
WS	-Workshops
SDL	-Self-Directed Learning
BST	Bed side teaching
PBL	Problem based learning
WS	HAND ON WORKSHOPS
SEP	Structured Education Program

ASSESSMENT METHOD GLOSSARY

AA	Audit Assessment
ACAT	Acute Care Assessment Tool
C	Case Based Discussion (CBD)
D	Direct observation of procedural skills (DOPS)
E	Examination
ESLE	Extended supervised learning event
L	Life support course
Mi	Mini-clinical evaluation exercise
M	Multi-source feedback (MSF)
PS	Patient Survey
S	Simulation
TO	Teaching Observation
W	Web based,

SECTION – I

MISSION STATEMENT

The mission of Emergency Medicine Residency Program of Rawalpindi Medical University is:

1. To provide exemplary emergency medical care, treating all patients who come before us with uncompromising dedication and skill.
2. To set and pursue the highest goals for ourselves as we learn the science, craft, and art of Emergency Medicine.
3. To passionately teach our junior colleagues and students as we have been taught by those who preceded us.
4. To treat our colleagues and hospital staff with kindness, respect, generosity of spirit, and patience.
5. To foster the excellence and well-being of our residency program by generously offering our time, talent, and energy on its behalf.
6. To support and contribute to the research mission of our medical center, nation, and the world by pursuing new knowledge, whether at the bench or bedside.
7. To promote the translation of the latest scientific knowledge to the bedside to improve our understanding of disease pathogenesis and ensure that all patients receive the most scientifically appropriate and up to date care.
8. To promote responsible stewardship of medical resources by wisely selecting diagnostic tests and treatments, recognizing that our individual decisions impact not just our own patients, but patients everywhere.
9. To promote social justice by advocating for equitable health care, without regard to race, gender, sexual orientation, social status, or ability to pay.
10. To extend our talents outside the walls of our hospitals and clinics, to promote the health and well-being of communities, locally, nationally, and internationally.
11. To serve as proud ambassadors for the mission of the Rawalpindi Medical University MD Emergency Medicine Residency Program for the remainder of our professional lives.

STATUTES

Nomenclature of The Proposed Course

The name of degree program shall be MD Emergency Medicine. This name is well recognized and established for the last decades worldwide

Course Title

MD Emergency Medicine

Training Centers

Departments of Emergency Medicine is an affiliated institute of Rawalpindi Medical University, Rawalpindi, Pakistan

Duration of Course

The duration of MD Emergency Medicine course shall be five (5) years with
structured training in a recognized department under the guidance of an approved supervisor. After admission in MD Emergency Medicine Programme the resident will spend first 6 Months in the relevant Department of Emergency Medicine as **Induction period** during which resident will get orientation about the chosen discipline and will also undertake the **mandatory workshops** (Appendix E). The research project will be designed and the **synopsis** is prepared during this period. The resident must get the research synopsis approved by AS&RB in first 2 years. At the end of 2nd years, the candidate will take up Intermediate Examination.

During the 3rd ,4th and 5th years, of the Program, there will be two component of the training

1) Clinical training in Emergency Medicine
2) Research and thesis writing

The candidate shall undergo clinical training to achieve educational objectives of MD Emergency Medicine (knowledge, skills &

attitude) along with rotations in the relevant fields.
Research Component and thesis writing shall be completed over the five years duration of the course. Candidates will spend total time equivalent to one calendar year for research during the training. Research can be done as one block or it can be done in the form of regular periodic rotation over five years as long as total research time is equivalent to one calendar year.

ADMISSION CRITERIA

RMU is offering postgraduate residency in MD Emergency Medicine via Punjab Residency Program. Applications for admission to MD Training Programs of Emergency Medicine will be invited through advertisement in print and electronic media mentioning closing date of applications and date of Entry Examination.

Eligibility:

The applicant on the last date of submission of applications for admission must possess the:

i) Basic Medical Qualification of MBBS or equivalent medical qualification recognized by Pakistan Medical & Dental Council.

ii) Program Duration: 05 Years

iii) Certificate of one year's House Job experience in institutions recognized by Pakistan Medical & Dental Council Is essential at the time of interview. The applicant is required to submit Certificate from the concerned Medical Superintendent that the House Job shall be completed before the Interview.

iv) Valid certificate of permanent or provisional registration with Pakistan Medical & Dental Council.

v) Eligibility for MD Emergency Medicine:

- JOINT CENTRALIZED ADMISSION TEST (JCAT)

Registration and Enrollment

- As per policy of Pakistan Medical & Dental Council the number of post graduate trainees/ students per supervisor shall be maximum 05 per year for all PG programmes including minor programmes (if any).

- Beds to trainee ratio at the approved teaching site shall be at least 5 beds per trainee.

- The University will approve supervisors for MD courses.

- Candidates selected for the courses after their enrollment at the relevant institutions shall be registered with RMU as perprescribed Registration Regulations.

Accreditation Related Issues of the Institution

1. Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (PMDC)

2. Adequate Space and logistics

Including class-rooms (with audiovisual aids), demonstration rooms, computer lab. and clinical pathology lab etc.

3. Library

Departmental library should have latest editions of recommended books, reference books and latest journals (National and International).

NOTE

- Accreditation of Emergency Medicine training program can be suspended on temporary or permanent basis by the University, if the program does not comply with requirements for residents training as laid out in this curriculum.

- Programs should have documentation of residents training activities and evaluation on monthly basis.
- To ensure a uniform and standardized quality of training and availability of the training facilities, the University reserves the right to make surprise visits of the training program for monitoring purposes and may take appropriate action if deemed necessary.

AIMS AND OBJECTIVES OF THE COURSE

AIM:

The aim of five years MD training programme in Emergency Medicine is to train residents to acquire the competency of a specialist in the field of Emergency Medicine so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

GENERAL OBJECTIVES

MD Emergency Medicine training should enable a student to:

- Access and apply relevant knowledge to clinical practice:
- Maintain currency of knowledge
- Apply scientific knowledge in practice
- Appropriate to patient need and context
- Critically evaluate new technology

Safely and effectively performs appropriate clinical skills & procedures:

- Consistently demonstrate sound clinical skills
- Demonstrate procedural knowledge and technical skill at a level appropriate to the level of training
- Demonstrate manual dexterity required to carry out procedures
- Adapt their skills in the context of each patient and procedure

- Maintain and acquire new skills
- Approach and carries out procedures with due attention to safety of patient, self and others
- Critically analyze their own clinical performance for continuous improvement

Design and implement effective management plans:

- Recognize the clinical features, accurately diagnose and manage Emergency Medicine problems
- Formulate a well-reasoned provisional diagnosis and management plan based on a thorough history and examination
- Formulate a differential diagnosis based on investigative findings
- Manage patients in ways that demonstrate sensitivity to their physical, social, cultural and psychological needs
- Recognize disorders of the Emergency Medicine and differentiate those amenable to medical treatment
- Effectively recognize and manage complications
- Accurately identify the benefits, risks and mechanisms of action of current and evolving treatment modalities
- Indicate alternatives in the process of interpreting investigations and indecision-making
- Manage complexity and uncertainty
- Consider all issues relevant to the patient
- Identify risk
- Assess and implement a risk management plan
- Critically evaluate and integrate new technologies and techniques.

Organize diagnostic testing, imaging and consultation as needed:

- Select medically appropriate investigative tools and monitoring techniques in a cost-effective and useful manner
- Appraise and interpret appropriate diagnostic imaging and investigations according to patients' needs
- Critically evaluates the advantages and disadvantages of different investigative

modalitiesCommunicate effectively:

- Communicate appropriate information to patients (and their family) about procedures, potentialities and risks associated with surgery in ways that encourage their participation in informed decision making
- Communicate with the patient (and their family) the treatment options including benefits and risks of each
- Communicate with and co-ordinate health management teams to achieve an optimal surgical environment
- Initiate the resolution of misunderstandings or disputes
- Modify communication to accommodate cultural and linguistic sensitivities of the

patientRecognize the value of knowledge and research and its application to clinical practice:

- Assume responsibility for self-directed learning
- Critically appraise new trends in Pulmonology
- Facilitate the learning of others

Appreciate ethical issues associated with Emergency Medicine:

- Consistently apply ethical principles
- Identify ethical expectations that impact on medico-legal issues
- Recognize the current legal aspects of informed consent and confidentiality
- Be accountable for the management of their patients.

Professionalism by:

- Employing a critically reflective approach to Emergency Medicine
- Adhering with current regulations concerning workplace harassment
- Regularly carrying out self and peer reviewed audit
- Acknowledging and have insight into their own limitations
- Acknowledging and learning from mistakes

Work in collaboration with members of an interdisciplinary team where appropriate:

- Collaborate with other professionals in the selection and use of various types of treatments assessing and weighing the indications and contraindications associated with each type
- Develop a care plan for a patient in collaboration with members of an interdisciplinary team
- Employ a consultative approach with colleagues and other professionals
- Recognize the need to refer patients to other professionals.

Management and Leadership

- Effective use of resources to balance patient care and system resources
- Identify and differentiate between system resources and patient needs
- Prioritize needs and demands dealing with limited system resources.
- Manage and lead clinical teams
- Recognize the importance of different types of expertise which contribute to the effective functioning of clinical team
- Maintain clinically relevant and accurate contemporaneous records

Health advocacy:

- Promote health maintenance of patients

- Advocate for appropriate health resource allocation

SPECIFIC OBJECTIVES

(A) Medical Knowledge

1. The development of a basic understanding of core Emergency Medicine concepts.
2. Etiology, clinical manifestation, disease course and prognosis, investigation and management of common medical diseases.
3. Scientific basis and recent advances in pathophysiology, diagnosis and management of medical diseases.
4. Spectrum of clinical manifestations and interaction of multiple medical diseases in the same patient.
5. Psychological and social aspects of medical illnesses.
6. Effective use and interpretation of investigation and special diagnostic procedures.
7. Critical analysis of the efficacy, cost-effectiveness and cost-utility of treatment modalities.
8. Patient safety and risk management
9. Medical audit and quality assurance
10. Ethical principles and medico legal issues related to medical illnesses.
11. Updated knowledge on evidenced-based medicine and its implications for diagnosis and treatment of medical patients.
12. Familiarity with different care approaches and types of health care facilities towards the patients care with medical illnesses, including convalescence, rehabilitation, palliation, long term care, and medical ethics.

13. Knowledge on patient safety and clinical risk management.

14. Awareness and concern for the cost-effectiveness and risk-benefits of various advanced treatment modalities.

15. Familiarity with the concepts of administration and management and overall forward planning for a general medical unit.

(B) Skills

1. Ability to take a detailed history, gathers relevant data from patients, and assimilates the information to develop diagnostic and management plan.

2. Students are expected to effectively record an initial history and physical examination and follow-up notes as well a deliver comprehensive oral presentations to their team members based on these written documents.

3. Competence in eliciting abnormal physical signs and interpreting their significance.

4. Ability to relate clinical abnormalities with pathophysiologic states and diagnosis of diseases.

5. Ability to select appropriate investigation and diagnostic procedures for confirmation of diagnosis and patient management.

6. Residents should be able to interpret basic as well as advanced laboratory data as related to the disorder/disease.

7. Basic understanding of routine laboratory and ancillary tests including complete blood count, chemistry panels, ECG, chest x-rays, pulmonary function tests, and body fluid cell counts. In addition, students will properly understand the necessity of incorporating sensitivity, specificity, pre-test probability and Bayes laws/theorem in the ordering of individual tests in the context of evaluating patients' signs and symptoms.

8. The formulation of a differential diagnosis with up-to—date scientific evidence and clinical judgment using history and physical examination data and the development of a prioritized problem list to select tests and make effective therapeutic decisions.
9. Assessing the risks, benefits, and costs of varying, effective treatment options; involving the patient in decision-making via open discussion; selecting drugs from within classes; and the design of basic treatment programs and using critical pathways when appropriate.

10. Residents must be able to perform competently all medical and invasive procedures essential for the practice of general emergency medicine. This includes technical proficiency in taking informed consent, performing by using appropriate indications, contraindications, interpretations of findings and evaluating the results and handing the complications of the related procedures mentioned in the syllabus.

11. Residents should be instructed in additional procedural skills that will be determined by the training environment, residents practice expectations, the availability of skilled teaching faculty, and privilege delineation.

12. Skills in performing important bedside diagnostic and therapeutic procedures and understanding of their indications.

13. Ability to present clinical problems and literature review in grand rounds and seminars.

14. Good communication skills and interpersonal relationship with patients, families, medical colleagues, nursing and allied health professionals.

15. Ability to mobilize appropriate resources for management of patients at different stages of medical illnesses, including critical care, consultation of medical specialties and other disciplines, ambulatory and rehabilitative services, and community resources.

16. Competence in the diagnosis and management of emergency medical problems, in particular cardiorespiratory problems, stroke, organ failures, infection and shock, gastrointestinal bleeding, metabolic disorders and poisoning.

17. Competence in the diagnosis and management of acute and chronic medical problems as secondary care in a regional/district hospital.

18. Diagnostic skills to effectively manage complex cases with unusual presentations.

19. Ability to implement strategies for preventive care and early detection of diseases in collaboration with primary and community care doctors.

20. Ability to understand medical statistics and critically appraise published work and clinical research on disease presentations and treatment outcomes. Experience in basic and/or clinical research within the training programme should lead to publications and/or presentation in seminars or conferences.

21. Practice evidence—based learning with reference to research and scientific knowledge pertaining to their discipline through comprehensive training in Research Methodology

22. Ability to recognize and appreciate the importance of cost-effectiveness of treatment modalities.

23. The identification of key information resources and the utilization of the medical literature to expand one's knowledge base and to search for answer to medical problems. They will keep abreast of the current literature and be able to integrate it to clinical practice.

(C) Attitudes

1. The well-being and restoration of health of patients must be of paramount consideration.

2. Empathy and good rapport with patient and relatives are essential attributes.

3. An aspiration to be the team-leader in total patient care involving nursing and allied medical professionals should be developed.

4. The cost-effectiveness of various investigations and treatments in patient care should be recognized.

5. The privacy and confidentiality of patients and the sanctity of life must be respected.

6. The development of a functional understanding of informed consent, advanced directives, and the physician-patient relationship.

7. Ability to appreciate the importance of the effect of disease on the psychological and socio-economic aspects of individual patients and to understand patients' psycho-social needs and rights, as well as the medical ethics involved in patient management.

8. Willingness to keep up with advances in Emergency Medicine and other Specialties.

9. Willingness to refer patients to the appropriate specialty in a timely manner.

10. Aspiration to be the team leader in total patient care involving nursing and allied medical professionals.

11. The promotion of health via adult immunizations, periodic health screening, and risk factor assessment and modification.

12. Recognition that teaching and research are important activities for the advancement of the profession.

(D) Other required core competencies:

1. PATIENT CARE

- Residents are expected to provide patient care that is compassionate, appropriate and effective for the promotion of health, prevention of illness, treatment of disease and at the end of life.

- Gather accurate, essential information from all sources, including medical interviews, physical examinations, medical records and diagnostic/therapeutic procedures.

- Make informed recommendations about preventive, diagnostic and therapeutic options and interventions based on clinical judgment, scientific evidence, and patient preference.

- Develop, negotiate and implement effective patient management plans and integration of patient care.

- Perform competently the diagnostic and therapeutic procedures considered essential to the practice of Emergency medicine.

2. INTERPERSONAL AND COMMUNICATION SKILLS

- Residents are expected to demonstrate interpersonal and communication skills that enable them to establish and maintain professional relationships with patients, families, and other members of health care teams.
- Provide effective and professional consultation to other physicians and health care professionals and sustain therapeutic and ethically sound professional relationships with patients, their families, and colleagues.

- Use effective listening, nonverbal, questioning, and narrative skills to communicate with patients and families.
- Interact with consultants in a respectful, appropriate manner.
- Maintain comprehensive, timely, and legible medical records.

3. PROFESSIONALISM

- Residents are expected to demonstrate behaviors that reflect a commitment to continuous professional developmental, ethical practice, an understanding and sensitivity to diversity and a responsible attitude toward their patients, their profession, and society.
- Demonstrate respect, compassion, integrity, and altruism in relationships with patients, families, and colleagues.
- Demonstrate sensitivity and responsiveness to the gender, age, culture, religion, sexual preference, socioeconomic status, beliefs, behavior and disabilities of patients and professional colleagues.
- Adhere to principles of confidentiality, scientific/academic integrity, and informed consent.
- Recognize and identify deficiencies in peer performance.
- Understand and demonstrate the skill and art of end of life care.

4. PRACTICE-BASED LEARNING AND IMPROVEMENT

- Residents are expected to be able to use scientific evidence and methods to investigate, evaluate, and improve patient care practices.
- Identify areas for improvement and implement strategies to enhance knowledge, skills, attitudes and processes of care.
- Analyze and evaluate practice experiences and implement strategies to continually improve the quality of patient practice.

- Develop and maintain a willingness to learn from errors and use errors to improve the system or processes of care.

- Use information of technology or other available methodologies to access and manage information, support patient care decisions and enhance both patient and physician education.

5. SYSTEMS-BASED PRACTICE

- Residents are expected to demonstrate both an understanding of the contexts and systems in which health care is provided, and the ability to apply this knowledge to improve and optimize health care.

- Understands accesses and utilizes the resources, providers and systems necessary to provide optimal care.

- Understand the limitations and opportunities inherent in various practice types and delivery systems, and develop strategies to optimize care for the individual patient.

- Apply evidence-based, cost-conscious strategies to prevention, diagnosis, and disease management.

- Collaborate with other members of the health care team to assist patients in dealing effectively with complex systems and to improve systematic processes of care.

Scheme of the Course M.D Emergency Medicine program

Important components of MD emergency Medicine Training are; 1) working in department of emergency medicine, 2) rotations at different specialties, 3) Thesis writing, and 4) Examination or assessment. For MD Emergency Medicine and other related programs of five years assessment is done at end of 2nd and 5th year as Intermediate Examination and Final Examination. Rawalpindi Medical University (RMU) has been given degree awarding status. For newly inducted MD Emergency Medicine Trainees and those from University of Health Sciences

(UHS). At RMU rotations, research, related eligibility criteria, and examinations have been extensively modified to improve who have opted for RMU training and make it at par with international standards.

FIVE YEAR UNIVERSITY RESIDENCY PROGRAM - MD EMERGENCY MEDICINE

Training Years	PGY-1	PGY-2		PGY-3	PGY-4	PGY-5	
Duration	24 Months			36 Months			
Rotations	**Essential Training** Emergency Medicine 1. 6 Months - Trauma (Gen. Surgery, Orthopaedics, Neurosurgery, Plastics, Paeds Surgery) 2. 6 Months - Acute Medicine(G.Medicine, Gstroentrology, Nephrology) 3. 4 Months - Paeds EM Ancillary Training ● 4 Months - Intensive Care Medicine(ICU,CCU) ● 4 Months - Anesthesiology			**Essential Training** ● 6 Months - Peads EM ● 8 Months – Acute Medicine(G.Medicine, Gstroentrology, Nephrology) ● 8 Months - Trauma (Gen. Surgery, Orthopaedics, Neurosurgery, Plastics, Paeds Surgery) **Ancillary Training** ● 2 Months – Radiology ● 2 Months - Anesthesiology ● 2 Months - Intensive Care Medicine ● 1 Month - Ophthalmology ● 1 Month - Otorhinolaryngology ● 1 Month - Urology ● 1 Months - OB/GYN ● 2 week - Emergency Medical Services ● 2 week - Toxicology including Forensic Medicine **Research** ● 1 Months - Research Project (Thesis) / Medical Education			**IMIDTERM EXAM** (WRITTEN AND OSCE)
Continuous internal assessment (CIA) and Summative assessments	CIA - 1	CIA - 2		CIA - 3	CIA - 4	CIA - 5	**FINAL EXAMINATION** THESIS DEFENCE, WRITTEN EXAM(MCQs & SEQs) ,CLINICAL (OSCE, SHORT AND LONG CASES)
	FORMATIVE ASSESSMENT 4 assessments during PGY- 1 **SUMMATIVE ASSESSMENT** Written Assessment for year -1 total marks 100 (100clinical / Applied Basic Sciences MCQs) (Pass percentage: 50%)	**FORMATIVE ASSESSMENT** 4 assessments during PGY- 2 **SUMMATIVE ASSESSMENT** A – Mid Training Assessment(total marks = 300) B - Written Assessment (150 marks) Two papers of case based 75 MCQs total marks 150(Pass % = 60%) B- Clinical Assessment (OSCE 150 marks)On passing the theory (60% pass percentage), trainee will be eligible to appear in practical exam.		**FORMATIVE ASSESSMENT** 4 assessments during PGY-3 **SUMMATIVE ASSESSMENT** Written Assessment (100 marks) 100 MCQs total marks 100 (100 clinical MCQs) (Pass percentage = 50%)	**FORMATIVE ASSESSMENT** 4 assessments during PGY-4 **SUMMATIVE ASSESSMENT** Written Assessment (100 marks) 100 MCQs total marks 100 (100 clinical MCQs) (Pass percentage = 50%)	**FORMATIVE ASSESSMENT** 4 assessments during PGY-4 **SUMMATIVE ASSESSMENT** (Total Marks = 800) A. Written Assessment (200 marks) • PAPER-I- Case Based 100MCQs---(100 marks) •PAPER-II 10SEQs(100marks)(Pass percentage = 60%) C- Clinical Assessment (500marks) Pass marks 60%. D- Defense of Thesis (100 marks)	
Meeting/ Research/ ETR/ Appraisal	STM(Start of training meeting) with supervisor In first month of training ● PDP ● TOPIC of Synopsis ● Rotation plan	Formulation of research synopsis with approval of ERB & BASR by the end of 2nd year before IMM Exam		MTM(mid training meeting) with supervisor. Review of Research/data collection	Submission of thesis by the end of 4th year	Last 3 months ● End of Training report by supervisor (ETR) ● Appraisal of trainee	

General Road Map of the Program

- Total duration of the course consists of five calendar years
- Components of the course are divided into A, B, C & D
- Component "A" consists of **Core Professional Competences** with their clinical application and it is taught in first year of the course
- Component "B" is the clinical Training component of first year course
- Component "C" is taught in rest of the four years and is divided into C1, C2,C3 ,C4 and C5 for second year, third year ,fourth year and fifth year respectively
- Component "D" is the Research understanding & Thesis writing component which runs longitudinally throughout the whole course. This component is further divided into five parts RY1, RY2, RY3,RY4 & RY5 which would be achieved in first, second, third , fourth and fifth year respectively.
- There shall be Intermediate Examination at end of second calendar year
- There shall be Final Examination at the end of the fifth calendar year
- Program would be evaluated throughout the course as well as at the end of program

Methods of Teaching & Learning During Course Conduction

1. ***Mandatory Workshops:*** residents achieve hands on training while participating in mandatory workshops of Research Methodology, Advanced Life Support, Communication Skills, Computer & Internet and Clinical Audit. Specific objectives are given in detail in the relevant section of Mandatory Workshops.
2. ***Core Faculty Lectures (CFL):*** The core faculty lecture's focus on monthly themes of the various specialty topics. Lectures are still an efficient way of delivering information. Good lectures can introduce new material or synthesize concepts students have through text-, web-, or field-based activities. ***Buzz groups*** can be incorporated into the lectures in order to promote more active learning.
3. ***Introductory Lecture Series (ILS):*** Various introductory topics are presented by subspecialty and emergency medicine faculty to introduce interns to basic and essential topics in emergency medicine.
4. ***Long and short case presentations:*** – Giving an oral presentation on ward rounds is an important skill for medical student to learn. It is medical reporting which is terse and rapidly moving. After collecting the data, you must then be able both to document it in a written format and transmit it clearly to other health care providers. In order to do this successfully, you need to understand the

patient's medical illnesses, the psychosocial contributions to their History of Presenting Illness and their physical diagnosis findings. You then need to compress them into a concise, organized recitation of the most essential facts. The listener needs to be given all of the relevant information without the extraneous details and should be able to construct his/her own differential diagnosis as the story unfolds. Consider yourself an advocate who is attempting to persuade an informed, interested judge the merits of your argument, without distorting any of the facts. An oral case presentation is NOT a simple recitation of your write-up. It is a concise, edited presentation of the most essential information. Basic structure for oral case presentations includes Identifying information/chief complaint (ID/CC) , History of present illness (HPI) including relevant ROS (Review of systems) questions only , Other active medical problems , Medications/allergies/substance use (note: e. The complete ROS should not be presented in oral presentations , Brief social history (current situation and major issues only) . Physical examination (pertinent findings only) , One line summary & Assessment and plan

5. ***Seminar Presentation:*** Seminar is held in a noon conference format. Upper level residents present an in-depth review of a medical topic as well as their own research. Residents are formally critiqued by both the associate program director and their resident colleagues.
6. ***Journal Club Meeting (JC):*** A resident will be assigned to present, in depth, a research article or topic of his/her choice of actual or potential broad interest and/or application. Two hours per month should be allocated to discussion of any current articles or topics introduced by any participant. Faculty or outside researchers will be invited to present outlines or results of current research activities. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department
7. ***Small Group Discussions/ Problem based learning/ Case based learning:*** Traditionally small groups consist of 8-12 participants. Small groups can take on a variety of different tasks, including problem solving, role play, discussion, brainstorming, debate, workshops and presentations. Generally students prefer small group learning to other instructional methods. From the study of a problem students develop principles and rules and generalize their applicability to a variety of situations PBL is said to develop problem solving skills and an integrated body of knowledge. It is a student-centered approach to learning, in which students determine what and how they learn. Case studies help learners identify problems and solutions, compare options and decide how to handle a real situation.
8. ***Discussion/Debate:*** There are several types of discussion tasks which would be used as learning method for residents including: ***guided discussion***, in which the facilitator poses a discussion question to the group and learners offer responses or questions to each other's contributions as a means of broadening the discussion's scope; ***inquiry-based discussion***, in which learners are guided through a series of questions to discover some relationship or principle; ***exploratory discussion***, in which learners examine their personal opinions, suppositions or assumptions and then visualize alternatives to these assumptions; and ***debate*** in which students argue opposing sides of a controversial topic. With thoughtful and well-designed discussion tasks, learners can practice critical

inquiry and reflection, developing their individual thinking, considering alternatives and negotiating meaning with other discussants to arrive at a shared understanding of the issues at hand.

9. ***Case Conference (CC):*** These sessions are held three days each week; the focus of the discussion is selected by the presenting resident. For example, some cases may be presented to discuss a differential diagnosis, while others are presented to discuss specific management issues.
10. ***Grand Rounds (GR)*****:** The Department of Medicine hosts Grand Rounds on weekly basis. Speakers from local, regional and national medicine training programs are invited to present topics from the broad spectrum of emergency medicine. All residents on inpatient floor teams, as well as those on ambulatory block rotations and electives are expected to attend.
11. ***Professionalism Curriculum (PC)*****:** This is an organized series of recurring large and small group discussions focusing upon current issues and dilemmas in medical professionalism and ethics presented primarily by an associate program director.
12. ***Evening Teaching Rounds:*** During these sign-out rounds, the inpatient Chief Resident makes a brief educational presentation on a topic related to a patient currently on service, often related to the discussion from morning report. Serious cases are mainly focused during evening rounds.
13. ***Clinico-pathological Conferences:*** The clinic-pathological conference, popularly known as CPC primarily relies on case method of teaching medicine. It is a teaching tool that illustrates the logical, measured consideration of a differential diagnosis used to evaluate patients. The process involves case presentation, diagnostic data, discussion of differential diagnosis, logically narrowing the list to few selected probable diagnoses and eventually reaching a final diagnosis and its brief discussion. The idea was first practiced in Boston, back in 1900 by a Harvard internist, Dr. Richard C. Cabot who practiced this as an informal discussion session in his private office. Dr. Cabot incepted this from a resident, who in turn had received the idea from a roommate, primarily a law student.
14. ***Evidence Based Medicine (EBM)*****:** Residents are presented a series of monthly lectures presented to allow residents to learn how to critically appraise journal articles, stay current on statistics, etc. The lectures are presented by the program director.
15. ***Clinical Audit based learning:*** "Clinical audit is a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria…Where indicated, changes are implemented…and further monitoring is used to confirm improvement in healthcare delivery." *Principles for Best Practice in Clinical Audit (2002, NICE/CHI)*
16. ***Peer Assisted Learning:*** Any situation where people learn from, or with, others of a similar level of training, background or other shared characteristic. Provides opportunities to reinforce and revise their learning. Encourages responsibility and increased self-confidence. Develops teaching and verbalization skills. Enhances communication skills, and empathy. Develops appraisal skills (of self and others) including the ability to give and receive appropriate feedback. Enhance organizational and team-working skills.
17. ***Morbidity and Mortality Conference (MM)*****:** The M&M Conference is held occasionally at noon throughout the year. A case, with an adverse outcome, though not necessarily resulting in death, is discussed and thoroughly reviewed. Faculty members from various

disciplines are invited to attend, especially if they were involved in the care of the patient. The discussion focuses on how care could have been improved.

18. ***Clinical Case Conference***: Each resident, except when on vacation, will be responsible for at least one clinical case conference each month. The cases discussed may be those seen on either the consultation or clinic service or during rotations in specialty areas. The resident, with the advice of the Attending Physician on the Consultation Service, will prepare and present the case(s) and review the relevant literature
19. ***SEQ as assignments on the content areas:*** SEQs assignments are given to the residents on regular basis to enhance their performance during written examinations.
20. ***Skill teaching in ICU, emergency, ward settings & skill laboratory:*** Two hours twice a month should be assigned for learning and practicing clinical skills. **List of skills to be learnt during these sessions is as follows:**

- Residents must develop a comprehensive understanding of the indications, contraindications, limitations, complications, techniques, and interpretation of results of those technical procedures integral to the discipline (mentioned in the section of curriculum)
- Residents must acquire knowledge of and skill in educating patients about the technique, rationale and ramifications of procedures and in obtaining procedure-specific informed consent. Faculty supervision of residents in their performance is required, and each resident's experience in such procedures must be documented by the program director
- Residents must have instruction in the evaluation of medical literature, clinical epidemiology, clinical study design, relative and absolute risks of disease, medical statistics and medical decision-making
- Training must include cultural, social, family, behavioral and economic issues, such as confidentiality of information, indications for life support systems, and allocation of limited resources
- Residents must be taught the social and economic impact of their decisions on patients, the primary care physician and society. This can be achieved by attending the bioethics lectures and becoming familiar with Project Professionalism Manual such as that of the American Board of Emergency Medicine
- Residents should have instruction and experience with patient counseling skills and community education
- This training should emphasize effective communication techniques for diverse populations, as well as organizational resources useful for patient and community education
- Residents may attend the series of lectures on Nuclear Medicine procedures (radionuclide scanning and localization tests and therapy) presented to the Radiology residents
- Residents should have experience in the performance of clinical laboratory and radionuclide studies and basic laboratory techniques including quality control, quality assurance and proficiency standards.

21. ***Bedside teaching rounds in ward:*** *"To study the phenomenon of disease without books is to sail an uncharted sea whilst to study books without patients is not to go to sea at all" Sir William Osler 1849-1919.* Bedside teaching is regularly included in the ward

rounds. Learning activities include the physical exam, a discussion of particular medical diseases, psychosocial and ethical themes, and management issues

22. ***Directly Supervised Procedures - (DSP)*:** Residents learn procedures under the direct supervision of an senior during some rotations and in department of emergency medicine. For example, in the Medical Intensive Care Unit observe the placement of central venous and arterial lines.
23. ***Self-directed learning:*** self-directed learning residents have primary responsibility for planning, implementing, and evaluating their effort. It is an adult learning technique that assumes that the learner knows best what their educational needs are. The facilitator's role in self-directed learning is to support learners in identifying their needs and goals for the program, to contribute to clarifying the learners' directions and objectives and to provide timely feedback. Self-directed learning can be highly motivating, especially if the learner is focusing on problems of the immediate present, a potential positive outcome is anticipated and obtained and they are not threatened by taking responsibility for their own learning.
24. ***Follow up clinics:*** The main aims of our clinic for patients and relatives include (a) **Explanation of patient's stay in ICU or Ward settings:** Many patients do not remember their ICU stay, and this lack of recall can lead to misconceptions, frustration and having unrealistic expectations of themselves during their recovery. It is therefore preferable for patients to be aware of how ill they have been and then they can understand why it is taking some time to recover.(b)**Rehabilitation information and support:** We discuss with patients and relatives their individualized recovery from critical illness. This includes expectations, realistic goals, change in family dynamics and coming to terms with life style changes.

    (c) **Identifying physical, psychological or social problems**

    Some of our patients have problems either as a result of their critical illness or because of other underlying conditions. The follow-up team will refer patients to various specialties, if appropriate. (d) **Promoting a quality service**: By highlighting areas which require change in nursing and medical practice, we can improve the quality of patient and relatives care. Feedback from patients and relatives about their experience in department of emergency medicine and ICU is important. It has initiated various audits and changes in clinical practice, for the benefit of patients and relatives in the future.
25. ***Core curriculum meeting:*** All the core topics of Emergency Medicine should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief resident (elected by the residents of the relevant discipline). Each resident should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure
26. ***Annual Grand Meeting*** Once a year all residents enrolled for MD Emergency Medicine should be invited to the annual meeting at RMU. One full day will be allocated to this event. All the chief residents from affiliated institutes will present their annual reports. Issues and concerns related to their relevant courses will be discussed. Feedback should be collected and suggestions should be sought in order to involve residents in decision making. The research work done by residents and their literary work may be

displayed. In the evening an informal gathering and dinner can be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

27. ***Learning through maintaining log book: it is*** used to list the core clinical problems to be seen during the attachment and to document the student activity and learning achieved with each patient contact.
28. ***Learning through maintaining portfolio:*** Personal Reflection is one of the most important adult educational tools available. Many theorists have argued that without reflection, knowledge translation and thus genuine "deep" learning cannot occur. One of the Individual reflection tools is maintaining portfolios, Personal Reflection allows students to take inventory of their current knowledge skills and attitudes, to integrate concepts from various experiences, to transform current ideas and experiences into new knowledge and actions and to complete the experiential learning cycle.
29. ***Task-based-learning:*** A list of tasks is given to the students: participate in consultation with the attending staff, interview and examine patients, review a number of new radiographs with the radiologist.
30. ***Teaching in the ambulatory care setting:*** A wide range of clinical conditions may be seen. There are large numbers of new and return patients. Students have the opportunity to experience a multi-professional approach to patient care. Unlike ward teaching, increased numbers of students can be accommodated without exhausting the limited No. of suitable patients.
31. ***Community Based Medical Education:*** CBME refers to medical education that is based outside a tertiary or large secondary level hospital. Learning in the fields of epidemiology, preventive health, public health principles, community development, and the social impact of illness and understanding how patients interact with the health care system. Also used for learning basic clinical skills, especially communication skills.
32. ***Audio visual laboratory:*** audio visual material for teaching skills to the residents is used specifically in teaching gastroenterology procedure details.
33. ***E-learning/web-based medical education/computer-assisted instruction:*** Computer technologies, including the Internet, can support a wide range of learning activities from dissemination of lectures and materials, access to live or recorded presentations, real-time discussions, self-instruction modules and virtual patient simulations. distance-independence, flexible scheduling, the creation of reusable learning materials that are easily shared and updated, the ability to individualize instruction through adaptive instruction technologies and automated record keeping for assessment purposes.
34. ***Research based learning:*** All residents in the categorical program are required to complete an academic outcomes-based research project during their training. This project can consist of original bench top laboratory research, clinical research or a combination of both. The research work shall be compiled in the form of a thesis which is to be submitted for evaluation by each resident before end of the training. The designated Faculty will organize and mentor the residents through the process, as well as journal clubs to teach critical appraisal of the literature.
35. ***Other teaching strategies specific for different specialties as mentioned in the relevant parts of the curriculum***

Some of the other teaching strategies which are specific for certain domains of emergency medicine are given along with relevant modules.

Clinical Electives/Rotations

A significant amount of time during residency is devoted to electives, which allows our residents the flexibility to gain a concentrated experience in an area of interest. Residents can choose electives from any subspecialty within the Department of Emergency Medicine or other departments to enhance a particular primary care interest, academic pathway, or to pursue a subspecialty interest. We remain open to working with residents to create unique elective experiences geared toward their career interests. The following is a brief overview of some of the available electives:

- General surgery
- Acute Medicine
- Peadriatic emergency medicine
- Anaesthesia
- Critical care (Intensive care medicine)
- Coronary care unit
- Orthopeadics
- Urology
- Neurosurgery
- Radiology

Non Clinical Electives

Research

Residents are encouraged to engage in clinical or basic science research during their training through our comprehensive **mentoring program**. At the beginning of this rotation, resident will be asked to identify a research topic or project and be linked with a research mentor. Resident will gain broad understanding of the fundamental principles and methods of research: developing research questions, analyzing current literature, designing studies (including statistical analysis), presenting research projects and writing them up. Residents receive close supervision by their preceptor throughout all phases of the research project, learning the process from hypothesis

development to IRB (Institutional Review Board) submission through experimentation, data collection and analysis, and formal writing for presentation and publication. At the **Resident Research Forum,** residents present their work-in-progress to peers and faculty.

Medical Education:

Designed for residents interested in exploring the option of a career as a clinician educator, the medical education elective exposes residents to the variety of educational activities common to medical educators in academic centers. Residents choosing a medical education elective can learn curriculum development & participate in peer review of teaching for faculty and residents. He also develops skills in web based education and can initiate an educational scholarship project. Residents can also participate in small group teaching of students in physical diagnosis, clinical problem solving, procedural skills, and diagnostic test interpretation.

Tools of Assessment to be used during course

1) **360-DEGREE EVALUATION INSTRUMENT- MULTI-SOURCE FEEDBACK (MSF):**

   360-degree evaluations consist of measurement tools completed by multiple people in a person's sphere of influence. Evaluators completing rating forms in a 360-degree evaluation usually are superiors, peers, subordinates, and patients and families. Most 360-degree evaluation processes use a survey or questionnaire to gather information about an individual's performance on several topics (e.g., teamwork, communication, management skills & decision-making). Most 360-degree evaluations use rating scales to assess how frequently a behavior is performed (e.g., a scale of 1 to 5, with 5 meaning "all the time" and 1 meaning "never"). The ratings are summarized for all evaluators by topic and overall to provide feedback. Evaluators provide more accurate and less lenient ratings when the evaluation is intended to give formative feedback rather than summative evaluations. A 360-degree evaluation can be used to assess interpersonal and communication skills, professional behaviors, and some aspects of patient care and systems-based practice.

2) **Chart Stimulated Recall Oral Examination (CSR)**

   In a chart stimulated recall (CSR) examination patient cases of the examinee (resident) are assessed in a standardized oral examination. A trained and experienced physician examiner questions the examinee about the care provided probing for reasons behind the work-up, diagnoses, interpretation of clinical findings, and treatment plans. The examiners rate the examinee using a well-established protocol and scoring procedure. In efficiently designed CSR oral exams each patient case (test item) takes 5 to 10 minutes. A typical CSR exam is two hours with one or two physicians as examiners per separate 30 or 60-minute session. These exams assess clinical decision-making and the application or use of medical knowledge with actual patients.

3) Checklist Evaluation

Checklists consist of essential or desired specific behaviors, activities, or steps that make up a more complex competency or competency component. Typical response options on these forms are a check ( ) or "yes" to indicate that the behavior occurred or options to indicate the completeness (complete, partial, or absent) or correctness (total, partial, or incorrect) of the action. The forms provide information about behaviors but for the purpose of making a judgment about the adequacy of the overall performance, standards need to be set that indicate, for example, pass/fail or excellent, good, fair, or poor performance. Checklists are useful for evaluating any competency and competency component that can be broken down into specific behaviors or actions. Documented evidence for the usefulness of checklists exists for the evaluation of patient care skills (history and physical examination, procedural skills) and for interpersonal and communication skills. Checklists have also been used for self-assessment of practice-based learning skills (evidence-based medicine). Checklists are most useful to provide feedback on performance because checklists can be tailored to assess detailed actions in performing a task.

4) Global Rating of Live or Recorded Performance

Global rating forms are distinguished from other rating forms in that (a) a rater judges general categories of ability (e.g. patient care skills, medical knowledge, interpersonal and communication skills) instead of specific skills, tasks or behaviors; and (b) the ratings are completed retrospectively based on general impressions collected over a period of time (e.g., end of a clinical rotation) derived from multiple sources of information (e.g., direct observations or interactions; input from other faculty, residents, or patients; review of work products or written materials). All rating forms contain scales that the evaluator uses to judge knowledge, skills, and behaviors listed on the form. Typical rating scales consist of qualitative indicators and often include numeric values for each indicator, for example, (a) very good = 1, good =2, fair = 3, poor =4; or (b) superior =1, satisfactory =2, unsatisfactory =3. Written comments are important to allow evaluators to explain the ratings. Global rating forms are most often used for making end of rotation and summary assessments about performance observed over days or weeks. Scoring rating forms entails combining numeric ratings with comments to obtain a useful judgment about performance based upon more than one rater.

5) Objective Structured Clinical Examination (OSCE)

In an objective structured clinical examination (OSCE) one or more assessment tools are administered at 12 to 20 separate standardized patient encounter stations, each station lasting 10-15 minutes. Between stations candidates may complete patient notes or a brief written examination about the previous patient encounter. All candidates move from station to station in sequence on the same schedule. Standardized patients are the primary assessment tool used in OSCEs, but OSCEs have included other assessment tools such as data interpretation exercises using clinical cases and clinical scenarios with mannequins, to assess technical skills. OSCEs have been administered in most of the medical schools worldwide, many residency programs, and by the

licensure board examinations. The OSCE format provides a standardized means to assess: physical examination and history taking skills; communication skills with patients and family members, breadth and depth of knowledge; ability to summarize and document findings; ability to make a differential diagnosis, or plan treatment; and clinical judgment based upon patient notes.

6) Procedure, Operative, or Case Logs

Procedure, operative, or case logs document each patient encounter by medical conditions seen, surgical operation or procedures performed. The logs may or may not include counts of cases, operations, or procedures. Patient case logs currently in use involve recording of some number of consecutive cases in a designated time frame. Operative logs in current use vary; some entail comprehensive recording of operative data by CPT code while others require recording of operations or procedures for a small number of defined categories.

Logs of types of cases seen or procedures performed are useful for determining the scope of patient care experience. Regular review of logs can be used to help the resident track what cases or procedures must be sought out in order to meet residency requirements or specific learning objectives. Patient logs documenting clinical experience for the entire residency can serve as a summative report of that experience; as noted below, the numbers reported do not necessarily indicate competence.

7) Patient Surveys

Surveys of patients to assess satisfaction with hospital, clinic, or office visits typically include questions about the physician's care. The questions often assess satisfaction with general aspects of the physician's care, (e.g., amount of time spent with the patient, overall quality of care, physician competency (skills and knowledge), courtesy, and interest or empathy). More specific aspects of care can be assessed including: the physician's explanations, listening skills and provision of information about examination findings, treatment steps, and drug side effects. A typical patient survey asks patients to rate their satisfaction with care using rating categories (e.g., poor, fair, good, very good, excellent) or agreement with statements describing the care (e.g., "the doctor kept me waiting," --Yes, always; Yes, sometimes; or No, never or hardly ever). Each rating is given a value and a satisfaction score calculated by averaging across responses to generate a single score overall or separate scores for different clinical care activities or settings. Patient feedback accumulated from single encounter questionnaires can assess satisfaction with patient care competencies (aspects of data gathering, treatment, and management; counseling, and education; preventive care); interpersonal and communication skills; professional behavior; and aspects of systems-based practice (patient advocacy; coordination of care). If survey items about specific physician behaviors are included, the results can be used for formative evaluation and performance improvement. Patient survey results also can be used for summative evaluation, but this use is contingent on whether the measurement process meets standards of reliability and validity.

8) Portfolios

A portfolio is a collection of products prepared by the resident that provides evidence of learning and achievement related to a learning plan. A portfolio typically contains written documents but can include video- or audio-recordings, photographs, and other forms of information. Reflecting upon what has been learned is an important part of constructing a portfolio. In addition to products of learning, the portfolio can include statements about what has been learned, its application, remaining learning needs, and how they can be met. In graduate medical education, a portfolio might include a log of clinical procedures performed; a summary of the research literature reviewed when selecting a treatment option; a quality improvement project plan and report of results; ethical dilemmas faced and how they were handled; a computer program that tracks patient care outcomes; or a recording or transcript of counseling provided to patients. Portfolios can be used for both formative and summative evaluation of residents. Portfolios are most useful for evaluating mastery of competencies that are difficult to evaluate in other ways such as practice-based improvement, use of scientific evidence in patient care, professional behaviors, and patient advocacy. Teaching experiences, morning report, patient rounds, individualized study or research projects are examples of learning experiences that lend themselves to using portfolios to assess residents.

9) Record Review

Trained staff in an institution's medical records department or clinical department performs a review of patients' paper or electronic records. The staff uses a protocol and coding form based upon predefined criteria to abstract information from the records, such as medications, tests ordered, procedures performed, and patient outcomes. The patient record findings are summarized and compared to accepted patient care standards. Standards of care are available for more than 1600 diseases on the Website of the Agency for HealthCare Research and Quality (http://www.ahrq.gov/).Record review can provide evidence about clinical decision-making, follow-through in patient management and preventive health services, and appropriate use of clinical facilities and resources (e.g., appropriate laboratory tests and consultations). Often residents will confer with other clinical team members before documenting patient decisions and therefore, the documented care may not be directly attributed to a single resident but to the clinical team.

10) Simulations and Models

Simulations used for assessment of clinical performance closely resemble reality and attempt to imitate but not duplicate real clinical problems. Key attributes of simulations are that: they incorporate a wide array of options resembling reality, allow examinees to reason through a clinical problem with little or no cueing, permit examinees to make life-threatening errors without hurting a real patient, provide instant feedback so examinees can correct a mistaken action, and rate examinees' performance on clinical problems that are difficult or impossible to evaluate effectively in other circumstances. Simulation formats have been

developed as paper-and-pencil branching problems (patient management problems or PMPs), computerized versions of PMPs called clinical case simulations (CCX®), role-playing situations (e.g., standardized patients (SPs), clinical team simulations), anatomical models or mannequins, and combinations of all three formats. Mannequins are imitations of body organs or anatomical body regions frequently using pathological findings to simulate patient disease. The models are constructed of vinyl or plastic sculpted to resemble human tissue with imbedded electronic circuitry to allow the mannequin to respond realistically to actions by the examinee. Virtual reality simulations or environments (VR) use computers sometimes combined with anatomical models to mimic as much as feasible realistic organ and surface images and the touch sensations (computer generated haptic responses) a physician would expect in a real patient. The VR environments allow assessment of procedural skills and other complex clinical tasks that are difficult to assess consistently by other assessment methods. Simulations using VR environments have been developed to train and assess surgeons performing arthroscopy of the knee and other large joints, anesthesiologists managing life-threatening critical incidents during surgery, surgeons performing wound debridement and minor surgery, and medical students and residents responding to cardio-pulmonary incidents on a full-size human mannequin. Written and computerized simulations have been used to assess clinical reasoning, diagnostic plans and treatment for a variety of clinical disciplines as part of licensure and certification examinations. Standardized patients as simulations are described elsewhere.

11) <u>Standardized Oral Examination</u>

The standardized oral examination is a type of performance assessment using realistic patient cases with a trained physician examiner questioning the examinee. The examiner begins by presenting to the examinee a clinical problem in the form of a patient case scenario and asks the examinee to manage the case. Questions probe the reasoning for requesting clinical findings, interpretation of findings, and treatment plans. In efficiently designed exams each case scenario takes three to five minutes. Exams last approximately 90 minutes to two and one-half hours with two to four separate 30 or 60-minute sessions. One or two physicians serve as examiners per session. An examinee can be tested on 18 to 60 different clinical cases. These exams assess clinical decision-making and the application or use of medical knowledge with realistic patients. Multiple-choice questions are better at assessing recall or understanding of medical knowledge.

12) <u>Standardized Patient Examination (SP)</u>

Standardized patients (SPs) are well persons trained to simulate a medical condition in a standardized way or actual patients who are trained to present their condition in a standardized way. A standardized patient exam consists of multiple SPs each presenting a different condition in a 10-12 minute patient encounter. The resident being evaluated examines the SP as if (s) he were a real patient, (i.e., the resident might perform a history and physical exam, order tests, provide a diagnosis, develop a treatment plan, or counsel the patient). Using a checklist or a rating form, a physician observer or the SPs evaluate the resident's performance on

appropriateness, correctness, and completeness of specific patient care tasks and expected behaviors (See description of Checklist Evaluation…). Performance criteria are set in advance. Alternatively or in addition to evaluation using a multiple SP exam, individual SPs can be used to assess specific patient care skills. SPs are also included as stations in Objective Structured Clinical Examinations (See description of OSCE).SPs have been used to assess history-taking skills, physical examination skills, communication skills, differential diagnosis, laboratory utilization, and treatment. Reproducible scores are more readily obtained for history-taking, physical examination, and communication skills. Standardized patient exams are most frequently used as summative performance exams for clinical skills. A single SP can assess targeted skills and knowledge.

13) Written Examination (MCQ)

A written or computer-based MCQ examination is composed of multiple-choice questions (MCQ) selected to sample medical knowledge and understanding of a defined body of knowledge, not just factual or easily recalled information. Each question or test item contains an introductory statement followed by four or five options in outline format. The examinee selects one of the options as the presumed correct answer by marking the option on a coded answer sheet. Only one option is keyed as the correct response. The introductory statement often presents a patient case, clinical findings, or displays data graphically. A separate booklet can be used to display pictures, and other relevant clinical information. In computer-based examinations the test items are displayed on a computer monitor one at a time with pictures and graphical images also displayed directly on the monitor. In a computer-adaptive test fewer test questions are needed because test items are selected based upon statistical rules programmed into the computer to quickly measure the examinee's ability. Medical knowledge and understanding can be measured by MCQ examinations. Comparing the test scores on in-training examinations with national statistics can serve to identify strengths and limitations of individual residents to help them improve. Comparing test results aggregated for residents in each year of a program can be helpful to identify residency training experiences that might be improved.

WPBAs

1. **Mini-Clinical Evaluation Exercise (mini-CEX)**

   This tool evaluates a clinical encounter with a patient to provide an indication of competence in skills essential for good clinical care such as history taking, examination and clinical reasoning. The trainee receives immediate feedback to aid learning. The can be used at any time and in any setting when there is a trainee and patient interaction and an assessor is available.

2. **Direct Observation of Procedural Skills (DOPS)**

A DOPS is an assessment tool designed to evaluate the performance of a trainee in undertaking a practical procedure, against a structured checklist. The trainee receives immediate feedback to identify strengths and areas for development.

3. **Case-based Discussion (CbD)**

   The CbD assesses the performance of a trainee in their management of a patient to provide an indication of competence in areas such as clinical reasoning, decision-making and application of medical knowledge in relation to patient care. It also serves as a method to document conversations about, and presentations of, cases by trainees. The CbD should focus on a written record (such as written case notes, out-patient letter, and discharge summary). A typical encounter might be when presenting newly referred patients in the out-patient department.

4. **Acute Care Assessment Tool (ACAT)**

   The ACAT is designed to assess and facilitate feedback on a doctor's performance during their practice on the Acute Medical Take. Any doctor who has been responsible for the supervision of the Acute Medical Take can be the assessor for an ACAT.

5. **Audit Assessment (AA)**

   The Audit Assessment tool is designed to assess a trainee's competence in completing an audit. The Audit Assessment can be based on review of audit documentation OR on a presentation of the audit at a meeting. If possible the trainee should be assessed on the same audit by more than one assessor.

6. **Teaching Observation (TO)**

   The Teaching Observation form is designed to provide structured, formative feedback to trainees on their competence at teaching. The Teaching Observation can be based on any instance of formalized teaching by the trainee who has been observed by the assessor. The process should be trainee-led (identifying appropriate teaching sessions and assessors).

7. **Resuscitation Team Lead assessments**

   It involves the trainee being observed in their role as Team Lead for an emergent resuscitation. Completed in Training Stage 4, this WBA assesses all the domains of the curriculum, with a focus on Leadership and Management, Teamwork and Collaboration andCommunication.

8. **Morbidity and Mortality Meeting**

It require trainees to prepare and present at a morbidity and mortality (M&M) meeting, including providing a case summary, error analysis, and proposed future actions, supported by contemporary best-practice literature.

9. **Teaching Presentations**

It requires trainees to prepare and deliver a teaching presentation as part of the structured education program at their training site. These may be case presentations with focused literature reviews, or the teaching of a procedural skill in simulation.

10. **Guideline/Protocol Review or Audit**

It requires trainees to select a clinical guideline or protocol from their training site, undertake a review in light of current best-practice literature, and propose potential amendments, if appropriate, to improve patient care. Similarly, an audit involves selecting and measuring a clinical outcome or process against well-defined standards of evidence-based medicine in order to identify changes required to maximize quality of care.

11. **Decisions on progress (ARCP)**

The Annual Review of Competence Progression (ARCP) is the formal method by which a trainee's progression through her/his training programme is monitored and recorded. ARCP is not an assessment – it is the review of evidence of training and assessment. Deaneries are responsible for organizing and conducting ARCPs. The evidence to be reviewed by ARCP panels should be collected in the trainee's ePortfolio.

EM-WBA Complexity levels

The CbD and Mini-CEX instruments both require a patient case complexity evaluation to be made prior to the assessment being submitted. The EM-WBA forms feature a 'Case Complexity Calculator' to assist the trainee and assessor in making this determination, which is based on the following criteria.

1- LOW complexity cases include those that are best described as:

- a patient with a single-system presentation, with minimal complications (medical and/or social)and responsive to first line treatment; or
- a patient with a self-evident diagnosis where management is straightforward; or
- a stable patient, with a common presentation or a clear diagnosis.

Examples of low complexity cases

- Isolated limb fracture
- Renal colic
- DVT
- Cellulitis
- Pneumonia

2- MEDIUM complexity cases include those that are best described as:

- a patient with multi-system presentations, and minimal complications (medical and/or social);
- a patient with a single-system presentation and multiple or significant complications; or
- a patient with a single system presentation and multiple or significant co-morbidities; or
- a patient with a single-system presentation with at least one modifier; or
- a stable patient, without a clear diagnosis.

Examples of medium complexity cases:

- Fracture with nerve/neurovascular compromise; or
- Syncope/abdominal pain/chest pain with at least one modifier; or
- *STEMI* etc.

3- HIGH complexity cases include those that are best described as:

- a patient with multi-system problems and multiple/significant complications (medical and/or social); or
- a patient with multi-system presentation with multiple or significant co-morbidities; or

- a patient with multi-trauma; or
- an unstable/deteriorating patient, with an uncommon presentation or without a clear diagnosis; or
- a patient presenting with a life/limb/sight-threatening condition.

Examples of high complexity cases:

- Elderly patient with fracture of secondary to syncope on oral anticoagulants; or
- A patient with undifferentiated shock; or
- Immunocompromised patient with shortness of breath with renal failure; or
- GI bleed patient with chest pain on warfarin with mechanical valve.

General outline of Mid Term Assessment (MTA)

The Intermediate Examination of MD. Emergency Medicine will be held at the end of 2nd year of the programme.

Eligibility Criteria:

The candidates appearing in Intermediate Examination of the M.D. Emergency Medicine Programme are required:

a. To have submitted certificate of completion of mandatory workshops.
b. To have submitted certificate / certificates of completion of first two years of training from the supervisor / supervisors during rotation.
c. To have submitted continuous internal Assessment (CIA) proforma from his/her own supervisor on monthly basis and also from his/her supervisors during rotation, achieving a cumulative score of 75%.
d. To have submitted certificate of approval of synopsis or undertaking /affidavit that if the synopsis is not approved within 30 days of submission of application for the Intermediate Examination, the candidate will not be allowed to take the examinations and shall be removed from the training programme.
e. To have submitted evidence of payment of examination fee.

Intermediate Examination Schedule and Fee

a) Intermediate Examination at completion of two years training, will be held twice a year.
b) There will be a minimum period of 30 days between submission of application for the examination and the conduction of examination.
c) Examination fee will be determined periodically by the University.
d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
e) The Controller of Examinations will issue Roll Number Slips on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee.

All candidates admitted in MS Emergency Medicine course shall appear in Intermediate examination at the end of second calendar year.

Components of Intermediate Examination

- Written Examination = 150 Marks
  - Two papers of case based 75 MCQs each
  - Pass percentage = 60%
- Clinical = 150 Marks
  - OSCE

- Total number of stations – 15 (Interactive -11, Non-interactive-4)
- Time allocation for each station – 5 minutes
- Marks allocation for each station – 10 marks
- Passing written component is Eligibility for OSCE
- Pass percentage = 60%

WPBAs- Successful completion / sign out in required number of summative WPBAs

Most of the competences will be assessed in the workplace, so both trainees and supervisors must ensure that they are familiar with the curriculum and the number of assessments required. Assessments must be spread out over the training period; it is not feasible for all assessments to occur at the end of the training period. The professional competences will usually be assessed alongside the clinical skills.

Formative WPBAs will be carried out throughout of year. Formative assessments offer opportunity for reflective practice and professional development. Summative WPBAs will be carried out at end of training year and will be intended to sing-out the trainee in specific competency with required EPA. Trainee have to submit required number of assessments to supervisor/DME for In training assessment (ITA).

Types of workplace-based assessment

1. Mini-Clinical Evaluation Exercise (Mini-CEX)
2. Direct observation of procedures (DOPS)
3. Multisource feedback (MSF)
4. Case-based discussion (CbD)
5. Acute care assessment tool (ACAT-EM)
6. Reflective log
7. Audit assessment

Summative assessments are pass/fail activities and include:

- Mini- Clinical Evaluation Exercise (Mini-CEX)
- Case-based discussion (CbD)*often more formative from a pragmatic perspective
- Directly Observed Procedures (DOPS)

Formative assessments offer opportunity for reflective practice and form the majority of assessments at this stage of training.

These include:

- Mini-CEX
- CbD
- Acute Care Assessment Tool for EM (ACAT)

- Multi-source feedback (MSF)
- Audit assessment (AA)

Declaration of Results of intermediate examination:

- The Candidate will have to score 60% marks in written and clinical (OSCE) each.
- A maximum of four consecutive attempts (availed or un-availed) will be allowed in the Intermediate Examination during which the candidate will be allowed to continue his training program. If the candidate fails to pass his Intermediate Examination within the above mentioned limit of four attempts, the candidate shall be removed from the training program, and the seat would fall vacant, stipend/ scholarship if any would be stopped.

General outline of Final Assessment and Evaluation of M.D. Emergency Medicine

(At the end of 4th calendar year of the Programme)

Eligibility Criteria:

To appear in the Final Examination the candidate shall be required:

i. To have submitted the result of passing Intermediate Examination.
ii. To have submitted the certificate of completion of training, issued by the Supervisor which will be mandatory.
iii. To have achieved a cumulative score of 75% in Continuous Internal Assessments (CIA) of all training years.
iv. To have got the thesis accepted and will then be eligible to appear in Final Examination.
v. To have submitted no dues certificate from all relevant departments including library, hostel, cashier etc.
vi. To have submitted evidence of submission of examination fee.

Final Examination Schedule and Fee:

a. Final examination will be held twice a year.
b. The candidates have to satisfy eligibility criteria before permission is granted to take the examination.
c. Examination fee will be determined by the University.
d. The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.

e. The Controller of Examinations v/ill issue an Admittance Card with a photograph of the candidate on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee. This card will also show the Roll Number, date / time and venue of examination.

Components of Final Examination:

WRITTEN, CLINICAL, AND THESIS - TOTAL MARKS 800

- Written- 200 marks
  - Two papers
    - 1st paper- 100 case based MCQs – 100 marks
    - 2nd paper- 10 Clinical SEQs – 100 marks
- Clinical- 500 marks
  - Long Case – 100 marks
  - Short Cases--- 200 marks
  - OSCE- 200 marks

  (Passing written component is eligibility for Clinical examinations)
- Thesis- 100 marks
- Pass percentage = 60%

Clinical Examination, OSCE/OSCE & ORAL:

a. The Clinical and Oral Examination will consist of 04 short cases, O1 long case . Each short case will be of (')7 minutes duration, O5 minutes will be for examining the patient and 02 minutes for discussion. The Total Marks of Clinical &
b. A panel of four examiners will be appointed by the Vice Chancellor and of these two will be from UHS whilst the other two will be the external examiners. Internal examiner will act as a coordinator. ln case of difficulty in finding an Internal examiner arrange given subject, the Vice Chancellor would, in consultation with the concerned Deans, appoint any relevant person with appropriate qualification and experience, outside the University as an examiner.
c. The Internal examiners will not examine the candidates for whom they have acted as Supervisor and will be substituted by other internal examiner.
d. The candidates scoring 50% marks In each component of the Clinical & Oral Examination will pass this part of the Final Examination.
e. The candidates will have two attempts to pass the final examination with normal fee. A special administration fee of Rs.10, 000 in addition to normal fee or the amount determined by the University from time to time shall be charged for further attempts.

Continuous Internal Assessments (CIA)

Continuous Internal Assessments would be submitted by the supervisor considering the following:

A. Workplace Based Assessments: These assessments will include the following:

- Generic and Specialty specific Competency Assessments
- Multisource Feedback Evaluation

B. Assessment of Candidates' Training Log Book & Portfolio

Declaration of Result:

For the declaration of result

1. The candidate must get his/her Thesis accepted.
2. The candidate must have passed the final written examination with 50% marks and the clinical & oral examination securing 50% marks. The cumulative passing score from the written and clinical/ oral examination shall be 60%. Cumulative score of 60% marks to be calculated by adding up secured marks of each component of the Examination i.e., written and clinical & oral and then calculating its percentage.
3. The MD degree shall be awarded after acceptance of thesis and success in the final examination.
4. On completion of stipulated training period, irrespective of the result (pass or fail) the training slot of the candidate shall be declared vacant.

SUBMISSION / EVALUATION OF SYNOPSIS

a. The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on university website.
b. The research topic in clinical subject should have 30% component related to basic sciences and 70% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to collect & analyze the data.
c. Synopsis of research project shall be got approved by the end of the 2nd year of MD program. The synopsis after review by an Institutional Review Committee shall be submitted to the University for Consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

Submission of Thesis

1. Thesis shall be submitted by the candidate duly recommended by the Supervisor.
2. The minimum duration between approval of synopsis and submission of thesis shall be one year.
3. The research thesis must be compiled and bound in accordance with the Thesis Format Guidelines approved by the University and available on website.
4. The research thesis will be submitted along with the fee prescribed by the University.

Thesis Evaluation

a. The candidate will submit his/her thesis at least O6 months prior to completion of training.
b. The Thesis along with a certificate of approval from the supervisor will be submitted to the Registrar's office, who would record the date / time etc. and get received from the Controller of Examinations within O5 working days of receiving.
c. The Controller of Examinations will submit a panel of eight examiners within 07 days for selection of four examiners by the Vice Chancellor. The Vice Chancellor shall return the Final panel within O5 working days to the Controller of Examinations for processing and assessment. in case of any delay the Controller ofExamination1s would bring the case personally to the Vice Chancellor.
d. The Supervisor shall not act as an examiner of the candidate and will not take part in evaluation of thesis.
e. The Controller of Examinations will make sure that the Thesis is submitted to examiners in appropriate fashion and a reminder is sent after every ten days.
f. The thesis will be evaluated by the examiners within a period of O6 weeks.
g. in case the examiners fail to complete the task within 06 weeks with O2 fortnightly reminders by the Controller of Examinations, the Controller of Examinations will bring it to the notice of Vice Chancellor in person.
h. In case of difficulty in find an internal examiner for thesis evaluation, the Vice Chancellor would, in consultation with the concerned Deans, appoint any relevant person as examiner in supersession of the relevant Clause of the University Regulations.
i. There will be two internal and two external examiners. In case of difficulty in finding examiners, the Vice Chancellor would, in consultation with the concerned Deans, appoint minimum of three, one Internal and two external examiners.
j. The total marks of thesis evaluation will be 400 and 60% marks will be required to pass the evaluation.
k. The thesis will be considered accepted, if the cumulative score of all the examiners is 60%.
l. The clinical training will end at completion of stipulated training period but the candidate will become eligible to appear in the Final Examination at completion of clinical training and after acceptance of thesis. In case clinical training ends earlier, the slot will fall vacant after stipulated training period.

Award of MD Emergency Medicine Degree

After successful completion of the structured course of MD Emergency Medicine and qualifying Intermediate, Final Examinations (Written, Clinical OSCE and Thesis), the degree with title MD Emergency Medicine shall be awarded.

SECTION – II

Details of curriculum of MD Emergency Medicine Residency Program

RAWALPINDI MEDICAL UNIVERSITY

RAWALPINDI

1. FUNDAMENTAL PRINCIPLES OF EMERGENCY MEDICINE
2. SYLLABUS OF EMERGENCY MEDICINE
3. CURRICULUM OF CORE PROFESSIONAL COMPETENCES (PGY1-5)
4. CURRICULUM OF CORE CLINICAL COMPETENCES (PGY1-5)
5. CURRICULUM FOR PAEDIATRIC EMERGENCY MEDICINE (PGY1-5)
6. CURRICULUM OF EMERGENCY MEDICINE ULTRASOUND EDUCATION(PGY-3)
7. CURRICULUM FOR ANAESTHESIA IN EMERGENCY MEDICINE(PGY-1-5)
8. CRITICAL INCIDENTS IN ANAESTHESIA(PGY1-5)
9. CURRICULUM FOR INTENSIVE CARE MEDICINE (PGY1-5)
10. PROCEDURAL COMPETENCES (PGY1-5)

FUNDAMENTAL PRINCIPLES OF EMERGENCY MEDICINE

Trainee must have knowledge of

1. Principles of patient triage in emergency departments.
2. Patients may complete their ED journey without a definitive diagnosis.
3. Emergency Medicine as a craft that is practiced within a limited time period.
4. The primary role of an emergency medicine clinician being able to assess and manage undifferentiated patients.
5. Limitations in emergency medicine.
6. Documentation of cases in emergency medicine.
7. Principles of infection control
8. The utility of point of care testing in addition to formal investigation(s).
9. Principles of primary test ordering.
10. ACEM guidelines relating to diagnostic imaging and pathology test ordering.
11. Professional conduct in the emergency medicine environment, including with patients, family/whanau, staff and inter-professional colleagues.
12. Basic principles of reflecting on own abilities, strengths, limitations in clinical practice.
13. The importance of calling for help when required.

Trainee must be able to do

1. Elicit a systematic focused clinical history, including from collateral sources ,and using appropriate questioning technique and responses to verbal and non-verbal cues.
2. Conduct a relevant and targeted physical examination, with appropriate consideration of patient comfort and dignity.
3. Explain the examination process to the patient.
4. Identify and synthesize problems.
5. Apply knowledge of symptomology to determine the likely differential diagnosis.
6. Derive and implement a plan for initial investigation and management, with consideration of context, including:
    a. Patient preferences
    b. ED resources
    c. Immediate treatment options
    d. Ongoing care

7. Identify patients who are:
    a. Unstable with the immediate need of resuscitation
    b. Potentially unstable requiring emergent recognition and intervention
    c. Physiologically stable but undiagnosed
8. Recognize critical symptoms and symptom patterns, and red flags (danger signs) for important diagnoses.
9. Choose the optimal investigation(s) and management relevant to the context and environment.
10. Manage and control infection in patients.
11. Check immunization status and discuss the importance of appropriate immunization status.
12. Comply with universal precautions, including use of personal protective equipment.
13. Provide post blood born virus exposure prophylaxis (PEP) as required.
14. Engage actively in local infection control procedures.
15. Recognize test result errors and their significance.
16. Identify need for observation and monitoring as an acceptable substitution to testing.
17. Prescribe medication, safely and appropriately.
18. Demonstrate professionalism and respect when interacting with patients, carers, colleagues and other health professionals.
19. Document all pertinent case information in a manner that is clear, legible and accurate and meets legal requirements.
20. Reflect on own abilities, strengths and limitations in clinical practice.
21. Reflect on cases to affect future clinical patient-centered practice.
22. Recognize when help is needed and actively call for help.

SYLLABUS OF MD EMERGENCY MEDICINE

A- Syllabus of Core Professional Competences

1. History taking
2. Clinical examination
3. Therapeutics and safe prescribing
4. Time and workload management
5. Clinical decision making and judgement
6. The patient as central focus of care
7. Prioritization of patient safety in clinical practice
8. Team work and patient safety
9. Principles of quality and safety improvement
10. Infection control
11. Managing long term conditions and promoting patient self-care
12. Relationships with patients and communication within a consultation
13. Breaking bad news
14. Complaints and medical error
15. Communication with colleagues and cooperation
16. Health promotion and public health
17. Principles of medical ethics and confidentiality
18. Assessing patient capacity and obtaining consent
19. Ethical research
20. Evidence and guidelines
21. Audit
22. Teaching and training
23. Personal behavior
24. Administrative skills
25. Safeguarding and the vulnerable patient

B- Syllabus of Core Clinical Competencies

This section lists the core competencies that are expected for a specialist in emergency medicine. "Competence" refers to the ability to act appropriately in a given context.
Knowledge is a prerequisite for competence. Sections 2.1 - 2.5 list the competencies related to the management of an individual patient while section 2.6 highlights additional professional competences.

SECTION 2.1 TRIAGE & RESUSCITATION

1 Triage

Emergency physicians must be able to evaluate the urgency of the patient's need for treatment based on limited information and continuous reassessment. This process is referred to here as triage.

There are many triage systems in use. Which system is most suitable will depend on the context, e.g., patient, available resources. Emergency physicians should be able to apply the principles of the triage systems used in the Emergency department as well as in the pre-hospital arena, both during normal circumstances and during mass casualty situations.

2 Resuscitation

Patients that are critically ill require immediate management following established guidelines, the focus being on rapidly delivering therapy that decreases morbidity and mortality despite initially not knowing the patient's diagnosis. This process is referred to here as resuscitation.

Resuscitation combines assessments and interventions in order to rapidly normalize abnormal physiological parameters (e.g., hypoxia, hypoglycaemia) and acquire information that allows for the recognition and treatment of life-threatening conditions (e.g., anaphylaxis, hemorrhagic chock). The recommended resuscitation algorithm follows the ABCDE structure, whereby:

- A refers to Airway and cervical spine, the focus being on ensuring that the upper airway is patent and that the cervical spine of patients with potential unstable fractures is stabilized.
- B refers to Breathing, the focus being on ensuring adequate blood oxygenation and ventilation.
- C refers to Circulation, the focus being on ensuring adequate perfusion and stopping hemorrhage.
- D refers to Disability, the focus being on assessing the patient's level of consciousness, identifying gross focal neurological deficits and treating hypoglycaemia if present.

- E refers to Exposure, the focus being on identifying diagnostic clues from a superficial examination of the body and treating or preventing hypo- and hyperthermia.

The assessments and treatments that can be performed during the resuscitation will depend on the context and available equipment, using the same resuscitation sequence for all patients under all circumstances. It is recommended that the following adjuncts are incorporated into the resuscitation process, in particular:

- point-of-care ultrasound
- point-of-care blood tests
- electrocardiogram

SECTION 2.2 SYMPTOMS, SIGNS & SITUATIONS

Introduction

Within the realm of Emergency Medicine, patients present with symptoms & signs. "Symptoms" refer here to subjective complaints such as chest pain. "Signs" refer here to objective physical abnormalities (e.g., decreased level of consciousness, fever), abnormal laboratory results (e.g., hyperkalaemia) or other abnormal test findings (e.g., ST-elevation on the EKG). "Situations" refer here to circumstances which are complex and whereby patients are deemed to require urgent assessment and benefit from team approach,e.g., in the settings of cardiac arrest, or following major trauma.

With the patient's presenting symptom, sign or situation as starting point, the specialist in emergency medicine should be able to systematically and efficiently obtain information needed to:

- estimate the severity of the patient's condition
- initiate immediate therapy if needed
- estimate the likelihoods of potential time-sensitive conditions, i.e. conditions where timing on therapy impacts on morbidity and mortality
- select and interpret relevant investigations

Emergency physicians are *not* expected to be able to list an *exhaustive* differential diagnosis for each symptom, sign or situation. Rather, the emphasis is on mastering *approaches* that allow for estimating the likelihoods of time-sensitive conditions using focused bedside information such as the history, the physical examination and point-of- care tests such as the electrocardiogram, certain blood tests, point-of-care ultrasound and urinalysis. For example, chest pain may be caused by a large number of conditions, yet the specialist in emergency medicine should be able to rapidly acquire information from a focused history, physical examination and point-of-care tests that allows for the likelihood assessment of time-sensitive conditions such as acute coronary syndrome, aortic dissection and pulmonary embolism. The local approach needs to take into consideration the local prevalence of time-sensitive conditions.

1 Abnormal Vital Signs

- Bradycardia
- Hypertension
- Hyperthermia
- Hypotension
- Hypothermia
- Prolonged capillary refill time
- Reduced level of consciousness
- Reduced peripheral oxygenation,
- Tachycardia
- Tachypnea

2 Pain

- Abdominal pain , ,Anal pain, Back pain
- Chest/thoracic pain
- Dysuria
- Ear pain, Eye pain, Flank pain
- Headache and facial pain
- Joint pain
- Limb pain, Muscular ,pain ,Pelvic pain Scrotal pain
- Throat pain/odynophagia Tooth pain
- Vaginal/vulvar pain

3 Other Symptoms

- Constipation
- Cough
- Diarrhea
- Dizziness/vertigo
- Dysphagia
- Dyspnea

- Fatigue
- Fever/chills
- Lightheadedness
- Nausea/vomiting
- Palpitations Paraesthesia
- Polyuria and oligo/anuria Pruritus
- Seizures
- Transient loss of consciousness
- Vaginal/penile discharge
- Visual disturbances
- Weakness

4 Bleeding

- Epistaxis
- Haematemesis
- Haematuria
- Haemoptysis
- Rectal bleeding/melena
- Vaginal bleeding

5 Abnormal Physical and Mental Status Findings

Abdominal:

- Distension
- Rebound pain and guarding
- Mases

Cardiac:

- Abnormal heart sounds

Dermatological:

- Bites and stings
- Burn

- Cyanosis
- Oedema
- Erythema
- Frostbite
- Jaundice
- Pruritus
- Rash
- Splinter haemorrhage
- Ulcers
- Wounds

Mental/Psychiatric:

- Agitation/aggression
- Confusion/delirium
- Deliberate self-harm
- Suicidality

Neurological:

- Abnormal movement
- Muscle tone disturbance
- Paresis/paralysis
- Sensory disturbance
- Speech disorder

Ophthalmological:

- Nystagmus
- Red eye
- Visual disturbances

Pulmonary:

- Abnormal breath sounds
- Decreased breath sounds

Urogenital:

- Scrotal swelling

6 Abnormal Blood and Urine Test Results

Abnormal test results:

- Abnormal urinalysis results
- CSF-analysis
- Elevated CRP or ESR
- Elevated Creatinine/urea
- Elevated CK/myoglobin
- Elevated d-dimer
- Elevated Troponin
- Raised INR
- Synovial fluid analysis

Electrolyte disturbances:

- Hyper-/hypocalcaemia
- Hyper-/hypokalaemia
- Hyper-/hypomagnesaemia
- Hyper-/hyponatraemia

Haematological disturbances:

- Anaemia
- Clotting disorders
- Leukocytosis
- Leukopenia
- Methaemoglobinaemia
- Polycythaemia
- Thrombocytopenia
- Thrombocytosis

Liver and pancreas test disturbances:

- Elevated amylase/lipase
- Elevated bilirubin
- Elevated liver enzymes

Metabolic and respiratory disturbances:

- Hyper-/hypocapnia
- Hyper-/hypoglycaemia
- Hypoxia
- Hyperammonaemia
- Elevated lactate
- Metabolic acidosis
- Metabolic alkalosis
- Respiratory acidosis
- Respiratory alkalosis

7 Situations

- Fall in older person
- Major Trauma

SECTION 2.3 DIAGNOSES & SYNDROMES

Introduction

Myocardial infarction, pneumonia and heroin overdose are examples of “diagnoses” that can be confirmed in the Emergency Department. The term "syndrome" refers to a combination of symptoms, risk factors, physical findings and test results that together speak for a pathophysiological condition that can be managed in a specific manner, even though the diagnosis is yet unclear. Acute coronary syndrome, sepsis, and opioid toxidrome are examples of syndromes. Diagnoses and syndromes are jointly referred to as "conditions" hereafter.

The conditions that are of primary focus in Emergency Medicine are time-sensitive conditions, e.g., those for which timely treatment, within the scope of hours to days, impacts on morbidity and mortality. Acute coronary syndrome, anaphylaxis, sepsis, severe hyperkalaemia and spinal epidural abscess are examples of such conditions. Conditions for which treatment does not impact upon morbidity and mortality are not of primary focus in Emergency Medicine. Lung cancer and amyotrophic lateral sclerosisare examples of such conditions.

This section lists key time-sensitive conditions. The section also includes common, benign conditions, since ruling-in such conditions can sometimes be sufficient to rule-out time-sensitive ones.

Emergency physicians should:

- know the risk factors for the condition in order to be able to assess its pre-test probability
- know the condition's possible presenting symptoms, signs and situations
- be able to estimate the likelihood that the patient is suffering from the condition based on the history, physical findings and point-of-care test results
- know how to initially manage, within the realm of emergency medicine, patients potentially suffering from these conditions, including being able to estimate the risks and benefits of various investigations and treatments for the individual patient
- know whom to contact for patient management outside the realm of Emergency Medicine and how to manage transfer of care.

This section deliberately does not include established, non-time-sensitive diagnoses (e.g., systemic lupus erythematous). Emergency physicians are not expected to be able to establish these diagnoses, yet they are expected to know whether suffering from these conditions impacts on the likelihoods of time-sensitive conditions.
Neither does this section list established exposures (e.g., overdose with colchicine), since management information regarding established exposures can be rapidly obtained by contacting poison control centers or through on-line resources. Rather, the emphasis is on the recognition and treatment of toxidromes, with the exception of specific unintentional intoxications (e.g., digoxin toxicity resulting from acute kidney injury) and common poisonings (e.g., with alcohol and paracetamol).

1 Cardiac Arrest

2 Airway

- Anaphylaxis
- Angioedema
- Croup
- Deep neck space infections Epiglottitis
- Foreign body
- Pharyngitis, tonsillitis, laryngitis,
- Thermal damage to the upper airway

3 Lung

- Asthma

- Bronchiolitis
- Bronchitis
- Chronic obstructive pulmonary disorder
  Empyema
- Haemothorax
- Pleural effusion
- Pneumomediastinum
- Pneumonia
- Pneumothorax
- Pulmonary oedema

4 Heart

- Acute coronary syndromes
- Acute heart failure syndromes
- Arrhythmias
- Atrioventricular block
- Cardiac tamponade
- Conduction disturbances
- Endocarditis
- Myocarditis Pericarditis

5 Circulation and Vascular

- Acute limb ischemia
- Aortic dissection
- Carotid/vertebral artery dissection
- Deep vein thrombosis
- Hypertensive emergencies
- Pulmonary embolism
- Ruptured abdominal aortic aneurysm
- Shock:
    - Hypovolaemic

    - Cardiogenic
    - Obstructive
    - Distributive
    - Toxic/metabolic
- Temporal arteritis
- Thrombophlebitis

6 Brain

- Cerebral sinus thrombosis
- Meningoencephalitis
- Primary headaches
- Raised intracranial pressure
- Stroke syndromes
- Subarachnoid hemorrhage
- Transient ischaemic attack

7 Spinal Cord and Peripheral Nervous System

- Mono neuropathy
- Polyneuropathy
- Radiculopathy
- Spinal cord syndromes
- Spinal epidural abscess
- Trigeminal neuralgia

8 Eye

- Acute glaucoma
- Conjunctivitis
- Corneal abrasions
- Foreign body
- Globe rupture
- Herpes zoster

- periorbital cellulitis

9 Ear and Nose

- Acute otitis media
- Benign paroxysmal positional
- vertigo
- Foreign body
- Mastoiditis
- Peritonsillar abscess
- Vestibular neuritis

10 Gastrointestinal

- Peptic ulcer disease
- Appendicitis
- Anorectal syndromes
- Bowel obstruction
- Small and large bowel Diverticulitis
- Oesophageal rupture
- Foreign body Gastroenteritis
- Gastrointestinal bleeding,
- Lower and upper Hernias
- Hirschsprung's disease
- Inflammatory bowel disease
- Intestinal Ischaemia
- Intussusception

11 Hepatobiliary and Pancreas

- Ascites Biliary colic
- Cholangitis
- Cholecystitis

- Fulminant hepatic failure
- Hepatic encephalopathy
- Hepatitis Pancreatitis
- Spontaneous bacterial peritonitis

12 Urogenital

- Acute kidney injury
- Balanitis
- Bartholin gland abscess
- Cystitis
- Epididymitis Fournier's gangrene
- Hydronephrosis
- Nephrotic syndrome
- Orchitis
- Ovarian torsion
- Ovarian cyst rupture
- Paraphimosis
- Pelvic inflammatory disease/ tubo-ovarianabscess Priapism
- Prostatitis Pyelonephritis
- Sexually transmitted diseases
- Testicular torsion
- Ureterolithiasis
- Urinary retention Vulvo-vaginitis

13 Obstetrics

- Abruptio placentae
- Extra uterine pregnancy
- Hemolysis,
- Elevated Liver enzymes
- Low Platelets (HELLP) syndrome

- Hyperemesis gravidarum
- Ovarian hyper-stimulation syndrome after in-vitro fertilization
- Peripartum cardiomyopathy
- Placenta praevia
- Pre-eclampsia and eclampsia Spontaneous
- abortion
- Uterine rupture

14 Musculoskeletal

- Arthropathy
- Bursitis
- Compartment syndrome
- Discitis
- Dislocations
- Osteomyelitis
- Radiculopathy
- Rhabdomyolysis

15 Skin and Soft Tissue

- Abscess
- Cellulitis
- Erysipelas
- Mastitis
- Necrotising fasciitis and myositis
- Stevens-Johnson syndrome and toxic epidermal necrolysis
- Toxic shock syndrome

16 Haematology and Coagulation

- Disseminated intravascular coagulation
- Neutropenic fever
- Sickle cell crisis

- Transfusion reaction

17 Metabolism, Endocrinology, Auto-Immune

- Adrenal crisis
- Diabetic ketoacidosis
- Hyperosmolar hyperglycaemic syndrome
- Metabolic bone disease
- Severe hyperthyroidism
- Severe hypothyroidism
- Wernicke's encephalopathy

18 Infection

- Botulism Herpes zoster
- Influenza
- Lyme disease
- Malaria
- Measles
- Rabies
- Sepsis
- Tetanus
- Viral haemorrhagic fever

19 Poisoning

- Anticholinergic and cholinergic toxidrome
- Beta-blocker/calcium channel antagonist intoxication
- Coumarin and NOAC intoxications
- Digoxin intoxication
- Ethanol intoxication and withdrawal
- Malignant hyperthermia
- Mushroom poisoning

- Neuroleptic malignant syndrome
- Opioid toxidrome
- Paracetamol intoxication
- Salicylate intoxication
- Sedative/hypnotic toxidrome
- Serotonin syndrome
- Sympathomimetic toxidrome
- Sodium channel poisoning
- Smoke inhalation, in particular carbon monoxide and cyanide poisoning
- Toxic alcohol intoxication

20 Psychiatry

- Conversion disorders
- Delusional disorders
- Mood disorders

21 Trauma

- Abdominal trauma
- Barotrauma
- Chest trauma
- Crush syndrome
- Facial trauma
- Head trauma
- Limb trauma
- Neck trauma
- Pelvic trauma
- Spinal trauma
- Urogenital
- Anorectal trauma

22 Exposure to External Factors

- Blast and crush injuries
- Decompression sickness
- Drowning
- Electricity and lightning
- High-altitude Hyperthermia
- Hypothermia
- Needle-stick injury
- Post-exposure prophylaxis

- Nuclear, biological, chemical, and radiological (NBCR) exposures

SECTION 2.4 PROCEDURES & DIAGNOSTIC TESTS

Introduction

This section lists the procedures that an emergency physician should be able to carry out and the diagnostic tests that an emergency physician should be able to appropriately order and interpret.

For each procedure, the physician should:

- know its indications
- know its contraindications
- be able to systematically and efficiently carry out the procedure
- know its potential complications and how to initially manage them
- know post-procedure management

When a procedure requires pharmacotherapy, the physician should know the indications, contraindications, interactions, side-effects and dosages of the relevant medications.

For each diagnostic test, the physician should:

- know its sensitivity and specificity for time-sensitive conditions
- know its potential complications
- be able to systematically interpret its results; for point-of-care ultrasound and CT investigations, the pathological entities that a specialist in Emergency Medicine should be able to identify are listed.

Some procedures, e.g., resuscitative thoracotomy, are potentially lifesaving yet seldom indicated, and for which finding the means to achieve and maintain competence among all specialists in an Emergency Medicine program is challenging. Achieving and maintaining

competence with these procedures is highly desirable yet not likely achievable for all specialists. This is why for some countries and/or doctors it might be ambivalent about whether to include these procedures within a "core" curriculum.

1 Cardiopulmonary Resuscitation

- Chest compressions and ventilation
- Defibrillation
- Use of medications
- External pacing
- Needle thoracostomy
- Pericardiocentesis

2 Airway

- Simple airway opening maneuvers
- Oropharyngeal and nasopharyngeal airways
- Laryngeal mask airway
- Endo tracheal intubation
- Rapid sequence intubation
- Cricothyrotomy
- Needle cricothyrotomy and jet insufflation
- Replacement of tracheostomy

3 Breathing

- Oxygen therapy
- Blood gas analysis
- Pulse oximetry
- Capnography
- Peak expiratory flow measurement
- Bag-valve-mask ventilation
- Non-invasive ventilation
- Invasive (mechanical) ventilation

- Needle thoracostomy
- Chest tube insertion
- Thoracocentesis

4 Circulation

- Fluid therapy
- Blood product therapy
- Control of active bleeding
- Cardioversion (electrical/pharmacological)
- Transcutaneous pacing
- Pericardiocentesis
- Peripheral venous access
- Central venous access
- Intraosseous access
- Arterial access
- ECG interpretation

5 Disability

- Neurological examination
- Fundoscopy
- Lumbar puncture

6 Exposure

- Log roll, transfer and spine immobilization
- Cervical spine clearance
- Body temperature assessment
- Cooling techniques
- Warming techniques
- Decontamination
- Isolation

7 Analgesia and Procedural Sedation

- Pain and sedation assessment
- Procedural sedation and analgesia
- Local, topical and regional anaesthesia

8 Point-Of-Care Ultrasound

Focused cardiac ultrasound:

- Pericardial fluid/tamponade
- Dilated right ventricle
- Decreased contractility/left ventricular function
- Inferior vena cava assessment Lung ultrasound:
- Pleural fluid
- Pulmonary consolidation
- Pneumothorax
- Interstitial syndromes

FAST (Focused Assessment with Sonography in Trauma) Abdominal ultrasound:

- Hydronephrosis
- Distended urinary bladder
- Abdominal aorta measurement
- Gallstones
- Cholecystitis
- Small bowel obstruction
- Intrauterine pregnancy Soft-tissue ultrasound:
- foreign body
- fluid collection/abscess
- cellulitis
- Proximal deep venous thrombosis

Ultrasound-guided procedures:

- nerve blocks
- peripheral/central vascular access
- pericardiocentesis

9 Musculoskeletal

- Arthrocentesis

- Fracture reduction
- Joint examination
- Joint reduction
- Limb immobilization
- Pelvic binder application
- Compartment pressure measurement

10 Wound

- Peripheral neurovascular examination
- Local and regional anaesthesia
- Wound exploration, cleaning, irrigation, debridement, closure Incision and drainage
- Nail bed repair
- Burn wound management

11 Ear-Nose-Throat

- Anterior rhinoscopy using nasal speculum
- Nasal cautery
- Insertion of nasal pack (anterior and posterior packing)
- Inspection of oropharynx and larynx
- Otoscopy
- Removal of nasal, aural and laryngeal foreign body
- Aspiration or incision/drainage of peritonsillar abscess

12 Ophthalmic

- Eye examination
- Removal of corneal foreign body
- Lateral canthotomy
- Eye irrigation
- Application of eye pad or shield

13 Oral and Maxillofacial

- Temporomandibular joint reduction
- Temporary stabilisation of injured tooth
- Haemostatis following dental extraction

14 Gastrointestinal

- Abdominal paracentesis or insertion of drain
- Gastric lavage
- Hernia reduction
- Insertion of nasogastric or orogastric tube
- Management of dislodged percutaneous endoscopic gastrostomy tube
- Removal of rectal foreign body

15 Genitourinary

- Evaluation of patency of urethral catheter
- Insertion of indwelling urethral catheter
- Reduction of paraphimosis
- Suprapubic cystostomy
- Testicular torsion reduction

16 Obstetric and Gynaecological

- Vaginal examination using speculum
- Measurement of foetal heart rate
- Emergency delivery:
- Normal delivery
- Shoulder dystocia
- Breech

17 Psychiatric

- Mental status examination
- Assessment of suicidal ideations

2.5- SPECIFIC ASPECTS OF EMERGENCY MEDICINE

1. ABUSE AND ASSAULT IN ADULTS AND CHILDREN

i. Abuse in the elderly and impaired
ii. Child abuse and neglect
iii. Intimate partner violence and abuse
iv. Sexual assault
v. Patient safety in Emergency Medicine
vi. Violence management and prevention in the Emergency Department

2. ANALGESIA AND SEDATION IN ADULTS AND CHILDREN

i. Pain transmission (anatomy, physiology, pharmacology)
ii. Pain assessment
iii. Pharmacology of sedative and pain relieving drugs
iv. Psychological and social aspects of pain in paediatric, adult and elderly patients

3. DISASTER MEDICINE

i. Disaster preparedness
ii. Major/mass casualty incident planning/procedures/practice
iii. Disaster response
iv. Mass gatherings
v. Specific medical topics (triage, bioterrorism, blast and crush injuries, chemical agents, radiation injuries)
vi. Debriefing and mitigation

4. ENVIRONMENTAL ACCIDENTS IN ADULT AND CHILDREN

i. Electricity (electrical and lightening injuries)
ii. Flora and Fauna (injuries from exposure, bites and stings)
iii. High-altitude (medical problems)
iv. NBCR (nuclear, biological, chemical and radiological:, decontamination,specific aspects)
v. Temperature (heat and cold related emergencies)
vi. Travel medicine
vii. Water (near-drowning, dysbarism and complications of diving, marine fauna)

viii. Major/minor burns
ix. Toxic ingestion or exposure

5. FORENSIC ISSUES

i. Basics of relevant legislation in the country of practice
ii. Recognize and preserve evidence
iii. Provide appropriate medical documentation (including forensic and clinical photography, collection of biological samples, ballistics)
iv. Appropriate reporting and referrals (e.g. child abuse or neglect, gunshot andother forms of penetrating wounds, elder abuse, sexual assault allegations)
v. Medico-legal documentation

6. INJURY PREVENTION AND HEALTH PROMOTION

i. Collection and interpretation of data related to prevention and health promotion
ii. Epidemiology of Accidents and Emergencies
iii. Formulation of recommendations

7. PROBLEMS IN THE ELDERLY

i. Atypical presentations (e.g. abdominal pain, infections, myocardial infarction)
ii. Delirium
iii. Dementia
iv. Falls (causes & investigations)
v. Immobility
vi. Multiple pathology and multiple therapies
vii. Self-dependency
viii. Trauma & co-morbidity
ix. Polypharmacy

8. TOXICOLOGY IN ADULTS AND CHILDREN

i. General principles of toxicology and management of poisoned patients
ii. Principles of drug interactions

Specific aspects of poisoning

a. Drugs (including paracetamol, amphetamine, anticholinergics,
b. anticonvulsants, antidepressants, antihypertensives, benzodiazepines, digitalis, monoamine oxidase inhibitors, neuroleptics)
c. Industrial, chemicals
d. Plants & mushrooms
e. Alcohol abuse and alcohols poisoning, alcohol withdrawal
f. Drugs of abuse
g. Organisation and information (e.g. poison centres, databases)

9. PRE-HOSPITAL CARE

i. Emergency Medical Services organisation (administration, structure,staffing, resources)
ii. Medical transport (including neonates and children, air transport)
iii. Paramedic training and function
iv. Safety at the scene
v. Collaboration with other emergency services (e.g. police, fire department)
vi. Disaster preparedness and management inclusive triage

10. PSYCHO-SOCIAL PROBLEMS

i. Social wellbeing of specific populations
ii. Patients with social issues
iii. Frequent visitors
iv. Culture and religion (expectations and beliefs of the health system)
v. Financial aspects (ability to purchase medications and/ or treatments)
vi. Legal aspects (e.g. collaboration with other patient stakeholders)
vii. Home support (available resources to support discharge, e.g. district nurse, carers)
viii. Homeless (safety for discharge)
ix. Pets (reason for presentation, e.g. allergy; or worried if pat needs admission)
x. Traveller (arrangement for follow-up)
xi. Alcohol/ illicit drug use (complex clinical assessment, increased suicide risk)
xii. Occupation (ability to return to work)

1. CURRICULUM OF CORE PROFESSIONAL COMPETENCES

1- HISTORY TAKING

To progressively develop the ability to obtain a relevant focused history from increasingly complex patients and challenging circumstances. To record accurately and synthesize history with clinical examination and formulation of management plan according to likely clinical evolution		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Recognize the importance of different elements of history	SEP, BST, SDL	E, Mi, C, ACAT
Recognize the importance of clinical, psychological, social, cultural and nutritional factors particularly those relating to ethnicity, race, cultural or religious beliefs and preferences, sexual orientation, gender and disability		
Recognize that patients do not present history in structured fashion,		
Know likely causes and risk factors for conditions relevant to mode of presentation		
Recognize that history should inform examination, investigation and management		
Skills		

Identify and overcome possible barriers to effective communication, seeks appropriate translators for patients for whom English is not a first language	BST,SDL, WS,SEP	Mi, C, ACAT
Manage time and draw consultation to a close appropriately		
Supplement history with standardized instruments or questionnaires when relevant		
Manage alternative and conflicting views from family and friends		
Assimilate history from the available information from patient and other sources		
Recognize and interpret the use of non-verbal communication from patients and carers, recognize the importance of listening to the response to questions		
Focus on relevant aspects of history		
Behaviours		
Show respect and behave in accordance with Good Medical Practice, allows time for patient to consider answer	BST, WS,SEP	Mi, C, ACAT

2-Clinical examination

To progressively develop the ability to perform focused and accurate clinical examination in increasingly complex patients and challenging circumstances To relate physical findings to history in order to establish diagnosis and formulate a management plan		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Understand the need for a valid clinical examination	SEP, BST, SDL	E, Mi, C, ACAT
Understand the basis for clinical signs and the relevance of positive and negative physical signs		
Recognize constraints to performing physical examination and strategies that may be used to overcome them		
Recognize the limitations of physical examination and the need for adjunctive forms of assessment to confirm diagnosis		
Skills		
Perform an examination relevant to the presentation and risk factors that is valid, targeted and time-efficient	SEP,BST, SDL,WS	E, Mi, C, ACAT
Recognize the possibility of deliberate harm in vulnerable patients and report to appropriate agencies		
Interpret findings from the history, physical examination and mental state examination, appreciating the importance of clinical, psychological, religious, social and cultural factors		

Actively elicit important clinical findings		
Perform relevant adjunctive examinations		
Behaviours		
Show respect and behaves in accordance with *Good Medical Practice*	BST, WS	Mi. C, PS

3-Therapeutics and safe prescribing

To progressively develop your ability to prescribe, review and monitor appropriate medication relevant to clinical practice including therapeutic and preventative indications		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Recall indications, contraindications, side effects, drug interactions and dosage of commonly used drugs	Didactic lectures, Interactive sessions, SGD, SDL	E, Mi, C, ACAT
Recall range of adverse drug reactions to commonly used drugs, including complementary medicines, uses guidelines for management complications associated with reactions and adverse reactions.		
Recall drugs requiring therapeutic drug monitoring and interpret results		
Outline tools to promote patient safety and prescribing, including IT systems		

Define the effects of age, body size, organ dysfunction and concurrent illness on drug distribution and metabolism relevant to the trainee's practice		
Recognize the roles of regulatory agencies involved in drug use, monitoring and licensing (e.g. health care commission, DRAP etc.)		
Skills		
Review the continuing need for long term medications relevant to the trainee's clinical practice	Didactic lectures, Interactive sessions, SGD, SDL	E, Mi, C,ACAT
Anticipate and avoid defined drug interactions, including complementary medicines		
Advise patients (and carers)about important interactions and adverse drug effects		
Make appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function)		
Use IT prescribing tools where available to improve safety		
Behavior		
Recognize the benefit of minimizing number of medications taken by a patient, selects the use of blister packs and daily medication boxes where relevant	Didactic lectures, Interactive sessions, SGD, SDL	Mi, C, ACAT
Appreciate the role of non-medical prescribers		
Remain open to advice from other health professionals on medication issues		
Recognize the importance of resources when prescribing, including the role of a drug formulary		

Ensure prescribing information is shared promptly and accurately between a patient's health providers, including between primary and secondary care		
Remain up to date with therapeutic alerts, and respond appropriately.		
Provide comprehensible explanations to the patient.		

4- Time and workload management

To become increasingly able to prioritize and organize clinical and administrative duties in order to optimize patient care. To become increasingly able to make appropriate clinical and clerical decisions in order to optimize the effectiveness of the clinical team		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Understand that organisation is key to time management	WS, Didactic lectures, Interactive sessions, SDL	E, Mi, C, ACAT, ESLE, S
Understand that some tasks are more urgent or more important than others, prioritises care		
Understand the need to prioritize work according to urgency and importance, prioritises resources		
Understand that some tasks may have to wait or be delegated to others		
Outline techniques for improving time management		

Understand the importance of prompt investigation, diagnosis and treatment in disease management as key to reducing morbidity and mortality		
Skills		
Identify clinical and clerical tasks requiring attention or predicted to arise	WS, Didactic lectures, Interactive sessions, SDL	Mi, C, ACAT, ESLE, S
Estimate the time likely to be required for essential tasks and plan accordingly		
Group together tasks when this will be the most effective way of working		
Recognize the most urgent / important tasks and ensure that they are managed expediently		
Regularly review and re-prioritize personal and team workload		
Organise and manage workload effectively		
Behaviours		
Recognize when you or others are falling behind and take steps to rectify the situation	WS, Didactic lectures, Interactive sessions, SDL	ACAT, C, PS, ESLE
Communicate changes in priority to others		
Remain calm in stressful or high pressure situations and adopt a timely, rational approach		

5- Clinical decision making and judgement

To progressively develop the ability to formulate a diagnostic and therapeutic plan for a patient according to the clinical information available. To progressively develop the ability to prioritize the diagnostic and therapeutic plan To be able to communicate the diagnostic and therapeutic plan appropriately.

Knowledge	**Teaching and Learning Strategies**	**Assessment**
Define the steps of diagnostic reasoning	WS, Didactic lectures, Interactive sessions, SDL	Mi, C, ACAT, ESLE,
Interpret history and clinical signs		
Conceptualize clinical problem		
Generate hypothesis within context of clinical likelihood		
Test, refine and verify hypotheses		
Develop problem list and action plan		
Recognize how to use expert advice, clinical guidelines and algorithms – utilizing support for decision making in stressful environments		
Recognizes the need to determine the best value and most effective treatment both for the individual patient and for a patient cohort		
Define the concepts of disease natural history and assessment of risk		
Recall methods and associated problems of quantifying risk e.g. cohort studies		

Outline the concepts and drawbacks of quantitative assessment of risk or benefit e.g. numbers needed to treat		
Describe commonly used statistical methodology		
Know how relative and absolute risks are derived and the meaning of the terms predictive value, sensitivity and specificity in relation to diagnostic tests		
skill		
Interpret clinical features, their reliability and relevance to clinical scenarios including recognition of the breadth of presentation of common disorders	WS, Didactic lectures, Interactive sessions, SDL	C, ACAT, S ,AA
Recognize critical illness and respond with due urgency		
Generate hypothesis(es) following patient assessment		
Construct a concise and applicable problem list using available information		
Construct an appropriate management plan and communicate this effectively to the patient, parents and carers where relevant		
Define the relevance of an estimated risk of a future event to an individual patient		
Use risk calculators appropriately		
Apply quantitative data of risks and benefits of therapeutic intervention to an individual patient		
Search and comprehend medical literature to guide reasoning		
Attitude		
Recognize the difficulties in predicting occurrence of future events		

Show willingness to discuss intelligibly with a patient the notion and difficulties of prediction of future events, and benefit/risk balance of therapeutic intervention	WS, Didactic lectures, Interactive sessions, SDL	E, ACAT, C, Mi
Be willing to facilitate patient choice		
Show willingness to search for evidence to support clinical decision making		
Demonstrate ability to identify one's own biases and inconsistencies in clinical reasoning		

6-The patient as central focus of care

Prioritizes the patient's wishes encompassing their beliefs, concerns expectations and needs		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Recall health needs to deal appropriately with diverse patient groups including those such as learning disabled, elderly, refugees and non-English speaking	WS, SDL Didactic lectures, Interactive sessions,	E, C, Mi,ACAT
Skills		
Give adequate time for patients to express ideas, concerns and expectations		
Respond to questions honestly and seek advice if unable to answer		

Encourage the health care team to respect the philosophy of patient-focused care	WS, Didactic lectures, Interactive sessions, SDL	E, C, ACAT,PS
Develop a self-management plan including investigation, treatments and requests/instructions to other healthcare professionals, in partnership with the patient		
Support patients, parents and carers where relevant to comply with management plans		
Encourage patients to voice their preferences and personal choices about their care		
Behaviours		
Support patient self-management	WS, Didactic lectures, Interactive sessions, SDL	Mi, C, ACAT, PS
Recognize the duty of the medical professional to act as patient advocate		

7- Prioritization of patient safety in clinical practice

To understand that patient safety depends on the organization of care and healthcare staff working well together To never compromise patient safety To understand the risks of treatments and to discuss these honestly and openly with patients so that patients are able to make informed decisions about risks Ensure that all staff are aware of risks and work together to minimize risk		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Outline the features of a safe working environment	WS, Didactic lectures, Interactive sessions, SDL	E, Mi, C, ACAT
Outline the hazards of medical equipment in common use		
Recall side effects and contraindications of medications prescribed		
Recall principles of risk assessment and management		
Recall the components of safe working practice in personal, clinical and organizational settings		
Recall local procedures for optimal practice e.g. GI bleed protocol, safe prescribing		
Recall the NHS and regulatory procedures when there is concern about performance of the members of the healthcare team		
Skills		
Recognize when a patient is not responding to treatment, reassess the situation, and encourage others to do so		

Ensure the correct and safe use of medical equipment, ensuring faulty equipment is reported appropriately	WS, Didactic lectures, Interactive sessions, SDL	Mi, C, ACAT, S,M
Improve patients' and colleagues' understanding of the side effects and contraindications of therapeutic intervention		
Sensitively counsel a colleague following a significant event, or near miss incident, to encourage improvement in practice of individual and unit		
Recognize and respond to the manifestations of a patient's deterioration (symptoms, signs, observations, and laboratory results) and support other members of the team to act similarly		
Behaviours		
Continue to maintain a high level of safety awareness at all times	WS, Didactic lectures, Interactive sessions, SDL	Mi, C, ACAT M
Encourage feedback from all members of the team on safety issues		
Show willingness to take action when concerns, including both clinical and non-clinical aspects e.g. bullying, are raised about performance of members of the healthcare team, and act appropriately when these concerns are voiced to you by others		
Continue to be aware of one's own limitations, and operate within them competently		

8-Team working and patient safety

To develop the ability to work well in a variety of different teams, e.g. the ward team and the infection control team, and to contribute to discussion on the team's role in patient safety To develop the leadership skills necessary to lead teams so that they are more effective and able to deliver better safer care		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Outline the components of effective collaboration	WS, Interactive sessions, SDL	C,ACAT, ESLE
Describe the roles and responsibilities of members of the healthcare team		
Outline factors adversely affecting a doctor's performance and methods to rectify these		
Skills		
Practice with attention to the important steps of providing good continuity of care	WS, Interactive sessions, SDL	Mi, C, ACAT, M ESLE, S
Accurate attributable note-keeping		
Preparation of patient lists with clarification of problems and ongoing care plan		
Detailed handover between shifts and areas of care		
Demonstrate leadership and management in the following areas: education and training, deteriorating performance of colleagues (e.g. stress, fatigue), high quality care, effective handover of care between shifts and teams		

Lead and participate in interdisciplinary team meetings		
Provide appropriate supervision to less experienced colleagues		
Behaviours		
Encourage an open environment to foster concerns and issues about the functioning and safety of team working	WS, Interactive sessions ,SDL	Mi, C, ACAT, M ESLE, S
Recognize and respect the request for a second opinion		
Recognize the importance of induction for new members of a team		
Recognize the importance of prompt and accurate information sharing with the Primary Care team following hospital discharge		

9- Principles of quality and safety improvement

To recognize the desirability of monitoring performance, learning from mistakes and adopting no blame culture in order to ensure high standards of care and optimize patient safety		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Understand the elements of clinical governance	WS, Didactic lectures, Interactive sessions, SDL	E,M, Mi, C, ACAT,
Recognize that governance safeguards high standards of care and facilitates the development of improved clinical services		
Define local and national significant event reporting systems relevant to specialty		
Recognize importance of evidence-based practice in relation to clinical effectiveness		
Outline local health and safety protocols (fire, manual handling etc.)		
Understand risk associated with the trainee's specialty work including biohazards and mechanisms to reduce risk		
Outline the use of patient early warning systems to detect clinical deterioration where relevant to the trainee's clinical specialty		
Keep abreast of national patient safety initiatives including NPSA, NCEPOD reports, NICE guidelines etc.		
Skills		
Adopt strategies to reduce risk e.g. surgical pause safety checklist	WS, Didactic lectures,	AA, ACAT, C

Contribute to quality improvement processes – for example; Audit of personal and departmental performance Errors / discrepancy meetings *Critical incident reporting* *Unit morbidity and mortality meetings* *Local and national databases*	Interactive sessions, SDL	
Maintain a folder of information and evidence, drawn from your medical practice		
Reflect regularly on your standards of medical practice in accordance with GMC guidance on licensing and revalidation		
Behaviours		
Participates in safety improvement strategies such as critical incident reporting	WS, Didactic lectures, Interactive sessions, SDL	C, M, PS
Engage with an open no-blame culture		
Respond positively to outcomes of audit and quality improvement		
Co-operate with changes necessary to improve service quality and safety		

10- Infection control

To develop the ability to manage and control infection in patients, including controlling the risk of cross-infection, appropriately managing infection in individual patients, and working appropriately within the wider community to manage the risk posed by communicable diseases		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Understand the principles of infection control	Didactic lectures, Interactive sessions, SDL	E, Mi, C,ACAT
Understand the principles of preventing infection in high risk groups (e.g. antibiotic use to prevent Clostridium difficile) including understanding the local antibiotic prescribing policy		
Understand the role of notification and identify the principal notifiable diseases		
Understand the role of the local authority in relation to infection control		
Skills		
Recognize the potential for infection in patients being cared for	Didactic lectures, Interactive	E, Mi, C,
Counsel patients on matters of infection risk, transmission and control		
Actively engage in local infection control procedures		

Actively engage in local infection control monitoring and reporting processes	sessions, SDL,SGD	ACAT, PS ,D
Prescribe antibiotics according to local antibiotic guidelines		
Recognize potential for cross-infection in clinical settings		
Practice aseptic technique whenever relevant		
Behaviours		
Encourage all staff, patients and relatives to observe infection control principles	WS, Didactic lectures, Interactive sessions, SDL	E, ACAT, C,M

11- Managing long term conditions and promoting patient self-care

Knowledge	**Teaching and Learning Strategies**	**Assessment**
Recall the natural history of diseases that run chronic course	Didactic lectures, Interactive sessions, SDL, SEP	E, CBD, Mi, ACAT
Define the role of rehabilitation services and the multi-disciplinary team to facilitate long-term care		
Outline the concept of quality of life and how this can be measured		

Outline the concept of patient self-care		
Know, understand and be able to compare medical and social models of disability		
Understand the relationship between local health, educational and social service provision including the voluntary sector		
Skills		
Develop and agree a management plan with the patient (and carers), ensuring comprehension to maximize self-care within care pathways when relevant	Didactic lectures, Interactive sessions, SDL, SEP	E, C, Mi,ACAT ,PS
Develop and sustain supportive relationships with patients with whom care will be prolonged		
Provide effective patient education, with support of the multi-disciplinary team		
Promote and encourage involvement of patients in appropriate support networks, both to receive support and to give support to others		
Encourage and support patients in accessing appropriate information		
Provide the relevant and evidence-based information in an appropriate medium to enable sufficient choice, when possible		
Behaviours		

Show willingness to act as a patient advocate, enable patient to report and respond to patient safety issues	Didactic lectures, Interactive sessions, SDL, SEP,WS	C, Mi, ACAT ,PS
Recognize the impact of long-term conditions on the patient, familyand friends		
Ensure equipment and devices relevant to the patient's care are discussed		
Put patients in touch with the relevant agency including the voluntary sector from where they can procure the items as appropriate (i.e. equipment, wheelchairs etc.)		
Provide the relevant tools and devices when possible		
Show willingness to facilitate access to the appropriate training and skills in order to develop the patient's confidence and competence to self-care		
Show willingness to maintain a close working relationship with other members of the multi-disciplinary team, primary and community care		
Recognize and respect the role of family, friends and carers in the management of the patient with a long-term condition		

12 - Relationships with patients and communication within a consultation

Communicate effectively and sensitively with patients, relatives and carers		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Structure an interview appropriately	WS,SDL	E, ACAT, C, Mi, PS
Understand the importance of the patient's background, culture, education and preconceptions (ideas, concerns, expectations) to the consultation process and how it influences communication		
Skills		
Establish a rapport with the patient and any relevant others(e.g. carers)	WS,SDL	E, ACAT, C, Mi, PS
Listen actively and question sensitively to guide the patient and to clarify information		
Identify and manage communication barriers, tailoring language to the individual patient and using interpreters when indicated		
Deliver information compassionately, being alert to and managing their and your emotional response (anxiety, antipathy etc.)		
Use, and refer patients to, appropriate written and other information sources		
Check the patient's/career's understanding, ensuring that all their concerns/questions have been covered		

Indicate when the interview is nearing its end and conclude with asummary		
Make accurate contemporaneous records of the discussion		
Manage follow-up effectively and ensure “safety net” is in place		
Behaviours		
Approach the situation with courtesy, empathy, compassion and professionalism, especially by appropriate body language - act as an equal not a superior	WS,SDL	E, ACAT, C, Mi, M, PS
Ensure that the approach is inclusive and patient centered and respect the diversity of values in patients, carers and colleagues		
Be willing to provide patients with a second opinion		
Use different methods of ethical reasoning to come to a balanced decision where complex and conflicting issues are involved		
Be confident and positive in one’s own values		

13- Breaking bad news

To recognize the fundamental importance of breaking bad news. To develop strategies for skilled delivery of bad news according to the needs of individual patients and their relatives / carers		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Recognize that the way in which bad news is delivered significantly affects the subsequent relationship with the patient	WS,SDL	E, ACAT, C, Mi, M, PS
Recognize that every patient may desire different levels of explanation and have different responses to badness		
Recognize that bad news is confidential but the patient may wish to be accompanied		
Recognize that breaking bad news can be extremely stressful for the doctor or professional involved		
Understand that the interview may be an educational opportunity		

Recognize the importance of preparation when breaking bad news by: • Setting aside sufficient uninterrupted time • Choosing an appropriate private environment • Having sufficient information regarding prognosis and treatment • Structuring the interview • Being honest, factual, realistic and empathic • Being aware of relevant guidance documents		
Understand that "bad news" may be expected or unexpected		
Recognize that sensitive communication of bad news is an essential part of professional practice		
Understand that "bad news" has different connotations depending on the context, individual, social and cultural circumstances		
Recall that a post mortem examination may be required and understand what this involves		
Recall the local organ retrieval process		
Skills		
Demonstrate to others good practice in breaking bad news	WS,SDL,SEP	E, C, D, M
Involve patients and carers in decisions regarding their future management		

Encourage questioning and ensure comprehension		
Respond to verbal and visual cues from patients and relatives		
Act with empathy, honesty and sensitivity avoiding undue optimism or pessimism		
Structure the interview e.g. set the scene, establish understanding, Discuss: diagnosis, implications, treatment, prognosis and subsequent care		
Behaviours		
Take leadership in breaking bad news	WS,SDL	C, D, M
Respect the different ways people react to bad news		

14- Complaints and medical error

Knowledge	**Teaching and Learning Strategies**	**Assessment**
• Basic consultation techniques and skills described for Foundation programme and to include: • Define the local complaints procedure • Recognize factors likely to lead to complaints (poor communication, dishonesty etc.) • Adopt behavior likely to prevent complaints Dealing with dissatisfied patients or relatives • Recognize when something has gone wrong and identify appropriate staff to communicate this with • Act with honesty and sensitivity in a non-confrontational manner	WS,SDL,SEP	C, D, M
Outline the principles of an effective apology		
Identify sources of help and support when a complaint is made about yourself or a colleague		
Skills		
Contribute to processes whereby complaints are reviewed and learned from	WS,SDL,SEP	C, D, M
Explain comprehensibly to the patient the events leading up to a medical error		

Deliver an appropriate apology		
Distinguish between system and individual errors		
Show an ability to learn from previous error		
Behaviours		
Take leadership over complaint issues	WS,SDL,SEP	C, D, M
Recognize the impact of complaints and medical error on staff, patients, and the National Health Service		
Contribute to a fair and transparent culture around complaints and errors		
Recognize the rights of patients, family members and carers to make a complaint		

15- Communication with colleagues and cooperation

Recognize and accept the responsibilities and role of the doctor in relation to other healthcare professionals. Communicate succinctly and effectively with other professionals as appropriate		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Understand the section in "Good Medical Practice" on Working with Colleagues, in particular:	WS,SDL	C, M, ESLE
The roles played by all members of a multi-disciplinary team		
The features of good team dynamics		
The principles of effective inter-professional collaboration to optimize patient or population care		
Skills		
Communicate accurately, clearly, promptly and comprehensively with relevant colleagues by means appropriate to the urgency of a situation (telephone, email, letter etc.), especially where responsibility for a patient's cares transferred	WS,SDL	ACAT, C, Mi, M, ESLE, S
Utilize the expertise of the whole multi-disciplinary team as appropriate, ensuring when delegating responsibility that appropriate supervision is maintained		

Participate in, and co-ordinate, an effective hospital-at-night team when relevant		
Communicate effectively with administrative bodies and support organizations		
Employ behavioral management skills with colleagues to prevent and resolve conflict		
Behaviours		
Be aware of the importance of, and take part in, multi-disciplinary work, including adoption of a leadership role when appropriate	WS,SDL	ACAT, C, Mi, M, ESLE, S
Foster a supportive and respectful environment where there is open and transparent communication between all team members		
Ensure appropriate confidentiality is maintained during communication with any member of the team		
Recognize the need for a healthy work/life balance for the whole team, including yourself, but take any leave yourself only after giving appropriate notice to ensure that cover is in place		
Be prepared to accept additional duties in situations of unavoidable and unpredictable absence of colleagues		

16- Health promotion and public health

To progressively develop the ability to work with individuals and communities to reduce levels of ill health, remove inequalities in healthcare provision and improve the general health of a community.		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Understand the factors which influence the incidence and prevalence of common conditions	SDL, Didactic lectures	E, C, Mi
Understand the factors which influence health – psychological, biological, social, cultural and economic (especially poverty)		
Understand the influence of lifestyle on health and the factors that influence an individual to change their lifestyle		
Understand the purpose of screening programmers and know in outline the common programmers available within the UK		
Understand the relationship between the health of an individual and that of a community		
Know the key local concerns about health of communities such as smoking and obesity		
Understand the role of other agencies and factors including the impact of globalization in protecting and promoting health		

Demonstrate knowledge of the determinants of health worldwide and strategies to influence policy relating to health issues including the impact of the developed world strategies on developing countries		
Outline the major causes of global morbidity and mortality and effective, affordable interventions to reduce these		
Recall the effect of addictive behaviors, especially substance misuse and gambling, on health and poverty		
Skills		
Identify opportunities to prevent ill health and disease in patients	SDL, Didactic lectures	E, C, Mi, PS
Identify opportunities to promote changes in lifestyle and other actions which will positively improve health		
Identify the interaction between mental, physical and social wellbeing in relation to health		
Counsel patients appropriately on the benefits and risks of screening		
Work collaboratively with other agencies to improve the health of communities		
Behaviours		
Engage in effective team-working around the improvement of health	SDL, Didactic lectures	C, M
Encourage where appropriate screening to facilitate early intervention		

17- Principles of medical ethics and confidentiality

To know, understand and apply appropriately the principles, guidance and laws regarding medical ethics and confidentiality		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Demonstrate knowledge of the principles of medical ethics	SDL, Didactic lectures	E, ACAT, C, Mi
Outline and follow the guidance given by the GMC on confidentiality		
Define the provisions of the Data Protection Act and Freedom of Information Act		
Define the role of the Caldecott Guardian within an institution, and outline the process of attaining Caldecott approval for audit or research		
Outline situations where patient consent, while desirable, is not required for disclosure e.g. communicable diseases, public interest		
Outline the procedures for seeking a patient's consent for disclosure of identifiable information		
Recall the obligations for confidentiality following a patient's death		

Recognize the problems posed by disclosure in the public interest, without patient's consent, recognizing this may impact on patients seeking help in future		
Recognize the factors influencing ethical decision making: religion, moral beliefs, cultural practices		
Do not resuscitate: Define the standards of practice defined by the GMC when deciding to withhold or withdraw life- prolonging treatment		
Outline the principles of the Mental Capacity Act		
SKILLS		
Use and share information with the highest regard for confidentiality, and encourage such behavior in other membersof the team	SDL, Didactic lectures	E, ACAT, C, Mi, M ,PS
Use and promote strategies to ensure confidentiality is maintained e.g. anonymization		
Counsel patients on the need for information distribution within members of the immediate healthcare team		
Counsel patients, family, carers and advocates tactfully and effectively when making decisions about resuscitation status, and withholding or withdrawing treatment		
Behaviours		
Encourage ethical reflection in others	SDL,	E, ACAT, C,

Show willingness to seek advice of peers, legal bodies, and the GMC in the event of ethical dilemmas over disclosure and confidentiality	Didactic lectures	M, PS ,MSF
Respect patient's requests for information not to be shared, unless this puts the patient, or others, at risk of harm		
Show willingness to share information about their care with patients, unless they have expressed a wish not to receive such information		
Show willingness to seek the opinion of others when making decisions about resuscitation status, and withholding or withdrawing treatment		

18- Valid consent

To obtain valid consent from the patient		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Outline the guidance given by the GMC on consent, in particular:	SDL, Didactic lectures	C, D, M
Understand that consent is a process that may culminate in, but is not limited to, the completion of a consent form		

Understand the particular importance of considering the patient's level of understanding and mental state (and also that of the parents, relatives or carers when appropriate) and how this may impair their capacity for informed consent		
Skills		
Present all information to patients (and carers) in a format they understand, allowing time for reflection on the decision to give consent	SDL, Didactic lectures	E, ACAT, C, Mi, PS
Provide a balanced view of all care options		
Behaviours		
Respect a patient's rights of autonomy even in situations where their decision might put them at risk of harm	SDL, Didactic lectures	E, ACAT, C, Mi, PS
Avoid exceeding the scope of authority given by a patient		
Avoid withholding information relevant to proposed care or treatment in a competent adult		
Show willingness to seek advance directives		
Show willingness to obtain a second opinion, senior opinion, and legal advice in difficult situations of consent or capacity		

Inform a patient and seek alternative care where personal, moral or religious belief prevents a usual professional action		

19- Ethical research

To ensure that research is undertaken using relevant ethical guidelines		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Outline the RMU guidance on good practice in research	WS, SDL	AA, C, Mi ,ACAT
Outline the differences between audit and research		
Describe how clinical guidelines are produced		
Demonstrate knowledge of research principles		
Outline the principles of formulating a research question and designing a project		
Comprehend principal qualitative, quantitative, bio-statistical and epidemiological research methods		
Outline sources of research funding		
Skills		
Develop critical appraisal skills and apply these when reading literature	SDL, WS	C, D
Demonstrate the ability to write a scientific paper		

Apply for appropriate ethical research approval		
Demonstrate the use of literature databases		
Demonstrate good verbal and written presentation skills		
Understand the difference between population-based assessment and unit-based studies and be able to evaluate outcomes for epidemiological work		
Behaviours		
Recognize the ethical responsibilities to conduct research with honesty and integrity, safeguarding the interests of the patient and obtaining ethical approval when appropriate	WS,SDL	C, M
Follow guidelines on ethical conduct in research and consent for research		
Show willingness to the promotion of involvement in research		

20- Evidence and guidelines

To progressively develop the ability to make the optimal use of current best evidence in making decisions about the care of patients To progressively develop the ability to construct evidence-based guidelines in relation to medical practice		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Understand the application of statistics in scientific medical practice	WS,SDL, DIDACTIC LECTURE ON EBM	E, C
Understand the advantages and disadvantages of different study methodologies (randomized controlled trials, case controlled cohort etc.)		
Understand the principles of critical appraisal		
Understand levels of evidence and quality of evidence		
Understand the role and limitations of evidence in the development of clinical guidelines		
Understand the advantages and disadvantages of guidelines and the relation to patient safety		
Understand the processes that result in nationally applicable guidelines (e.g. NICE and SIGN)		
Skills		
Ability to search the medical literature including use of PubMed, Medline, Cochrane reviews and the internet	WS,SDL, DIDACTIC	E, C

Appraise retrieved evidence to address a clinical question	LECTURE	
Apply conclusions from critical appraisal into clinical care		
Identify the limitations of research		
Contribute to the construction, review and updating of local (and national) guidelines of good practice using the principles of evidence-based medicine		
Behaviours		
Keep up to date with national reviews and guidelines of practice (e.g. NICE and SIGN)	WS,SDL, DIDACTIC LECTURE	E, ACAT, C, Mi
Aim for best clinical practice (clinical effectiveness) at all times, responding to evidence-based medicine		
Recognize the occasional need to practice outside clinical guidelines		
Encourage discussion amongst colleagues on evidence-based practice		

21- Audit

To progressively develop the ability to perform an audit of clinical practice and to apply the findings appropriately		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Understand the different methods of obtaining data for audit including patient feedback questionnaires, hospital sources and national reference data	WS,SDL, DIDACTIC LECTURE	AA, C
Understand the role of audit (developing patient care, risk management etc.)		
Understand the steps involved in completing the audit cycle		
Understands the working and uses of national and local databases used for audit such as specialty data collection systems, cancer registries etc. *The working and uses of local and national systems available for reporting and learning from clinical incidents and near misses in the UK*		
Skills		
Design, implement and complete audit cycles	WS,SDL, DIDACTIC LECTURE	AA, C
Contribute to local and national audit projects as appropriate (e.g. NCEPOD,SASM)		
Support audit by junior medical trainees and within the multi-disciplinary team		

Behaviours		
Recognize the need for audit in clinical practice to promote standard setting and quality assurance	WS,SDL, DIDACTIC LECTURE	AA, C

22- Teaching and training

To progressively develop the ability to teach to a variety of different audiences in a variety of different ways. To progressively be able to assess the quality of the teaching. To progressively be able to train a variety of different trainees in a variety of different ways. To progressively be able to plan and deliver a training programme with appropriate assessments		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Outline adult learning principles relevant to medical education	WS,SDL,	C, TO
Identification of learning methods and effective learning environments		
Construction of educational objectives		
Use of effective questioning techniques		
Varying teaching format and stimulus		

Demonstrate knowledge of relevant literature relevant to developments in medical education		
Outline the structure of the effective appraisal interview		
Define the roles of the various bodies involved in medical education		
Differentiate between appraisal and assessment and be aware of the need for both		
Outline the workplace based assessments in use and the appropriateness of each		
Demonstrate the definition of learning objectives and outcomes		
Outline the appropriate local course of action to assist the failing trainee		
Skills		
Vary teaching format and stimulus, appropriate to situation and subject	WS,SDL, DIDACTIC LECTURE	C, M, TO
Provide effective feedback after teaching, and promote learner reflection		
Conduct effective appraisal		
Demonstrate effective lecture, presentation, small group and bedside teaching sessions		

Provide appropriate career advice, or refer trainee to an alternative effective source of career information		
Participate in strategies aimed at improving patient education e.g. talking at support group meetings		
Be able to lead departmental teaching programmers including journal clubs		
Recognize the trainee in difficulty		
Behaviours		
In discharging educational duties acts to maintain the dignity and safety of patients at all times	WS,SDL, DIDACTIC LECTURE	C, M, TO
Recognizes the importance of the role of the physician as an educator within the multi-professional healthcare team and uses medical education to enhance the care of patients		
Balances the needs of service delivery with the educational imperative		
Demonstrates willingness to teach trainees and other health and social workers in a variety of settings to maximize effective communication and practical skills		
Encourages discussions in the clinical settings with colleagues to share knowledge and understanding		
Maintains honesty and objectivity during appraisal and assessment		

Shows willingness to participate in workplace based assessments		
Shows willingness to take up formal tuition in medical education and respond to feedback obtained after teaching sessions		
Demonstrates a willingness to become involved in the wider medical education activities and fosters an enthusiasm for medical education activity in others		
Recognizes the importance of personal development as a role model to guide trainees in aspects of good professional behavior		
Demonstrates consideration for learners including their emotional, physical and psychological wellbeing with their development needs		

23- Personal behavior

To develop the behaviours that will enable the doctor to become a senior leader able to deal with complex situations and difficult behaviours and attitudes. To work increasingly effectively with many teams and to be known to put the quality and safety of patient care as a prime objective. To develop the attributes of someone who is trusted to be able to manage complex human, legal and ethical problem. To become someone who is trusted and is known to act fairly in allsituations		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Recall and build upon the competences defined in the Foundation Programme: Deal with inappropriate patient and family behavior Respect the rights of children, elderly, people with physical, mental, learning or communication difficulties Adopt an approach to eliminate discrimination against patients from diverse backgrounds including age, gender, race, culture, disability, spirituality and sexuality *Place needs of patients above own convenience* Behave with honesty and probity Act with honesty and sensitivity in a non-confrontational manner The main methods of ethical reasoning: casuistry, ontology and consequentialist The overall approach of value-based practice and how this relates to ethics, law and decision making	WS,SDL, DIDACTIC LECTURE	ACAT, C, Mi, M, PS, ESLE
Define the concept of modern medical professionalism		

Outline the relevance of professional bodies (Royal Colleges, JRCPTB, GMC, Postgraduate Dean, BMA, specialist societies, medical defence organizations)		
Skills		
Practice with: • integrity • compassion • altruism • continuous improvement • excellence • respect for cultural and ethnic diversity • regard to the principles of equity	WS,SDL, DIDACTIC LECTURE	ACAT, C, Mi, M, PS, ESLE
Work in partnership with members of the wider healthcare team		
Liaise with colleagues to plan and implement work rotas		
Promote awareness of the doctor's role in utilizing healthcare resources optimally		
Recognize and respond appropriately to unprofessionalbehavior in others		
Be able to provide specialist support to hospital and community based services		
Be able to handle enquiries from the press and other media effectively		

Behaviours		
Recognize personal beliefs and biases and understand their impact on the delivery of health services	WS,SDL, DIDACTIC LECTURE	ACAT, C, Mi, ESLE
Recognize the need to use all healthcare resources prudently and appropriately		
Recognize the need to improve clinical leadership and management skill		
Recognize situations when it is appropriate to involve professional and regulatory bodies		
Show willingness to act as a mentor, educator and role model		
Be willing to accept mentoring as a positive contribution to promote personal professional development	WS,SDL, DIDACTIC LECTURE	ACAT, CbD, Mini-CEX, ESLE
Participate in professional regulation and professional development		
Takes part in 360 degree feedback as part of appraisal		
Recognize the right for equity of access to healthcare		
Recognize need for reliability and accessibility throughout the healthcare team		

CURRICULUM OF CORE CLINICAL COMPETENCES

Patients seek medical assessment and treatment in the Emergency Department with a problem and not necessarily a diagnosis. The curriculum has therefore been arranged around defined presenting problems. These have been divided between major presentations and acute presentations. The major presentations include presentations of immediately life threatening problems and other severe and urgent conditions, as well as other less serious problems. The 'acute presentations' may also
Include serious causes for the presentation. Workplace Based Assessments of the major presentations should be undertaken by a Consultant.

Trainees in training year 3-5 will revisit the knowledge skills and behaviours of all those conditions already described for year 1-2 and become more expert in their diagnosis and management. Trainees will have:

1. Increasing realization of the range of presentations, the impact of co-morbidities and age.
2. Increasing appreciation of atypical presentations especially in the elderly and immuno-compromised.
3. Recognition of apparent benign presentations that indicate possible serious pathology e.g. syncope, falls.

Trainees will be able to look after sicker patients with increasing confidence, using investigations more selectively and with more accurate interpretation. Trainees will develop more detailed differential diagnoses focusing on the life-threatening as well as the most probable diagnosis. Trainees will supervise others, being supportive but also able to detect when greater input is needed by them to ensure the safe care of the patient.

Major Emergency presentations (PGy1-5)

1. Anaphylaxis
2. Cardio-Respiratory Arrest
3. Major Trauma
4. Septic Patient
5. Shocked Patient
6. Unconscious Patient

Acute clinical presentations (PGY1-5)

1- Abdominal Pain including loin pain
2- Abdominal Swelling, Mass &Constipation
3- Acute back pain
4- Aggressive/disturbed behavior
5- Alcohol and substance abuse
6- Blackout/Collapse
7- Anal pain and rectal bleeding
8- Breathlessness
9- Chest Pain
10- Confusion, Acute/Delirium
11- Cough
12- Cyanosis
13- Diarrhoea
14- Dental emergencies
15- Dialysis
16- Dizziness and Vertigo
17- Environmental emergencies
18- Epistaxis
19- Falls
20- Fever
21- Fits / Seizure
22- Haematemesis & Melaena
23- Headache
24- Head Injury

25- Jaundice
26- Joint swelling - atraumatic
27- Limb pain and swelling - traumatic and atraumatic
28- Major Incident management
29- Mental health
30- Neck pain
31- Oncology emergencies
32- Observational Medicine
33- Oliguric patient
34- Pain management
35- Palpitations
36- Penile conditions
37- Poisoning
38- Pre-hospital care
39- Pregnancy
40- Painful ear
41- Pelvic pain
42- Life-threatening rashes
43- Red eye
44- Sore throat
45- Syncope and pre-syncope
46- Sexual assault
47- Sexually transmitted disease
48- Traumatic limb and joint injuries
49- Visual loss

50- Vaginal bleeding
51- Vomiting and Nausea
52- Weakness and Paralysis
53- Weakness not due to stroke
54- Wound assessment and management
55- Complex older patients
56- The patient with chronic disease

Additional Acute clinical Presentations (PGY-3-4)

1. Major trauma - Chest Injuries
2. Major trauma - Abdominal trauma
3. Major trauma -Spine
4. Major trauma - Maxillofacial
5. Major trauma – Burns
6. Traumatic limb and joint injuries - Lower limb
7. Traumatic limb and joint injuries - Upper limb
8. Interpretation of abnormal blood gas results in the Emergency Department
9. Abnormal blood glucose
10. Dysuria
11. Emergency airway care
12. Needle stick injury
13. Testicular pain
14. Urinary retention

MAJOR EMERGENCY PRESENTATIONS

1- Anaphylaxis

The trainee will be able to identify patients with anaphylactic shock, assess their clinical state, produce a list of appropriate differential diagnoses, initiate immediate resuscitation and management and organize further investigations				
LOC			**Teaching and Learning Strategy**	**Assessment**
	Residency year 1-2	**PGY 3-5**		
Knowledge	Identify physiological perturbations causing anaphylactic shock	Recognizes the common causes of anaphylaxis from drugs and fluids prescribed in the ED - e.g. n- acetylcysteine, gelofusin.	Didactic lecture, SDL, BST	E, C, Mi, ACAT, ESLE
	Recognize clinical manifestations of anaphylactic shock	Recognizes the modifying effect of medication on the presentation and response to therapies		
	Elucidate causes of anaphylactic shock	Define follow-up pathways after acute resuscitation		
	Know anaphylaxis guidelines			
Skills	Recognize clinical consequences of acute anaphylaxis	Recognizes that patients should be monitored and looks for the rebound phenomenon	BST, SDL, SGD, ST	
	Perform immediate physical assessment (laryngeal oedema, bronchospasm,	Order, interpret and act on initial investigations (tryptase, C1 esterase inhibitor etc.)		

	hypotension)			
	Institute resuscitation (adrenaline/epinephrine), oxygen,IV access, fluids)	Be an ALS provider		Mi, C, D, S L
	Arrange monitoring of relevant indices			
Behavior	Exhibit a calm and methodical approach	Ensures patient instructed in the use of the epipen and follow-up by allergy specialist	WS, SDL, ST, BST	ACAT, C, Mi, S, ESLE
	Adopt leadership role where appropriate			
	Involve senior and specialist allergy services promptly			

2- Cardio-Respiratory Arrest

The trainee will have full competence in the assessment and resuscitation of the patient who has suffered a cardio-respiratory arrest, as defined by the UK Resuscitation Council				
LOC			**Teaching and Learning Strategies**	**Assessment**
	Residency year 1-2	**Residency year 3-5**		
Knowledge	Demonstrate knowledge of the causes of cardiac arrest including special situations, e.g. hypothermia, trauma, overdose Be able to identify and correct reversible causes. Demonstrate knowledge of the outcomes of pre-hospital and in-hospital arrest	Demonstrates increasing knowledge of the causes and management of cardiac arrest Become increasingly familiar with rarer causes of cardiac arrest e.g. hypothermia, drug-induced, drowning, asthma	WS, Didactic lecture	E, C, Mi, ACAT
	Demonstrate familiarity with the ALS andAPLS algorithms and pharmacology	Specifically knows the management of the pregnant patient- positioning and role of peri-mortem C-section		
	Outline indication and safe delivery of drugs used asper ALS and APLS algorithms			
	Know how to manage the patient post- arrest with ROSC Be able to diagnose and treat peri-arrest arrhythmias and know the indication, contraindications and side effects of the drugs used			

	Know of tissue and organ donation			
Skills	Rapidly assess the collapsed patient in terms of ABC, airway, breathing and circulation	Can lead and manage a cardiac arrest team Is able to make sensible end-of-life decisions	ST, WS, SEP,	Mi, D, L M, ESLE
	Perform basic life support competently: effective chest compressions, airway manoeuvres, bag and mask ventilation	Works effectively with others (both pre-hospital and in hospital) to ensure the ongoing care of survivors - with Intensive Care Medicine		
	Competently perform further steps in advanced life support: IV drugs; safe DC shocks when indicated; central line insertion, external pacing, endotracheal drug administration, identification and rectification of reversible causes of cardiac arrest	Can manage the airway, ventilation, sedation and paralysis of patients with return of spontaneous circulation		
	Break bad news appropriately (see generic curriculum)	Can approach the issue of organ donation sensitively		
Behavior	Recognize and intervene in critical illness promptly to prevent cardiac arrest (e.g. peri-arrest arrhythmias, hypoxia)	Can break bad news effectively, handling the spectrum of possible responses	WS, SDL, ST	ACAT, AA, C, Mi, ESLE
	Maintain safety of environment for patient and health workers			

	Hold a valid ALS certificate (MANDATORYREQUIREMENT)			
	Demonstrate ability to work in a team and succinctly present clinical details of situation to senior doctor			
	Demonstrate ability to consult with a senior, seek an aesthetic team support and to act as the patient's advocate when continued Intensive Care Medicine input is needed			
	Recognize importance of sensitively breaking bad news to family			

3-Major trauma Resuscitation

To assess the trauma victim using a systematic prioritized approach, be able to resuscitate, identifying life-threatening conditions and stabilize the patient				
LOC			**Teaching and Learning Strategies**	**Assessment**
	Residency year 1-2	**Residency year 3-5**		
Knowledge	Be able to perform and interpret the primary and secondary survey	Understand and be able to apply the principles of hypotensive resuscitation	WS, ST, SDL,	E, Mi, C, ACAT,ESLE ,L
	Undertake emergency airway management including how to perform a cricothyroidotomy and protect the cervical spine	Be expert in the interpretation of plain radiology as it relates to trauma		
	Know how to establish IV access including intra-osseous, central venous access and arterial pressure monitoring	Know the role of angiography		
	Be able to identify life-threatening injury especially thoracic and abdominal trauma and know how to undertake needle thoracocentesis and intercostal drain insertion To identify those with aortic injury, diaphragmatic rupture and pulmonary contusion, myocardial contusion, oesophageal rupture, tracheo-bronchial	Be familiar with more problematic trauma presentations e.g. compartment syndrome in the unconscious patient, coagulopathy		

	injury, rib and sternal fracture			
	Be able to recognize and manage hypovolaemic shock	Be proficient in the use of FAST		
	Understand the uses of peritoneal lavage and FAST scanning	Understand trauma in pregnancy - how trauma and pregnancy impact on one another		
	Know the principles of management of head injury and the mechanism and effects of raised intracranial pressure, and methods of preventing secondary brain injury	Resuscitative thoracotomy - know the indications and contraindications		
	Know the principles of anaesthesia in the presence of head injury and major trauma			
	Know the initial management of cervical spine injury			
Skills	Be able to assess and immediately manage a trauma patient: perform and interpret primary and secondary survey	Resuscitative thoracotomy - should be able to describe how it Should be undertaken. A CCT holder who will be working in a center without cardiothoracic expertise should acquire this skill e.g. simulation course	WS, ST, SDL	Mi, C, D, S, ELSE ,L
	Provide emergency airway management oxygen therapy and ventilation			

	Be part of the airway team undertaking rapid sequence induction of the injured patient.			
	Be able to provide cervical spine immobilization and logrolling.			
	Assess and manage hypovolaemic shock. Be able to cannulate major vessel for resuscitation and monitoring.			
	Be able to assess the patient using the Glasgow ComaScore			
	Undertake needle thoracocentesis and intercostal drain insertion. Be able to identify and treat tension pneumothorax			
	Undertake initial appropriate investigations e.g. x-match chest x-ray, and be able to interpret them			
	To provide pain relief for the trauma victim			
	Be able to undertake safe urinary catheterization and NGtube insertion			
Behavior	Prompt attendance; focus on resuscitation and life- threatening conditions, good communication and teamwork	Be able to lead trauma teams (with varied membership) and provide clear focus and prioritization for the resuscitation	WS, ST, SDL	Mi, C, ELSE, ACAT, L
	Exhibit a calm methodical approach and be able to prioritize care			

	Adopt leadership role where appropriate and be able to take over when appropriate			
	Involve senior and specialist services early for those patients with life-or-limb threatening injuries			

4- Septic Patient

The trainee will have full competence in the assessment and resuscitation of the patient presenting with severe sepsis or septic shock				
LOC			**Teaching and Learning Strategies**	**Assessment**
	Residency year 1-2	**Residency year 3-5**		
Knowledge	Demonstrate knowledge of the definitions of the systemic inflammatory response syndrome (SIRS), severe sepsis and septic shock Knowledge of the outcomes of SIRS, septic shockand multiple organ failure		DIDACTIC LECTURE, SDL, ST	E, C, Mi, ACAT
	Knowledge of common gram negative and gram positive organisms producing sepsis. Knowledge of special situations not limited to but including infection with: Toxin producing bacteria Invasive Group A Streptococcus			

	Fungal organisms			
	List components of current “care bundles” (e.g. The Surviving Sepsis Campaign 6 hour bundle)			
	Outline indication and safe delivery of fluids and vasoactive drugs to hemodynamic endpoints Understanding of Early Goal Directed Therapy			
	Demonstrate knowledge of first line empiric antibiotic therapy for common sepsis presentations. Understanding of the hospital antimicrobial formulary.			
	Knowledge of the pharmacology and rationale for the use of: Vasoactive drugs used in sepsis Adjunctive drugs used in sepsis			
	Knowledge of ventilatory strategies used in septic shock including lung protective ventilation			
	Understanding of the use of renal replacement therapies in sepsis and septic shock			

Skills	Rapidly assesses the shocked patient in terms of ABC,airway, breathing and circulation		DIDACTIC LECTURE, SDL, ST	Mi, C, S, D, L
	Administers oxygen, establishes intravenous access, takes blood cultures and administers antibiotics and intravenous fluids in accordance with 6 hour sepsis bundle			
	Competently performs further steps in resuscitation: arterial and central line insertion: drug assisted endotracheal intubation and safe selection of initial ventilator settings			
	Organizes and interprets initial investigations: ▪ Arterial blood gases ▪ Lactate ▪ Central venous oxygen saturation Organizes microbiological investigations not limited to but including relevant cultures, blood cultures and urinary antigens			
	Break bad news appropriately (seecommon competences curriculum)			

Behavior	Recognize and intervene in critical illness promptly to prevent deterioration and the development of multiple organ failure		DIDACTIC LECTURE, SDL, ST	ACAT, C, Mi
	Maintain safety of environment for patient and health workers			
	Demonstrate ability to work in a team and succinctly present clinical details of situation to senior doctor			
	Demonstrate ability to consult with a senior, seek anaesthetic team support in airway management and liaise with parent team and with microbiologists			
	Recognize importance of sensitively breaking bad news to family			

5-Shocked Patient

The trainee will be able to identify a shocked patient, assess their clinical state, produce a list of appropriate differential diagnoses and initiate immediate management				
LOC			**Teaching and Learning Strategies**	**Assessment**
	Residency year 1-2	**Residency year 3-5**		
Knowledge	Identify physiological perturbations that define shock and understand the patho-physiology of itscause	Know the causes, initial investigation and treatment of the rarer causes of shock e.g. neurogenic, adrenal failure, tamponade	DIDACTIC LECTURE, SDL, ST	E, C, Mi, ACAT, ESLE
	Identify principal categories of shock	Be able to identify and initially manage the patient presenting in cardiogenic shock secondary to myocardial infarction, massive PE, aortic dissection or valve rupture.		
	Elucidate main causes of shock in each category (e.g.MI, heart failure, PE, blood loss, sepsis)	Know the role of imaging including echo and CT		
	Demonstrate knowledge of sepsis syndromes	Know the indications and contraindications for thrombolysis, angioplasty and surgery		
	Demonstrate a knowledge of the roles and the different types of monitoring required for the shocked patient	Knows the role of ultrasound in the evaluation of the shocked patient		
	Understand the role of imaging in the diagnosis of shock			

	e.g. FAST scan, CT etc. and be able to interpret the fundamentals of this imaging			
	Demonstrate a knowledge of the different fluids and drugs e.g. inotropes used in the treatment of shock			
Skills	Recognize significance of major physiological perturbations	Increasing expertise in therapies beyond initial resuscitation e.g. vasoactive support for the patient in septic shock.	DIDACTIC LECTURE, SDL, ST	Mi, C, D, ELSE, L
	Perform immediate (physical) assessment (A,B,C)	Able to gain venous access in the sickest of patients including the use of intraosseous access in adults		
	Institute immediate, simple resuscitation (oxygen, iv access, fluid resuscitation)			
	Arrange simple monitoring of relevant indices (oximetry, arterial gas analysis) and vital signs (BP, pulse &respiratory rate, temp, urine output)			
	To be able to gain vascular access in the shocked patient, including central venous (using ultrasound), arterial line, intra-osseous and cut down techniques			
	Order, interpret and act on initial investigations appropriately: ECG, blood cultures, blood count, electrolytes, CVP measurements			

	Recognition of the need for urgent surgical intervention			
Behavior	Exhibit calm and methodical approach to assessing the critically ill patient	Able to gain venous access in the sickest of patients	DIDACTIC LECTURE, SDL, ST	Mi, C, ELSE, ACAT, M
	Adopt leadership role where appropriate			
	Involve senior and specialist (e.g. Intensive Care Medicine outreach) services promptly			

6- Unconscious Patient

The trainee will be able to promptly assess the unconscious patient to produce a differential diagnosis, establish safe monitoring, investigate appropriately and formulate an initial management plan, including recognizing situations in which emergency specialist investigation or referral is required				
LOC			**Teaching and Learning Strategies**	**Assessment**
	Residency year 1-2	**Residency year 3-5**		
Knowledge	Identify the principal causes of unconsciousness (metabolic, neurological)	Knows how to identify the patient with raised ICP and the initial management within the Emergency Department	DIDACTIC LECTURE, SDL, ST, SGD	E, Mi, C, ACAT,ESLE
	Recognize the principal sub-causes (drugs, hypoglycaemia, hypoxia; trauma, infection, vascular, epilepsy, raised intra-cranial pressure, reduced cerebral blood flow, endocrine)	Knows how to manage the patient who presents with a blocked shunt		
	List appropriate investigations for each			
	Outline immediate management options			
Skills	Make a rapid and immediate assessment including examination of coverings of nervous system (head, neck, spine) and Glasgow Coma Score	Is able to identify and manage those patients with more than one cause for reduced level of consciousness e.g. alcohol plus head injury	DIDACTIC LECTURE, SDL, ST,SGD	Mi, C, D, ESLE

	Initiate appropriate immediate management (A,B,C, cervical collar, administer glucose)	Be able to maintain the airway of the unconscious patient and be part of the team that undertakes intubation		
	Take simple history from witnesses when patient has stabilized			
	Prioritise, order, interpret and act on simple investigations appropriately			
	Initiate early (critical) management (e.g. control fits, manage poisoning) including requesting safe monitoring			
Behavior	Recognize need for immediate assessment and resuscitation	Knows when to ask for help and able to refer patient to Intensive Care Medicine	DIDACTIC LECTURE, SDL, ST,SGD	ACAT, C, Mi, ESLE
	Assume leadership role where appropriate			
	Involve appropriate specialists to facilitate immediate assessment and management (e.g. imaging, intensive care, neurosurgeons)			

ACUTE PRESENTATIONS

1- Abdominal Pain including loin pain

The trainee will be able to assess a patient presenting with abdominal pain and loin pain to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	Residency year 1-2	**PGY 3-5**		
Knowledge	To outline the different classes of abdominal pain and how the history and clinical findings differ between the causes	Know the atypical presentations of abdominal pain modified by age, disease or drugs	BST, SGD, SDL	E, C, Mi, ACAT, ESLE
	To identify the possible surgical causes of abdominal pain, depending on site, details of history, acute or chronic including but not limited to peptic ulcer disease, pancreatitis, cholecystitis, cholangitis, biliary colic, bowel obstruction, diverticular disease, viscus perforation, acute appendicitis and ischaemic colitis, AAA, hernias, renal calculi, pyelonephritis, chronic inflammatory bowel disease, and volvulus	Know the medical causes of abdominal pain		
	Know the common and serious causes of loin pain including renal colic, infection and obstruction of the urinary tract, abdominal aortic aneurysm	Know the limitations of the physical exam and tests in determining the presence of serious causes of abdominal pain		

	Know the medical causes of abdominal pain			
	To define the situations in which urgent surgical, urological or gynecological opinion should be sought			
	Determine which first-line investigations are required, depending on the likely diagnoses following evaluation using ECG, plain radiology, CT, ultrasound and blood tests.			
	Define the indications and contraindications for specialist investigation: ultrasound, CT, CT KUB, MRI,endoscopy, and IVU			
Skills	To have an A, B, C, D approach ensuring identification of critical or life-threatening illness	Be able to perform detailed assessment of the abdomen in a wide variety of patients and recognize the seriously ill or potentially seriously ill patient	BST, SGD, ST	Mi, C, D, ESLE
	Elicit signs of tenderness, guarding, and rebound tenderness and interpret appropriately	Be able to correctly identify the patient with a medical cause of abdominal pain		
	Order, interpret and act on initial investigations appropriately: blood tests, x-rays, ECG and microbiology investigations	Be able to undertake U/S for the detection of AAA		

	Initiate first-line management: g including effective fluid resuscitation, , pain relief a antibiotics and appropriate use of nasogastric tube			
	Interpret gross pathology on CT, CT KUB, IVU,including liver metastases and obstructed ureters with hydronephrosis			
	Be able to identify those that require admission and those who may be safely discharged			
Behavior	In conjunction with senior and appropriate specialists, exhibit timely intervention when abdominal pain is the manifestation of critical illness or is life-threatening,	Ensures prompt pain relief, and effective liaison within-patient teams	WS, BST, SGD	ACAT, C, Mi, M, Mi, C, ESLE
	Recognize the importance of a multi-disciplinary approach including early surgical/urological assessment when appropriate			
	Display sympathy to physical and mental responses to pain			
	Involve other specialties promptly when required			

2- Abdominal Swelling, Mass &Constipation

The trainee will be able to undertake assessment of a patient presenting with abdominal swelling, mass or constipation to producea valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	Residency year 1-2	**Residency year 3-5**		
Knowledge	Define the different types of abdominal mass in terms of site, etiology and clinical characteristics	Recall abdominal wall pathology as possible causes of distension, including divarification of the recti	BST, SGD, SDL	E, C, Mi, ACAT
	Recall the preponderance of functional causes of constipation including constipation with overflow and the investigation and management of faecal incontinence	Know the pathophysiology of portal hypertension and bowel obstruction		
	Describe the appropriate investigations- radiologic,surgical, endoscopy	Know the important steps in diagnosing the cause of ascites, including imaging and the diagnosis of spontaneous bacterial peritonitis and malignancy		
	Identify the causes of hepatomegaly and splenomegaly, abdominal swelling and constipation			

Skills	Elicit associated symptoms and risk factors for the presence of diseases presenting with abdominal mass, ascites and co-existing signs. Elicit and interpret important physical findings to establish likely nature	Select appropriate second-line investigations of constipation when indicated: including blood tests imaging and endoscopy	BST, SGD, ST	Mi, C, D
	Order and interpret appropriate diagnostic tests	Following diagnosis of the cause of constipation prescribe bulk or osmotic laxatives or motility stimulants as necessary		
	Practice safe management of ascites: including the use of diuretics, fluid and salt restriction, and ascitic tap	Provide review of medications in patients with constipation in the context of multi-system disease		
Behavior	Involve specialists promptly when appropriate: surgery, gastroenterology, radiology, palliative care	Involve specialists promptly when appropriate: surgery, gastroenterology, radiology, palliative care	WS, BST, ST	ACAT, C, Mi
	Discuss with patient likely outcomes and prognosis of condition	Discuss with patient likely outcomes and prognosis of condition		

3- Acute back pain

The trainee will be able to assess a patient with a new presentation of back pain to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**Residency year 3-5**		
Knowledge	Know the causes of acute back pain including but not limited to – malignant, septic, musculoskeletal,urological,neurological, AAA Be able to outline features that raise concerns as to cause (red flags) and those that lead to a consideration of chronic causes (yellow flags) Understand and recognize the cauda equina syndrome	Know the life-threatening causes of back pain- AAA,aortic dissection	BST, SGD, ST	E, C, Mi, ACAT, ESLE
	Specify abdominal pathology that may present with back pain	Know the symptoms and signs of early cauda equina syndrome		
	Recall the indications of an urgent MRI of spine	Know the indications for surgical referral and MRI scan		
	Outline indications for hospital admission	Know how to screen for osteoporosis and therapies for collapsed vertebrae		
	Outline secondary prevention measures in osteoporosis			

	Outline secondary prevention measures in osteoporosis			
Skills	Perform examination and elicit signs of spinal cord/caudaequina compromise	Becomes more expert at the 'grey' cases	BST, ST, SGD	Mi, C, D, ESLE
	Practice safe prescribing of analgesics/anxiolytics to provide symptomatic relief	Manages those that need multi-specialty input e.g.back pain due to spinal secondaries		
	Order, interpret and act on initial investigations appropriately: blood tests and x-rays	Be able to relieve back pain effectively		
Behavior	Involve neurosurgical unit promptly in event of neurological symptoms or signs	To act as the patient's advocate – seeking appropriate investigations, and effective pain relief with the help of in-patient teams	BST, SGD	ACAT, C, Mi, ESLE
	Ask for senior help when critical abdominal pathology is suspected			
	Recognize the socio-economic impact of chronic lower back pain			
	Participate in multi-disciplinary approach: physio, OT			
	Recognize impact of osteoporosis and encourage bone protection in all patients at risk			

4- Aggressive/disturbed behavior

The trainee will be competent in predicting and preventing aggressive and disturbed behavior, use safe physical restraint and chemical sedation, investigate appropriately and liaise with the mental health team.				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**Residency year 3-5**		
Knowledge	Know the factors that predict aggressive behavior: personal history, alcohol and substance abuse, delirium	Know the indications, contraindications and side effects of tranquillizers	WS, SGD, ST,SDL	E, C, Mi, ACAT
	Define and characterize psychosis and know the common causes	Know the legal framework for authorizing interventions in the management of the disturbed or violent patient		
	Know the indications, contraindications and side effects of tranquillizers	Know de-escalation techniques that can be used to prevent violent behavior		
	Know the legal framework for authorizing interventions in the management of the disturbed or violent patient			
	Know de-escalation techniques that can be used to prevent violent behavior			
Skills	Assess fully including mental state examination & produce valid differential	Assess fully including mental state examination & produce valid differential	BST, ST	Mi, C, D

	diagnosis	diagnosis		
	Undertake and interpret appropriate investigations	Undertake and interpret appropriate investigations		
	Produce safe rapid tranquillization if indicated as defined in national guidelines with appropriate monitoring	Produce safe rapid tranquillization if indicated as defined in national guidelines with appropriate monitoring		
Behavior	Treat acutely disturbed patient with respect and dignity	Treat acutely disturbed patient with respect and dignity	ST, WS	ACAT, M
	Liaise promptly with psychiatric services	Liaise promptly with psychiatric services		

5- Alcohol and substance abuse

The trainee will be able to assess the patient with alcohol/substance abuse to produce a valid differential diagnosis, investigate appropriately, and formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**Residency year 3-5**		
Knowledge	Know the presentations of alcoholism and substance abuse as they present to the ED, how this impacts on assessment and appropriate investigations	Know interventions that can reduce alcohol consumption that can be used in the ED	SDG, SDL	E, Mi, C, ACAT,ESLE
		Know how to manage alcohol withdrawal, prescription of vitamins		
		Recognize, treat and prevent Wernicke Korsakoff syndrome		
Skills	Recognize co-existence of psychiatric disease	Care beyond the ED	BST, ST,SDL	Mi, C, ESLE
Behavior	Sympathetic and non-judgemental	Knows when to refer and how to follow-up	WS, ST	Mi, C, ESLE

6- Blackout/Collapse

The trainee will be able to assess a patient presenting with a collapse to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan (see also 'Syncope' and 'Falls')				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**Residency year 3-5**		
Knowledge	Recall the causes for blackout and collapse (including syncopal causes vaso-vagal, cough, effort, micturition, carotid sinus hypersensitivity).	Knows how to risk stratify the syncopal patient and the role of investigations	BST, SGD, ST, SDL	E, C, Mi, ACAT, ESLE
	Differentiate the causes depending on the situation of blackout +/or collapse, associated symptoms and signs, and eye-witness reports	Know which patients to refer for further testing (beyond the ED)		
	Outline the indications for temporary and permanent pacing systems	Know the DVLA recommendations		
	Define indications for investigations: ECHO, ambulatory ECG monitoring, neuro-imaging	Understand pacemakers and their failure		
Skills	Elucidate history to establish whether event was LOC, fall without LOC, vertigo (with eye-witness account if possible)	Identify the cause of syncope focusing on the life-threatening causes	ST, BST	Mi, C, D ESLE

	Assess patient in terms of ABC and level of consciousness and manage appropriately			
	Perform examination to elicit signs of cardiovascular or neurological disease and to distinguish epileptic disorder from other causes			
	Order, interpret and act on initial investigations appropriately: ECG, blood tests Inc. glucose, brain imaging (CT and MRI)			
	Manage arrhythmias appropriately as per ALS guidelines			
	Detect orthostatic hypotension			
	Institute external pacing systems when appropriate			
Behavior	Ensure the follow-up pathways for these patients e.g. Syncope clinics, falls clinics	Recognize the special needs of the elderly and the need for liaison with other specialists - cardiology, neurology, care of the older patient	SDL, ST, BST	E, Mi, C, ACAT,ESLE
	Recognize impact episodes can have on lifestyle particularly in the elderly			
	Recognize recommendations regarding fitness to drive in relation to undiagnosed blackouts			

7- Anal pain and rectal bleeding

The trainee will be able to evaluate the patient who presents with anal pain and or rectal bleeding and produce a valid differential diagnosis, appropriate investigation and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know the causes of anal pain – thrombosed haemorrhoids (internal and external), anal fissure, ano-rectal abscess, pilonidal abscess and rectal prolapse	Know the causes of anal pain – thrombosed haemorrhoids (internal and external), anal fissure, ano- rectal abscess, pilonidal abscess and rectal prolapse	SDL, SGD	E, Mi, C, ACAT,ESLE
	Know the causes of lower GI and rectal bleeding e.g. haemorrhoids/ fistulae, tumour, colitis	Know the causes of lower GI and rectal bleeding e.g. haemorrhoids/ fistulae, tumour, colitis		
Skills	Undertake thorough physical examination including rectal	Undertake thorough physical examination including rectal	BST, ST	Mi, C, D, ESLE
		Identify those patients who need admission and those that can be managed with outpatient follow-up		

Behavior	Sensitive and sympathy	Sensitive and sympathy	WS,BST	Mi, C, ESLE

8- Breathlessness

The trainee will be able to assess a patient presenting with breathlessness to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Recall the common and/or important cardio-respiratory conditions that present with breathlessness	Know the rarer causes of breathlessness, including aspiration and tracheostomy occlusion, pleural effusion, inhalational injury from chemical and physical irritants, foreign body inhalation	BST, SDG, SDL, ST	E, Mi, C, ACAT,ESLE
	Differentiate orthopnoea and paroxysmal nocturnal dyspnoea	Know the indications and contraindications for invasive and non-invasive ventilation (and its different types)		
	Identify non-cardio-respiratory factors that can contribute to or present with breathlessness e.g. acidosis	Know how to diagnose and manage massive PE with the aid of echo and CT		

	Define basic patho-physiology of breathlessness			
	List the causes of wheeze and stridor			
	Demonstrate knowledge of the indications, contraindications and adverse effects of the drugs used to treat the causes of breathlessness			
	Outline indications for CT chest, CT pulmonary angiography, spirometry			
Skills	Interpret history and clinical signs to list appropriate differential diagnoses: including but not limited to pneumonia, COPD, PE, pulmonary oedema, pneumothorax, asthma. Know the relevant BTS guidelines for these conditions	Be able to look after seriously unwell asthmatic and COPD patients, and escalate care	BST, ST,	Mi, C, ESLE
	Differentiate between stridor and wheeze	Be able to formulate an accurate prognosis to determine the level of care needed		
	Order, interpret and act on initial investigations appropriately: routine blood tests, oxygen saturation, arterial blood gases, chest x-rays, ECG, peak flow, spirometry	Be able to initiate appropriate palliative management when appropriate		

	Initiate treatment in relation to diagnosis, including safe oxygen therapy, early antibiotics for pneumonia			
	Perform pleural aspiration and chest drain insertion			
	Recognize disproportionate dyspnoea and hyperventilation			
	Practice appropriate management of wheeze and stridor			
	Evaluate and advise on good inhaler technique			
	Recognize indications & contraindications for non- invasive ventilation (NIV), and the indications and contraindications for intubation and invasive ventilator support			
Behavior	Exhibit timely assessment and treatment in the acute phase	Recognize and relate prognosis to patient and carers	WS, ST, BST	ACAT, Mi, C, ESLE
	Recognize the distress caused by breathlessness and discuss with patient and carers	Involve other specialty teams as appropriate- ICM,cardiology, respiratory		
	Recognize the impact of long term illness			
	Consult senior when respiratory distress is evident			
	Involve Intensive Care Medicine team promptly when indicated and recognize the			

	need for care in an appropriate environment			
	Exhibit non-judgemental attitudes to patients with a smoking history			

9- Chest Pain

The trainee will be able to assess a patient with chest pain to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Characterize the different types of chest pain, and outline other symptoms that may be present	Be able to risk stratify chest pain patients accurately	SGD, SDL, WS	E, C, Mi, ACAT
	List and distinguish between the common causes for each category of chest pain and associated features: cardio-respiratory, musculoskeletal, upper GI	Understand the role of echocardiography in the patient with chest pain e.g. aortic dissection, PE, tamponade		
	Define the pathophysiology of acute coronary syndrome and pulmonary embolus			
	Identify the indications for PPCI and thrombolysis in ACS			
	Identify the indications and limitations of cardiac			

	biomarkers, d-dimer analysis, CTPA and V/Q scanning			
	Know emergency treatments for PE, ACS and aortic dissection			
	Outline the indications for further investigation in chest pain syndromes: CTPA, trans-oesophageal echocardiography and tread mill (stress) testing			
Skills	Interpret history and clinical signs to list appropriate differential diagnoses: especially for cardiac pain &pleuritic pain	Be able to investigate and care for low risk patients in a clinical decision unit/observation ward	BST, SGD, ST,WS	ACAT, C, AA Mi, C, D
	Order, interpret and act on initial investigations in the context of chest pain appropriately: such as ECG, blood gas analysis, blood tests, chest radiograph, cardiac biomarkers	Be able to plan further investigation as an out-patient		
	Commence initial emergency treatment including that for coronary syndromes, pulmonary embolus and aortic dissection			
	Elect appropriate arena of care and degree of monitoring			
	Formulate initial discharge plan			

Behavior	Perform timely assessment and treatment of patients presenting with chest pain	Is able to safely discharge with appropriate follow-up	WS, BST, ST, SDL	ACAT, C, M
	Involve senior when chest pain heralds critical illness or when cause of chest pain is unclear			
	Recognize the contribution and expertise of specialist cardiology nurses and technicians			
	Recommend appropriate secondary prevention treatments and lifestyle changes on discharge			
	Communicate in a timely and thoughtful way with patients and relatives			

10- Confusion, Acute/Delirium

The trainee will be able to assess an acutely confused/delirious patient to formulate a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	List the common and serious causes for acute confusion/delirium	Recognize the factors that can exacerbate acute confusion/delirium e.g. change in environment, infection	SGD, SDL	E, C, Mi, ACAT
	Outline important initial investigations, including electrolytes, cultures, full blood count, ECG, blood gases, thyroid function tests	List the pre-existing factors that pre-dispose to acute confusion/delirium		
		Outline indications for further investigation including head CT, lumbar puncture Describe the indications, contraindications and side effects of drugs used in acute psychosis including, but not limited to: haloperidol, benzodiazepines, clonidine		
Skills	Examine to elicit cause of acute confusion/delirium	Recognize pre-disposing factors: cognitive impairment, psychiatric disease	BST, ST, SGD	Mi, C, D
	Perform mental state examinations (abbreviated mental test and mini-mental test	Understand and act on the results of initial investigations		

	and Confusional Assessment Method for ICU (CAM-ICU)) to assess severity and progress of cognitive impairment	e.g. CT head, LP		
		Interpret and recognize pathology evident on CT head/MRI Brain		
Behavior	Recognize that the cause of acute confusion/delirium is often multi-factorial	Contributes to multidisciplinary team management including appropriate use of local physical restraint policy	ST, BST	ACAT, C, M
		Recognize the effects of acutely confused/delirious patient on other patients and staff in the ward environment		

11- Cough

The trainee will be able to assess a patient presenting with cough to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Know	List the common and serious causes of cough	Outline the different classes of cough and how the history and clinical findings differ between them	SGD, SDL	E, C, Mi, ACAT

	Identify risk factors relevant to each etiology including precipitating drugs	State which first line investigations are required, depending on the likely diagnoses following evaluation		
	Outline the different classes of cough and how the history and clinical findings differ between them			
	State which first line investigations are required, depending on the likely diagnoses following evaluation			
Skills	Order, interpret and act on initial investigations appropriately: blood tests, chest x-ray and PFTs	Order, interpret and act on initial investigations appropriately: blood tests, chest x-ray and PFTs	ST, BST,	E, C
	Awareness of management for common causes of cough	Awareness of management for common causes of cough		
Behavior	Contribute to patient's understanding of their illness	Consult seniors promptly when indicated	ST, SDL,WS	ACAT, C, M
	Exhibit non-judgmental attitudes to patients with a history of smoking	Recognize the importance of a multi-disciplinary approach		
	Consult seniors promptly when indicated			
	Recognize the importance of a multi-disciplinary approach			

12- Cyanosis

The trainee will be able to assess a patient presenting with cyanosis to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know the causes of cyanosis, cardiac & respiratory	Know how to formulate a differential diagnosis and be able to differentiate from methaemoglobinaemia	BST, SDL, SGD	E, C, Mi, ACAT
Skills	Perform a full clinical examination differentiating between the various causes of cyanosis	Be able to perform and interpret the appropriate tests, e.g. x-rays and ECG	BST, ST	E, C, D
	Be able to perform and interpret the appropriate tests, e.g. x-rays and ECG	Understand the safe prescribing of oxygen therapy		
	Understand the safe prescribing of oxygen therapy			

Behavior	Involve senior promptly in event of significant airway compromise	Involve senior promptly in event of significant airway compromise	BST, WS	ACAT, C
	Involve specialist team as appropriate	Involve specialist team as appropriate		

13- Diarrhoea

The trainee will be able to assess a patient presenting with diarrhea to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Specify the causes of diarrhea		SGD, SDL,	E, C, Mi, ACAT
	Correlate presentation with other symptoms: such as abdominal pain, rectal bleeding, weight loss			
	Recall the pathophysiology of diarrhea to reach etiology			
	Describe the investigations necessary to arrive at a diagnosis			
	Identify the indications for urgent surgical review in patients presenting with diarrhea			

	Recall the presentation, investigations, prevention and treatment of C. difficile-associated diarrhea			
	Demonstrate knowledge of infection control procedures Demonstrate knowledge of bowel management			
Skills	Evaluate nutritional and hydration status of the patient		BST, ST, SGD	Mi, C, D
	Assess whether patient requires hospital admission			
	Perform rectal examination as part of physical examination			
	Initiate and interpret investigations: blood tests, stool examination, endoscopy and radiology as appropriate (AXR and CT – intestinal obstruction, toxic dilatation)			
Behavior	Seek a surgical and senior opinion when required		WS, BST,ST	ACAT, C
	Exhibit sympathy and empathy when considering the distress associated with diarrhea and incontinence			

14- Dental emergencies

The trainee will be able to evaluate the patient who presents with dental pain including dental trauma, produce a valid differential diagnosis, appropriate investigation and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the presentation of dental abscess, dental fractures, including teeth avulsion and post-extraction complications and TMJ dislocation	SGD, SDL	E, Mi, C, ACAT,ESLE
Skills		Be able to replace and temporarily splint avulsed permanent teeth	BST,ST,SGD	Mi, C, D, ESLE
		Identify those who require immediate referral for drainage of dental abscess		
		Be able to relieve pain by the use of local anaesthetic dental block		
Behavior		Ensure appropriate follow-up	ST, BST	Mi, C, ESLE

15- Dialysis

The trainee will be able to evaluate the patient who presents on dialysis who is unwell and produce a valid differential diagnosis, appropriate investigation and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Indications for urgent dialysis - hyperkalaemia, pulmonary oedema, fluid overload	Know the different types of dialysis and their complications	SDL, SGD	E, Mi, C, ACAT,ESLE
		Recognition of sepsis in these patients		
		Know the consequences of missed dialysis		
Skills	Recognize and treat life-threatening hyperkalaemia and pulmonary oedema	Recognize the need to preserve fistulae and risks of catheter-related sepsis	ST, BST, SDL	Mi, C, D, ESLE
Behavior	Liaise closely with renal physicians/Intensive Care Medicine to establish if emergency dialysis needed	Liaise closely with renal physicians/Intensive Care Medicine to establish if emergency dialysis needed	BST, ST	Mi, C, ESLE

16- Dizziness and Vertigo

The trainee will be able to evaluate the patient who presents with dizziness or vertigo to produce a valid differential diagnosis, appropriate investigation and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know the neuro-anatomy and physiology relevant to balance, coordination and movement		SDL, SGD,	E, C, Mi, ACAT
	Define and differentiate the different types of vertigo & ataxia and their causes			
Skills	Take history from patient and attempt to define complaint as either pre-syncope, dizziness or vertigo	Recognize when to request additional tests such as CT scan	ST, BST, SDL	E, Mi, C, D
	Perform full physical examination to elicit signs of neurological, inner ear or cardiovascular disease including orthostatic hypotension	Know when to use drugs for dizziness and vertigo & understand their limitations and side effects		

Behavior	Recognize patient distress when presenting with dizziness and vertigo	Know when to refer to specialist services such as ENT	SGD, ST	ACAT, C

17- Environmental emergencies

The trainee will be able to evaluate the patient who presents with medical problems that are caused by an environmental emergency, produce a valid differential diagnosis, appropriate investigation and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know how to recognize, investigate and provide emergency treatment to - Heat stroke and heat exhaustion - Drug-related hyperthermias - Electrical burns, electrocution - Industrial chemical incidents - Bites and envenomations typical for the PK	Know how to recognize, investigate and provide emergency treatment to ▪ Hypothermia and frost bite ▪ Electrical burns, electrocution ▪ Decompression sickness ▪ Near-drowning ▪ Radiation exposure and safety ▪ High altitude emergencies - cerebral and pulmonary oedema	SGD, SDL, ST, BST	E, Mi, C, ACAT,ESLE

Skills	Competent enough for management of above mentioned emergencies	Anticipates related complications	BST,ST,SGD	Mi, C, ESLE
Behavior	Knows when to call for help.	Able to work with a number of teams to achieve best patient care	ST, BST	Mi, C, ESLE

18- Epistaxis

The trainee will be able to evaluate the patient who presents with severe epistaxis and be able to control bleeding and establish likely cause				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the causes of epistaxis including traumaand medication	SGD, SDL, SEP	E, Mi, C, ACAT,E, SLE

Skills		Be able to undertake anterior nasal packing /usenasal tampon	BST, ST	Mi, C, D, ESLE
		Be able to use a Foley catheter to stop posteriornasal bleeding		
Behavior		Liaise with appropriate specialists	BST, ST	Mi, C, ESLE

19- Falls

The trainee will be able to assess a patient presenting with a fall and produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan (see also 'Syncope' and' Blackout/Collapse')				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Recall causes of falls and risk factors for falls	Know the causes of falls, and what interventions can help to reduce falls	SGD,SEP, SDL,	E, C, Mi, ACAT ESLE
	Outline a comprehensive assessment of a patient following a fall and give a differential diagnosis	Be able to act upon the pharmacological causes of falls		

	Recall the relationship between falls risk and fractures	Identify those patients with potential life-threatening causes - hypovolemia, and those that will need admission		
	Recall consequences of falls, such as loss of confidence, infection	Be aware of the indications for referral to a falls clinic		
	State how to distinguish between syncope and fall			
Skills	Define the adverse features of a fall, which investigations are needed, and identify those who need admission and those who can be safely discharged with follow-up in a falls clinic	Be able to communicate on falls risk and prevention to patient and their carers	BST, SGD, ST	E, Mi, C ESLE
	Demonstrates awareness of implications of falls and secondary complications of falls, including rhabdomyolysis following a 'long lie'.			
	Commence appropriate treatment including pain relief			
Behavior	Recognize the psychological impact to an older person and their carer after a fall	Work closely with the multi-disciplinary teams within CDUs to ensure safe discharge and follow-up.	BST, ST,	ACAT, C, PS ESLE
	Contribute to the patient's understanding as to the reason for their fall			
	Discuss with seniors promptly and appropriately			
	Ensure appropriate referral to a falls clinic			

	Relate the possible reasons for the fall and the management plan to patient and carers			

20- Fever

The trainee will be able to assess a patient presenting with fever to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Recall the pathophysiology of developing a fever and relevant use of anti-pyretics	To know the common causes of fever presenting to the ED	SGD, SDL, BST, ST	E, C, Mi, ACAT, ESLE
	Recall the underlying causes of Fever, infection,malignancy, inflammation	Be able to investigate the traveller with fever		
	Recall guidelines with regard to antibiotic prophylaxis	Be able to distinguish the common non-travel related causes of fever from infectious causes. Be able to recognize the septic patient ensuring effective management within the ED, including timely antibiotics, fluids and the use of vasoactive drugs		
	Differentiate features of viral and bacterial infection	Be able to recognize the presentation of common infectious		

		diseases		
	Outline indications and contraindications for LP in context of fever			
	Recognition and awareness of management of neutropenic sepsis			
Skills	Recognize the presence of sepsis syndrome in a patient, commence resuscitation and liaise with senior colleagues promptly	Seek specialist advice especially when risk of transmission of serious disease	BST, ST, SGD	E, Mi, C, D, S, ESLE
	Order, interpret and act on initial investigations appropriately: blood tests, cultures, CXR			
	Be able to perform a lumbar puncture and interpret the result of CSF analysis			
	Identify the risk factors in the history that may indicate an infectious disease e.g. travel, sexual history, IV drug use, animal contact, drug therapy, implanted medical devices/prostheses			
	Commence empirical antibiotics when an infective source of fever is deemed likely in accordance with local prescribing policy			
	Commence anti-pyretics as indicated			

Behavior	Adhere to local antibiotic prescribing policies	Follow local and national guidance on notification of communicable diseases	SGD, BST,ST	ACAT, C, AA, ESLE
	Highlight the importance of early cultures and prompt administration of antibiotics.			
	Highlight importance of nosocomial infection and principles for infection control			
	Consult senior in event of septic syndrome			
	Discuss with senior colleagues and follow local guidelines in the management of the immunosuppressed e.g. HIV, neutropenia			
	Promote communicable disease prevention: e.g. immunizations, anti-malarial, safe sexual practices			

21- Fits / Seizure

The trainee will be able to assess a patient presenting with a fit, stabilize promptly, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		

Knowledge	Recall the causes for seizure	Know which patients who have recovered from their seizure need admission and which patients to refer To first seizure clinic	SGD, SDL, BST, ST, SEP	E, C, Mi, ACAT,ESLE
	Recall the common epileptic syndromes	Rapidly identify the patient in status epilepticus and institute prompt further treatment and consider the need for rapid sequence induction and intubation		
	Recall the essential initial investigations following a 'first fit'	Know and recognize the complications of seizures		
	Recall the indications for a CT head			
	Know an algorithm for the management of status epilepticus including the indications for general anaesthesia and airway protection.			
	Describe the indications, contraindications and side effects of the commonly used anti-convulsants			
	Be able to differentiate seizure from pseudo-seizures and other causes of collapse			
Skills	Outline immediate management options in the management of the patient presenting in status epilepticus, including but not limited to: • Resuscitation and treatment	Be able to prescribe anticonvulsants safely	BST, SGD,ST	Mi, C

	• Further investigations • Transfer to an appropriate area of the hospital			
	Obtain collateral history from witness	Escalate care when anaesthesia needed		
	Promptly recognize and treat precipitating causes: metabolic, infective, malignancy, traumatic			
	Be able to differentiate seizure from other causes of collapse using history and examination			
Behavior	Recognize the need for urgent referral in case of the uncontrolled recurrent loss of consciousness or seizures	Provide advice of the impact of seizures On pregnancy, employment and driving	SGD, BST, ST	ACAT, C
	Recognize the principles of safe discharge, after discussion with senior colleague	Recognize the psychological and social consequences of epilepsy		
	Recognize importance of Epilepsy Nurse Specialists			

22- Haematemesis & Melaena

The trainee will be able to assess a patient with an upper GI hemorrhage to determine significance; resuscitate appropriately; and liaise with endoscopist effectively		
LOC	**Teaching**	

	PGY 1-2	PGY 3-5	and Learning Strategies	Assessment
Knowledge	Specify the causes of upper GI bleeding, with associated risk factors including but not limited to coagulopathy and use of NSAIDs/ASA/anticoagulants	Know the indications for urgent endoscopy	BST, SDL, SGD, ST,SEP	E, Mi, C, ACAT,ESLE
	Recall scoring systems used to assess the significance and prognosis of an upper GI bleed	Know strategies to manage uncontrollable variceal bleeding in the resuscitation room - including securing of the airway and the use of Sengstaken tube		
	Recall the principles of choice of IV access including central line insertion, fluid choice and speed of fluid administration			
	Recall common important measures to be carried out after endoscopy, including helicobacter eradication,acid suppression			
Skills	Recognize shock or impending shock and resuscitate rapidly and assess need for higher level of care	Safely insert central line when indicated	SGD, BST, ST	D, Mi, C, ESLE
	Distinguish between upper and lower GI bleeding	Recognize those patients who are critically ill and not responding to therapy and who may need immediate endoscopy /surgery		
	Demonstrate ability to secure appropriate venous access			

	Safely prescribe drugs indicated in event of an established upper GI bleed using the current evidence base			
Behavior	Seek senior help and endoscopy or surgical input in event of significant GI bleed	Ensure prompt referral of those patients not responding to fluids	SGD, ST, SEP	Mi, C, ESLE
	Observe safe practices in the prescription of blood products			

23- Headache

The trainee will be able to assess a patient presenting with headache to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know the presentation of the common and life-threatening causes of new onset headache	Know and be able to identify patients with the less common causes of headache e.g. cluster headaches, glaucoma, headaches in patients with shunts	BST, SDL, SGD, ST,	E, Mi, C, ACAT,ESLE
	Understand the pathophysiology of headache	Identify those patients presenting with headaches secondary to		

		malignancy, HIV		
	Recall the indications for urgent CT/MRI scanning in the context of headache			
	Recall clinical features of raised intra-cranial pressure			
	Demonstrate knowledge of different treatments for suspected migraine			
	Recognize important diagnostic features in history	Initiate measures to reduce ICP	SGD, BST, ST	Mi, C, D, ESLE
Skills	Perform a comprehensive neurological examination, including eliciting signs of papilledema, temporal arteritis, meningism and head trauma	Be able to perform a diagnostic lumbar puncture		
	Order, interpret and act on initial investigations			
	Perform a successful lumbar puncture when indicated with minimal discomfort to patient observing full aseptic technique			
	Interpret basic CSF analysis: cell count, protein, bilirubin,gram stain and glucose			
	Initiate prompt treatment when indicated: appropriate analgesia, antibiotics, antivirals, corticosteroids			

Behavior	Recognize the nature of headaches that may have a sinister cause and assess and treat urgently	Provide explanations and plan future care for those with non-serious headaches	BST, ST	Mi, C, ESLE
	Liaise with senior doctor promptly when sinister cause is suspected			
	Involve neurosurgical team promptly when appropriate			

24- Head Injury

The trainee will be able to evaluate the patient who presents with a traumatic head injury, stabilize, assess, appropriate investigate and implement a management plan.				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know the anatomy of the scalp, skull and brain, the pathophysiology of head injury (primary and secondary brain injury) and the symptoms and signs	Know the indications for admission following head injury	SGD, SDL, BST, WS	E, C, Mi, ACAT
	Know the indications for urgent CT scanning (national guidelines for CT imaging in head injury). Know the CT appearances of the common head injuries	Know which patients can be safely discharged		

Skills	Be able to use the ABC approach to the management of a head injury patient, with cervical spine immobilization	Recognize and initially manage the secondary consequences of head injury (e.g. loss of airway patency, seizures, raised ICP)	BST,ST,WS	E, MI, ACAT
	Be able to demonstrate to use of the GCS and ability to identify those who will need intubation and ventilation			
	Elicit the important facts from the history and undertake a full neurological exam to elicit signs of head injury and neurological deficit			
Behavior	Know when to seek senior and anaesthetic, neurosurgical support	Optimise team working between Intensive Care Medicine, neurosurgery, emergency and acute medicine	BST,ST,WS	ACAT, C

25- Jaundice

The trainee will be able to assess a patient presenting with jaundice to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		

Knowledge	Recall the pathophysiology of jaundice in terms of pre-hepatic, hepatic, and post-hepatic causes	Demonstrate knowledge of common treatments of jaundice	BST, SDL, SGD, ST,	E, Mi, C, ACAT,ESLE
	Recall causes for each category of jaundice with associated risk factors			
	Recall issues of prescribing in patients with significant liver disease			
	Recall basic investigations to establish etiology			
Skills	Take a thorough history and examination to arrive at a valid differential diagnosis	Recognize complications of jaundice	BST, ST, SGD	E, Mi, C
	Recognize the presence of chronic liver disease or fulminant liver failure	Recognize and initially manage complicating factors: coagulopathy, sepsis, GI bleed, alcohol withdrawal, electrolyte disturbance		
	Interpret results of basic investigations to establish etiology			
Behavior	Exhibit non-judgmental attitudes to patients with a history of alcoholism or substance abuse	Contribute to the patient's understanding of their illness	BST, SGD, ST	PS ACAT, C, M
	Consult seniors and gastroenterologists promptly when indicated	Recognize the importance of multi-disciplinary approach		

26- Joint swelling - atraumatic

The trainee will be able to assess the patient with atraumatic joint swelling to produce a valid differential diagnosis, investigate appropriately, and formulate and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the causes of mono and polyarthropathies and their disease associations	SGD, ST, SDL, BST	E, Mi, C, ACAT,ESLE
		Initiate investigations (including joint aspiration - recognizing that local practice may vary as to where this occurs), serological tests and imaging		
Skills		Be able to identify those patients with potential septic arthritis, initiate investigations and prompt	BST, ST, SGD	Mi, C, ESLE
		Be knowledgeable of the risks of rheumatologically disease-modifying drugs		

Behavior		Knows own limitations and when to ask for help	SGD, BST, ST	Mi, C, ESLE

27- Limb pain and swelling - traumatic and atraumatic

The trainee will be able to assess a patient presenting with atraumatic and traumatic limb pain or swelling to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Recall the causes of unilateral and bilateral limb swelling in terms of acute and chronic presentation	Be able to differentiate the atraumatic causes of limb pain and swelling including ilio-femoral thrombosis, superficial thrombophlebitis, subclavian thrombosis	BST, SDL,SGD, ST	E, Mi, C, ACAT,ESLE
	Recall the different causes of limb pain. Recall the pathophysiology for pitting oedema, non-pitting oedema, thrombosis and peripheral ischemia	Be able to recognize critical limb ischemia and ensure prompt referral and investigation		
	Recall the risk factors for the development of thrombosis and recognized risk scoring systems	Recognize referred causes of limb pain and sinister causes e.g. bone secondaries, sickle cell		

	Recall the indications, contraindications and side effects of diuretics and anti-coagulants	Bursitis and tendonitis in the upper and lower limb including ruptured biceps, Achilles tendonitis, plantar fasciitis, metatarsalgia, carpal tunnel and other entrapment neuropathies		
	Demonstrate awareness of the longer term management of DVT	Traumatic causes Fractures - scapular, tarsal bones and stress fractures		
	Differentiate the features of limb pain and/or swelling pain due to cellulitis, varicose eczema, critical ischemia and DVT	Dislocations - SC joint, elbow, knee, subtalar, talar, mid-tarsal, tarsometatarsal		
Skills	Perform a full and relevant examination including assessment of viability and perfusion of limb and differentiate pitting oedema; cellulitis; venous thrombosis; compartment syndrome	Ability to maintain appropriate differential diagnosis, and use of investigations	BST, SGD, ST	Mi, C, ESLE
	Recognize compartment syndrome and critical ischemia and take appropriate timely action			
	Order, interpret and act on initial investigations appropriately: blood tests, Doppler studies, urine protein			
	Practice safe prescribing of initial treatment as appropriate (anti-coagulation therapy, antibiotics etc.)			

	Prescribe appropriate analgesia			
Behavior	Liaise promptly with surgical colleagues in event of circulatory compromise (e.g. compartment syndrome)	Knows own limitations and when to ask for help	BST, SGD, ST	Mi, C, ESLE
	Recognize importance of thromboprophylaxis in high risk groups			

28- Major Incident management

	LOC		Teaching and Learning Strategies	Assessment
	PGY 1-2	PGY 3-5		
Knowledge		Be able to define a major incident and understand a typical major incident plan Understand the importance of triage, communication, equipment and documentation for a major incident	WS, SDL, SGD, ST	E, Mi, C, ACAT
		Understand potential CBRN agents and their treatment		

		Understand the principles of decontamination, how it is performed and by whom		
Skills		Be familiar with personal protective equipment and how to use it	ST, WS, SGD	Mi, C, L
		Participate in more than one major incident exercise		
		Be able to accurately triage multiple casualties		
Behavior		Be a good communicator, demonstrating leadership, flexibility and ability to work with other teams	ST, BST, WS	Mi, C, ESLE

29- Mental health

The trainee will be able to evaluate the patient who presents with suicidal ideation, assess risk and formulate appropriate management plan		
LOC	**Teaching**	

	PGY 1-2	PGY 3-5	and Learning Strategies	Assessment
Knowledge	Outline the risk factors for a suicidal attempt	Outline the indications, contraindications and side effects of the major groups of psychomotor medications	BST,SGD, SDL, ST	E, C, Mi, ACAT
	Outline the common co-existing psychiatric pathologies that may precipitate suicidal ideation			
Skills	Take a competent psychiatric history and be familiar with scoring tools used to assess risk of further harm (e.g. Becks score, SAD persons)	Obtain collateral history when possible	BST, SGD, ST	E, D, Mi, C
	Elicit symptoms of major psychiatric disturbance	Recognize and manage anxiety and aggression appropriately		
Behavior	Liaise promptly with psychiatric services if in doubt or high risk of repeat self-harm is suspected	Recognize the role of continued community care	BST, SGD, ST	ACAT, C, M
		Show compassion and patience in the assessment and management of those who have suicidal intent		

30- Neck pain

The trainee will be able to evaluate the patient who presents with neck pain, produce a valid differential diagnosis, appropriate investigation and implement a management plan.				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Outline the common and serious causes of neck pain including meningeal irritation, trauma, musculoskeletal inflammation, local infection and vascular causes	Understand the investigations required to make a diagnosis	SGD, SDL,ST	E, C, Mi, ACAT
Skills	Take a full history including recent trauma and appropriate physical examination	Be able to prescribe appropriate analgesia and antibiotics	BST, SGD, ST	E, Mi, D
	Identify those patients with meningism and consult senior early			
	Order, interpret and act on initial tests			
Behavior	Ask for senior advice appropriately	Knows own limitations and when to ask for help	BST, SGD, ST	ACAT, C

31- Oncology emergencies

The trainee will be able to evaluate the patient who presents with medical problems caused by cancer, produce a valid differential diagnosis, appropriate investigation and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Be able to recognize the complications related to local tumour progression e.g. acute cord compression, upper airway obstruction, pericardial and pleural effusions, SVCcompression syndrome, raised intracranial pressure	SEP, SDL,SGD	E, Mi, C, ACAT,ESLE
		Be able to identify the biochemical complications of malignancy- hypercalcemia, SIADH, adrenocortical insufficiency		
		Recognize the complications relating to myelosuppression - specifically neutropenic sepsis, anaemia and thrombocytopenia		
Skill		Recognize and commence emergency treatment	SGD,SEP	Mi. C, ESLE

		Involve specialists promptly - identify patients who may benefit from further oncological treatment		
		Provide pain relief		
		Establish if living will, treatment plan exists		
Behavior		Sympathy, understanding and manage carers/family	SGD, SEP	Mi, C, ESLE

32- Observational Medicine

An Emergency Physician should be expert in the care of certain patient groups beyond the first four hours, who are cared for in the Observation Ward/Clinical Decision Unit.				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know which patients will benefit from being cared for in an observational setting: ▪ Those who are clinically well but without a clear diagnosis – e.g. headache, abdominal pain, elderlypatient who has fallen ▪ Those that have been risk stratified as low risk but require further observation and limited investigation e.g. chest pain, syncope Those patients who are recovering but not sufficiently well to be discharged e.g. post-procedure, post-ictal, post-overdose	SGD, ST,WS SDL,	E, C, Mi, ACAT,ESLE
		Requires knowledge of the typical clinical courses over the first 24 hours for a range of clinical conditions and their risk stratification		
		Knowledge and ability to anticipate, recognize and manage possible adverse outcomes		

		Knowledge of the diagnostic pathways and the range of diagnostic tests to be used and their interpretation		
Skills		Work closely with diagnostic services to achieve a timely diagnosis	SGD, ST,WS	Mi, C, D, ESLE
		Work closely with multi-disciplinary teams to ensure best care e.g. the elderly and those with mental health problems		
		Be able to formulate an appropriate individual management plan, based on best evidence (e.g. NICE head injury guidelines) for clinical conditions		
Behavior		Undertake ward rounds in a timely and efficient manner	SGD, ST,WS	ACAT, C, Mi,ESLE
		Carefully review patients provide adiagnosis and appropriate follow-up		

33- Oliguric patient

The trainee will be able to produce a differential diagnosis, establish safe monitoring, investigate appropriately and formulate an initial management plan when assessing a patient with a low urine output.				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Understand the principal causes of a low urine output in the critically ill patient, and be able to identify the principal sub-causes (pre-renal, renal and post-renal), including but not limited to: hypotension and inadequate renal perfusion, renal tract obstruction, nephrotoxic drugs and contrast media	Outline immediate management options including but not limited to: fluid resuscitation, increased cardiovascular monitoring, administration of vasoactive drugs and inotropes, the role of diuretics	SGD, SDL,BST, ST	E, C, Mi, ACAT
	Understand current terminology and classification of acute kidney injury	Understand the role of renal replacement therapy in the oliguric patient		
	Understand appropriate monitoring of the patient with a low urine output, including but not limited to: clinical assessment, urinary catheterization, cardiovascular monitoring including pressure and flow monitoring techniques (see principles of monitoring cardiac output),arterial blood gases	Be able to safely prescribe for patients in renal failure		
	Understand the methods of assessment of renal function including but not limited to: blood tests, assessment of renal excretion, imaging of the GU tract			

Skills	Make a rapid and immediate assessment including appropriate clinical examination	Prioritize, order, interpret and act on simple investigations appropriately	SGD, BST, ST	Mi, C
	Initiate appropriate immediate management	Initiate early (critical) management (e.g. fluid administration) including requesting safe monitoring		
Behavior	Recognize need for immediate assessment and resuscitation	Involve appropriate specialists to facilitate immediate assessment and management or decreased renal function (e.g. imaging, intensive care, surgeons, renal physicians)	SGD, BST, ST	ACAT, C
	Assume leadership role where appropriate			
	Involve appropriate senior help to facilitate immediate assessment and management			

34- Pain management

The trainee will be able to use analgesic drugs safely and appropriately in the acutely ill patient.				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Demonstrates an understanding of the need for effective management of pain in the acutely unwell patient, including, but not limited to, the items listed below:	Understands the pharmacology of commonly used analgesics including but not limited to: Indications and contraindications, Side effects, Safety profile, Drug interactions	WS, SDL,SGD,ST,SEP	E, C, Mi, ACAT
	Describes how to assess the severity of acute pain including scoring systems such as the Visual Analogue Scale and Verbal Rating Scale	Demonstrates knowledge of commonly used local anaesthetic blocks including peripheral nerve blockade used in the Emergency Department and major conduction blockade as seen in Critical Care		
	Describes the use of multi-modal therapy and the 'analgesic ladder'	List complications of regional anaesthesia and outlines their treatment including that of local anaesthetic toxicity and respiratory depression due to centrally administered opiates		
	Understands how emotions contribute to pain			
	Identifies appropriate analgesic regimes including types of drugs and doses			
	Understands the use of 'rescue analgesia' for the patient with severe pain			

Skills	Is able to discuss options for pain relief with the patient and obtain informed consent	Able to undertake the peripheral nerve blocks including but not limited to: digital, wrist (ulnar, median, radial), femoral, facial (auricular, supra-trochlear, supra-orbital), ankle, Bier's Block and know their contraindications	WS, SGD,ST,SEP	Mi, C, D, ACAT
	Safely prescribes analgesia for the acutely ill patient in pain	Makes a clear and concise record of interventions in patient's notes		
	Safely titrates analgesia against level of pain			
Behavior	Recognizes the place of input from specialists in the management of analgesia (e.g. the acute pain team, anaesthesia).	Ensures effectiveness and seeks help if pain is not relieved or is disproportionate	WS, SGD, ST, SEP	Mi, C, ACAT
	Ensures safety	Works to local and national policies in issuing, handling and disposal of controlled drugs		

35- Palpitations

The trainee will be able to assess the patient with palpitations to produce a valid differential diagnosis, investigate appropriately, and formulate and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Recall cardiac electrophysiology relevant to ECG interpretation	Know alternative therapies when first-line drugs fail for arrhythmias	SGD, BST, ST, SDL, WS	E, Mi, C, ACAT,ESLE
	Recall common causes of palpitations	Have knowledge of which drugs should be used long-term		
	Recall the categories of arrhythmias	Be able to identify which patients need referral for further investigation including 24 hour tape		
	Recall common arrhythmogenic factors including drugs	Know the rarer arrhythmias- WPW with AF, Torsades de Pointes, prolonged QT		
	Recall the indications, contraindications and side effects of the commonly used anti-arrhythmic medications and indications for pacing			
	Demonstrate knowledge of the management of atrial fibrillation (NICE guidelines)			
Skill	Elucidate nature of patient's complaint	Is able to take an ECG and rhythm strip	SGD,BST, ST, WS	Mi, C, D, ESLE

	Order, interpret and act on initial investigations appropriately: ECG, blood tests	Ensure appropriate monitoring of patient on ward		
	Recognize and commence initial treatment of arrhythmias being poorly tolerated by patient (peri-arrest arrhythmias) as per UK Resuscitation Council guidelines	Management of newly presented non-compromised patients with arrhythmias		
	Be able to perform carotid sinus massage, DC cardioversion and external pacing safely			
Behavior	Consult senior colleagues promptly when required	Be able to escalate care in the deteriorating patient	SGD,BST, ST, WS	Mi, C, ESLE
	Advise on lifestyle measures to prevent palpitations when appropriate			

36- Penile conditions

The trainee will be able to evaluate the patient who presents with a painful penis and produce a valid differential diagnosis, appropriate investigation and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the causes of penile pain specifically – phimosis and paraphimosis, priapism (and its associated conditions) and fracture	SGD, SDL	E, Mi, C, ACAT,ESLE
		Know the presentation and causes of genital ulceration		
Skills		Identify those patients who need admission and those that can be managedwith outpatient follow-up	SGD, SDL,ST	Mi, C, D, ESLE
		Know how to reduce paraphimosis		

Behavior		Recognize the need for urgent referral for priapism AND fracture of the penis	SGD, SDL,ST	Mi, C, ESLE

37- Poisoning

The trainee will be able to assess the patient with poisoning to produce a valid differential diagnosis, investigate appropriately, and formulate and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Recall indications for activated charcoal and whole bowel irrigation	Know wider range of poisoning including cyanide and organophosphate poisoning and mixed overdoses	SGD, SDL,ST, SEP,BST	E, Mi, C, ACAT,ESLE
	Know the important symptoms, signs and tests to establish the type of poisoning i.e. to be able to recognize the common toxi-dromes	Know the role of antidotes (see RCEM list)		
	Know the presentations of carbon monoxide poisoning	Indications for liver transplantation in paracetamol poisoning		
	Know the pharmacology and management of poisoning of the following (but not limited to):	Know the principles of the relevant health legislation and common law		

	paracetamol, salicylate, beta blockers, opiates, alcohol, anti- coagulants, benzodiazepines, carbon monoxide, antidepressants, SSRIs, amphetamine, cocaine	relevant to treatment against the patient's will		
	Understand the role of antidotes and demonstrates knowledge of specific therapies in poisoning including but not limited to: ▪ activated charcoal ▪ acetylcysteine ▪ bicarbonate ▪ hyperbaric oxygen			
	Demonstrates understanding of the role of drug testing/screening and of drug levels			
	Recognize importance of accessing TOXBASE and National Poisons Information Service and the use of the information so obtained			
	Understand the psychological and physiological and socioeconomic effect of alcohol misuse and illicit drug use – opioids, amphetamines, ecstasy, cocaine, GHB. Understand addiction, dependence and withdrawal syndromes			
Skill	Recognize critically ill overdose patient and resuscitate as appropriate	Recognize complications – poly-pharmacy, aspiration	SGD, SDL,ST, SEP,BST	Mi, C, ESLE

	Take a full history of event, including a collateral history if possible	Be able to risk stratify patients and liaise with psychiatric services		
	Examine to determine the nature and effects of poisoning			
	Demonstrate the ability to actively manage the acutely poisoned patient, including but not limited to: ▪ Accessing information required (e.g. TOXBASE) ▪ Use of specific antidotes and antitoxins ▪ Use of 'generic' control measures such as activated charcoal and alkalinisation of urine ▪ Use of renal replacement methods			
	Order, interpret and act on initial investigations appropriately: biochemistry, arterial blood gas, glucose, ECG, and drug concentrations			
	Ensure appropriate monitoring in acute period of care(TOXBASE)			
	Perform mental state examination			
	Practice safe prescribing of sedatives for withdrawal symptoms Ensures correction of malnutrition including vitamin and mineral supplementation			

Behavior	Contact senior promptly in event of critical illness or patient refusing treatment	To be able to escalate care in the deteriorating patient	SGD, SDL,ST, SEP,BST	Mi, C, ESLE
	Recognize the details of poisoning event given by patient may be inaccurate			
	Show compassion and patience in the assessment and management of those who have self-harmed			

38- Pre-hospital care

The trainee will be sufficiently familiar with pre-hospital care systems to ensure optimal patient care across the pre-hospital – emergency department interface				
LOC				
	PGY 1-2	**PGY 3-5**		
		Know how the pre-hospital services are organized, understand the principles of scene safety and the role of protective clothing	, WS/SEP SDL,ST, SGD	E, Mi, C, ACAT, ESLE

		Understand the delivery of patient care out of hospital, including methods of splintage and spinal immobilization, resuscitation out of hospital (including fluid resuscitation and the indications for rapid sequence induction)		
		Be able to recognize the potential limitations to care delivered in the pre-hospital environment		
		Be familiar with the advantages and disadvantages of land and air transport		
		Understand how to communicate with the pre-hospital services effectively		
		Know how to triage multiple casualties		
		Be able to work closely with pre-hospital staff providing clear and concise on-line advice	SGD, SDL,ST, SEP/WS	Mi, C, ESLE
		Be able to take a handover from pre-hospital carers		
		Be supportive and understanding, ensuring that pre- hospital staff are treated as valued members of the Emergency Department team	SGD, SDL,ST, SEP/WS	Mi, C. M, ESLE

39- Pregnancy

The trainee will be able to evaluate the patient who presents with medical problems of pregnancy and produce a valid differential diagnosis, appropriate investigation and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the presentations and initial management of these medical problems in pregnancy: pre-eclampsia, HELLP, DIC, suspected PE	SGD, BST, ST	E, Mi, C, ACAT,ESLE
Skills		Recognition of these presentations	SGD, BST,ST	Mi, C, AA, ESLE
		Safe prescribing in pregnancy		
Behavior		Close liaison with obstetricians	SGD, BST,ST	Mi, C, ESLE
		Sensitive, supportive and uses chaperone appropriately		

40- Painful ear

The trainee will be able to evaluate the patient who presents with painful ears produce a valid differential diagnosis, appropriate investigation and implement a management plan.				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the anatomy of the ear	SGD, BST,ST	E, C, Mi, ACAT
		Understand the common causes of ear pain		
		Understand the common treatments for ear pain		
Skills		Be able to undertake a full exam of the ear	SGD, BST,ST	E, D
		Demonstrate the use of an otoscope		

Behavior		Know when to refer a patient to ENT for continued care	SGD, BST,ST	ACAT, C

41- Pelvic pain

The trainee will be able to evaluate the patient who presents with pelvic pain, produce a valid differential diagnosis, appropriate investigation and implement a management plan.				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know the causes of pelvic pain and understand when to refer to a surgeon, gynaecologist or GUM specialist		SGD, BST,ST	E, C, Mi, ACAT
	Know the anatomical relationships of the organs in the pelvis			
	Know how to prescribe safely for a patient with pelvic pain			
Skill	Be able to undertake a full examination of a patient with pelvic pain		SGD, BST,ST	E, Mi, C

	Be able to demonstrate a bimanual pelvic examination, use of a speculum and taking microbiological swabs			
	Know how to order and interpret appropriate tests			
Behavior	Know when to refer to the appropriate specialist		SGD, BST,ST	ACAT, C, M

42- Life-threatening rashes

The trainee will be able assess a patient presenting with an acute-onset skin rash and common skin problems to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Recall the characteristic lesions found in the acute presentation of common skin diseases e.g. cellulitis, erysipelas, impetigo, cutaneous drug reactions, purpuric rashes, skin malignancies	Know how to recognize and initiate management of the erythrodermas - e.g. maintenance of temp, fluid balance, prophylactic antibiotics	SGD,SDL,	E, Mi, C, ACAT,ESLE

	To be able to identify the life-threatening dermatological emergencies, know their causes and emergency management including but not limited to: toxic epidermal necrolysis, Stevens-Johnson syndrome, erythroderma, necrotizing fasciitis	Know the dermatological manifestations of other emergency presentations - meningococcemia, drugs, anaphylaxis, transfusion reactions		
	Know the common and serious causes of skin and mouth ulceration			
	Know the causes of and treatments for pruritus			
	Recall basic investigations to establish etiology			
	Recall risk factors, particularly drugs, infectious agents and allergens			
	Recall possible medical treatments			
Skills	Take a thorough focused history & conduct a detailed examination, including the nails, scalp and mucosae to arrive at appropriate differential diagnoses	Be able to recognize these rare presentations	SGD, BST, ST	Mi, C, ESLE
	Recognize the importance of a detailed drug history			
	Recognize likely skin and oral malignancy			
	Recognize that anaphylaxis may be a cause of an acute skin rash			

	Order, interpret and act on initial investigations appropriately to establish etiology			
Behavior	Demonstrate sympathy and understanding of patients'concerns due to the cosmetic impact of skin disease	Know when to liaise with dermatological specialists early for serious conditions	BST, ST,	Mi, C, ESLE
	Engage the patient in the management of their condition particularly with regard to topical treatments			
	Reassure the patient about the long term prognosis and lack of transmissibility of most skin diseases			

43- Red eye

The trainee will be able to evaluate the patient who presents with a painful red eye, produce a valid differential diagnosis, appropriate investigation and implement a management				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the basic anatomy and physiology of the eye & visual pathways		E, C, Mi, ACAT
		Know the causes of painful red eye including orbital cellulitis		

		Understand the investigations required to make differential diagnosis of acute red eye including the importance of measuring visual acuity		
		Know the common treatments for acute red eye		
Skills		Perform full examination including acuity, ocular movements, visual fields, related cranial nerves and adjacent structures		Mi, C E, D
		Formulate differential diagnosis		
		Demonstrate the use of a slit lamp, fundoscopy and lid eversion		
		Demonstrate removal of a foreign body		
		Demonstrate the use of fluorescein		
Behavior		Know when to refer a patient with red eye for a specialist opinion		ACAT, C

44- Sore throat

The trainee will be able to evaluate the patient who presents with a sore throat produce a valid differential diagnosis, appropriate investigation and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the causes of a sore throat, and provide differential diagnosis		E, C, Mi, ACAT
		Outline the necessary investigations		
		Know how to prescribe safely		
Skills		Take a full history including associated symptoms such as joint pain, dysphagia etc.		E, Mi, C
		Perform full exam including examination of the neck and lymph nodes		
		Recognize when the airway is at risk andmanage appropriately		
		Know when antibiotics are indicated		
Behavior		Know when to refer to an ENT specialist for admission of follow-up		ACAT, C

45- Syncope and pre-syncope

The trainee will be able to assess a patient presenting with syncope to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know the definition and common causes of syncope and pre-syncope	Differentiate from other causes of collapse in terms of associated symptoms and signs and eye witness reports	SGD, SDL,	E, C, Mi, ACAT
	Outline the pathophysiology of syncope depending on situation, including but not limited to: vasovagal, cough, effort, micturition, carotid sinus hypersensitivity	Outline the indications for hospital admission		
		Outline the indications for cardiac monitoring		
		Define the recommendations concerning fitness to drive		
Skills	Take thorough history from patient and witness to elucidate episode	Order, interpret and act on initial investigations appropriately: blood tests, ECG	SGD, BST,ST	E, Mi, C

	Differentiate pre-syncope from other causes of 'dizziness'			
	Assess patient in terms of ABC and level of consciousness and manage appropriately			
	Perform examination to elicit signs of cardiovascular disease			
Behavior		Recognize the impact episodes can have on life style particularly in the elderly	SGD,SDL, BST,ST	ACAT, C
		Recognize recommendations regarding fitness to drive in relation to syncope		

46- Sexual assault

The trainee will be able to evaluate the patient who presents with a history of sexual assault and produce a valid differential diagnosis, appropriate investigation and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the need for preservation of forensic evidence from assault patients, involvement of specialists, screening for STD, provision of post-coital contraception	SDL, SGD, ST	E, Mi, C, ACAT,ESLE
Skills		Be able to recognize potential cases, previous patterns of domestic violence	SGD, ST	Mi, C, ESLE
		Liaise with the police appropriately		
Behavior		Sensitive, supportive and use of chaperone	SGD, ST	Mi, C, ESLE

47- Sexually transmitted disease

The trainee will be able to evaluate the patient who presents with symptoms of sexually transmitted disease - specifically genital discharge and produce a valid differential diagnosis, appropriate investigation and implement a management plan				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the common presentations, systemic manifestations, pathogens and appropriate initial investigation of the common STDs	SDL, SGD, ST	E, ACAT, AA, C, Mi, ESLE
Skills		Ensure appropriate investigation and referral	SGD, ST	Mi, C, ESLE
Behavior		Sensitive handling	SGD, ST	Mi, C. PS, ESLE

48- Traumatic limb and joint injuries (upper and lower)

The trainee will be able to evaluate the patient who presents with a traumatic limb or joint injury produce a valid differential diagnosis, appropriate investigation and implement a management				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know the anatomy of the axial skeleton and joints	Know the anatomy of the axial skeleton and joints	SGD, SDL, BST, ST	E, C, Mi, ACAT
	Outline the treatment options for common fractures and joint injuries	Outline the treatment options for common fractures and joint injuries		
	Understand the pathophysiology behind complications like compartment syndrome	Understand the pathophysiology behind complications like compartment syndrome		
	Know how to prescribe safely for traumatic limb pain	Know how to prescribe safely for traumatic limb pain		
Skills	Be able to recognize life & limb threatening trauma	Be able to recognize life & limb threatening trauma	BST, ST, SEP	Mi. C, L, S
	Be able to demonstrate assessment of limb function, detect neurological and vascular compromise	Be able to demonstrate assessment of limb function, detect neurological and vascular compromise		
	Demonstrate common techniques for joint and fracture reduction	Demonstrate common techniques for joint and fracture reduction		

Behavior	Know when to seek senior advice in the management of limb and joint trauma	Know when to seek senior advice in the management of limb and joint trauma	BST, ST,SEP	ACAT, C

49- Visual loss

The trainee will be able to evaluate the patient who presents with sudden visual loss and produce a valid differential diagnosis, appropriate investigation and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the ocular causes of sudden visual loss - retinal hemorrhage, retinal artery and venous occlusion, vitreous hemorrhage, retinal detachment and optic neuritis	SGD, SDL,	E, Mi, C, ACAT, ESLE, ESLE
		Knowledge of the central causes of visual loss		
Skills		Identify correctly underlying pathology and ensure prompt ophthalmic referral for those patients who need admission and those that can be managed with outpatient follow-up	ST, SGD	Mi, C, ESLE

Behavior		Knows when to ask for a specialty opinion	ST, SGD	Mi, C, ESLE

50- Vaginal bleeding

The trainee will be able to evaluate the patient who presents with vaginal bleeding, produce a valid differential diagnosis, appropriate investigation and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the causes for vaginal bleeding in different age groups, pre-menopausal, post-menopausal and pregnant women	SGD, SDL	E, C, Mi, ACAT
		Understand the early complications of pregnancy and the pathophysiology of an ectopic pregnancy		
		Know what investigations are required		
		Understand what drugs (including anti-D immunoglobulin) can be safely prescribed for		

		each cause		
Skills		Be able to demonstrate a full examination	SGD, SDL, BST,ST	E, D, Mi, C
		Be able to demonstrate resuscitative procedures for heavy bleeding or cervicalshock		
Behavior		Recognize the need for a chaperone	SGD, SDL, BST,ST	ACAT, C
		Know when to involve a senior		
		Know which patient can be discharged safely		

51- Vomiting and Nausea

The trainee will be able to assess a patient with vomiting and nausea to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
K	Recall the causes and pathophysiology of nausea and vomiting		SGD,SDL,	E, C, Mi, ACAT

	Recall the use and adverse effects of commonly used anti-emetics and differentiatethe indications for each and the value of combination therapy			
	Recall 'red flag' features that make a diagnosis of upper GI malignancy possible			
	Know the indications for urgent surgical review			
Skills	Elicit signs of dehydration and take steps to rectify this		SGD, SDL,BST,ST	E, Mi, C, AA
	Recognize and treat suspected GI obstruction appropriately: nil by mouth, NG tube, IV fluids			
	Practice safe prescribing of anti-emetics			
	Order, interpret and act on initial investigations appropriately, including but not limited to: blood tests, x-rays, CT scans and endoscopy			
Behavior	Involve surgical team promptly in event ofGI obstruction		SGD, SDL,BST,ST	ACAT, C
	Respect the impact of nausea and vomiting in the terminally ill and involve palliative care services appropriately			

52- Weakness and Paralysis

The trainee will be able to assess a patient presenting with motor weakness to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan (see also 'Speech Disturbance' and 'Abnormal Sensation (Paraesthesia and Numbness)')				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Broadly outline the physiology and neuro-anatomy of the components of the motor system	Recognize the systemic implications of muscular weakness involving the respiratory and bulbar muscles, including need for airway protection and ventilatory support		E, C, Mi, ACAT
	Recall the myotomal distribution of nerve roots, peripheral nerves, and tendon reflexes	Demonstrate knowledge of investigations for acute presentation, including indications for urgent head CT and stroke thrombolysis		
	Recall the clinical features of upper and lower motor neuron, neuromuscular junction and muscular lesions			
	Recall the common and important causes for lesions at the sites listed above			
	Recall tools for the classification of stroke, and prognosis			
Skill	Elucidate speed of onset and risk factors for neurological dysfunction	Recognize when swallowing may be unsafe and manage appropriately		E, Mi, C,D

	Perform full examination to elicit signs of systemic disease and neurological dysfunction and identify associated deficits	Detect spinal cord compromise and investigate promptly		
	Describe likely site of lesion in motor system and produce differential diagnosis	Perform tests on respiratory function and inform seniors and specialists appropriately		
	Order, interpret and act on initial investigations for motor weakness appropriately	Ensure appropriate care: thromboprophylaxis, pressure areas		
Behavior	Recognize importance of timely assessment and treatment of patients presenting with acute motor weakness	Consult senior when rapid progressive motor weakness or impaired consciousness is present		ACAT, C, PS
	Consult senior and acute stroke service, if available, as appropriate	Involve speech and language therapists appropriately		
	Recognize patient and career's distress when presenting with acute motor weakness	Contribute to multi-disciplinary approach		

53- Weakness not due to stroke

The trainee will be able to evaluate the patient who presents with weakness and produce a valid differential diagnosis, appropriate investigation and implement a management plan				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Know the presentations and initial management of myasthenia gravis, Guillain-Barre syndrome, tetanus, botulismand MS	SGD, SDL,	E, Mi, C, ACAT,ESLE
Skills		Recognition of rarer presentations	SGD, BST, ST,SDL	Mi, C, ESLE
Behavior		Liaise with appropriate specialist	SGD, BST, ST,SDL	Mi, C, ESLE

54- Wound assessment and management

The trainee will be able to evaluate the patient who presents with a wound & implement a management plan. The trainee will be able to assess the patient with increasing complex wounds, providing analgesia, wound exploration, identification of damaged underlying structures, repair where appropriate and closure				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge	Know how to assess a wound in terms of mechanism of injury, underlying structures and complications	Able to assess and repair more complex wounds in different locations - scalp, face, lips, ears, nailbed	WS,SDL, SGD, ST,	E, Mi, C, ACAT,ESLE
	Know the anatomy of the underlying structures especially hand wrist and face	Able to identify those cases needing specialist care e.g. eyelid lacerations involving the margin, tendon injuries		
	Know of special types of wound: puncture, bites, amputation, de-gloving and presence of foreign bodies			
	Be able to classify and describe wounds			
	Know how to manage wounds in the immunocompromised patient			

	Know how to use local anaesthetic techniques to produce pain-free wounds			
	Know the indications for tetanus prophylaxis			
	Know different wound closure techniques Know the indications for delayed closure of wounds and antibiotic treatment			
	Understand the principles of asepsis			
Skills	Be able to demonstrate the ability to explore a wound and recognize injury to structures	Provides good anaesthesia of wounds by use of local and regional nerve blocks	WS,SGD, BST,ST	Mi, C, D, E,S, ESLE
	Be able to demonstrate the technique of wound toilet including removal of foreign bodies	Ensures thorough skin and wound cleaning to reduce risk of infection and skin tattooing		
	Demonstrate wound closure, use of dressings			
	Know when to review a wound and make the appropriate arrangements			

Behavior	Recognize when to refer a complex wound for further care	Ensures follow-up, providing antibiotics appropriately	WS,SGD,ST	Mi, C, ACAT

55- Complex older patients

The trainee will be able to assess and manage appropriately, patients who present with complex medical and social needs or who manifest as one of the frailty syndromes				
LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Appreciates common conditions may present in an unusual way in older people	SGD, SDL,	E, Mi, C, ACAT,ESLE
		Recognizes the presentations of delirium and dementia and is able to discriminate between the two		
		Describes the requirements for altered prescribing in the elderly and recognizes the effects of polypharmacy		
		Recognizes the causes of and impact of syncope and falls on older people		

		Incorporates and initiates appropriate end of life care where necessary		
		Describes frailty syndromes and the importance comprehensive geriatric assessment and multi professional approaches to care		
		Understands the relevance of capacity and consent in the elderly particularly in the presence of cognitive impairment		
		Recognizes presentations of abuse in older people		
Skills		Performs a comprehensive but focused physical assessment within a limited time and in difficult circumstances	BST, ST SGD	Mi, C, ESLE
		Performs a focused evaluation of baseline activity and performance		
Behavior		Provides compassionate and appropriate care – individualized for each patient, recognizing their right to equitable care	BST,ST,SGD	Mi, C, ESLE
		Provides calm and well paced interventions recognizing the potential for disorientation and discomfort		

56- The patient with chronic disease

The trainee will be able to assess and manage appropriately patients whose presentations are affected by chronic disease				
	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY 1-2	**PGY 3-5**		
Knowledge		Describes typical presentations of chronic disease in the acute setting	SGD, BST,ST	E, Mi, C, ACAT,ESLE
		Appreciates that chronic disease may affect the way acute conditions present		
		Recognizes the psychosocial effect of chronic disease on acute presentations		
		Describes the effect on presentation and requirements for altered prescribing in relation to pre-existing medicines, novel treatments, drug interactions, altered drug metabolism and impaired physiological reserve		
		Recognizes the importance of symptomatic treatment		
		Incorporates and initiates appropriate end of life care where necessary		

Skills		Performs a comprehensive but focused physical assessment extended to include areas relevant to the pre-existing chronic disease	BST, SGD, ST	Mi, C, ESLE
		Recognizes that evaluation of baseline symptoms and impact on performance is an essential part of the assessment of acute presentations		
		Is able to rapidly identify relevant and reliable sources of information relating to rare chronic clinical conditions presenting to the Emergency Department		
Behavior		Provides compassionate and appropriate care –individualized for each patient	GSD, ST, BST	Mi, C, ESLE
		Uses the patient's own knowledge of their condition to develop individualized management plan		
		Communicates with relevant professionals, including GP or Hospital team, to seek advice, pass on information and ensure continuity of care		

Additional Acute clinical Presentations (PGY-3-4)

The competences associated with the following presentations should be achieved during the 3rd year of university residency program. The specific details of the required knowledge, skills and behaviors are set out in this section.

15. Major trauma - Chest Injuries
16. Major trauma - Abdominal trauma
17. Major trauma -Spine
18. Major trauma - Maxillofacial
19. Major trauma – Burns
20. Traumatic limb and joint injuries - Lower limb
21. Traumatic limb and joint injuries - Upper limb
22. Interpretation of abnormal blood gas results in the Emergency Department
23. Abnormal blood glucose
24. Dysuria
25. Emergency airway care
26. Needle stick injury
27. Testicular pain
28. Urinary retention

1-Major trauma - Chest Injuries

	The trainee will be able to evaluate the patient who presents with major trauma and to identify and treat the life-threatening presentations, to produce a valid differential diagnosis, appropriate investigation and implement a management plan. The trainee builds on previous training with more detailed knowledge, skills and behaviours		
		Teaching and Learning Strategies	**Assessment**
Knowledge	Know the patho-physiology of cardiothoracic injury	WS, SGD, SDL, SEP	E, Mi, C, ACAT
	Be able to identify life-threatening chest trauma i.e. tension pneumothorax, open pneumothorax, flail chest massive haemothorax, and cardiac tamponade		
	Be able to identify those patients with potential aortic injury, diaphragmatic rupture, pulmonary contusion, myocardial contusion, osesophageal rupture,tracheo-bronchial injury, rib and sternal fractures		
	Know the associated plain radiology and CT appearances of these injuries		
skills	Be able to undertake systematic approach and identify these conditions	WS,ST, BST,SEP	Mi,C,E, D, L
	Be able to undertake needle thoracocentesis, chest drain insertion and pericardiocentesis		
	Be able to detect the deteriorating patient		

behavior	Be meticulous in assessment and undertake repeated assessment	WS,ST, BST,SEP	Mi, C
	Know when to refer to cardiothoracic surgery		

2- Major trauma – Abdominal trauma

The trainee will be able to evaluate the patient who presents with major trauma and to identify and treat the life-threatening presentations, to produce a valid differential diagnosis, appropriate investigation and implement a management plan. The trainee builds on previous training with more detailed knowledge, skills and behaviours **Abdominal injuries - to be able to identify those patients who have sustained significant abdominal trauma by history, examination and appropriate investigation**		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Know the different presentations of blunt and penetrating abdominal trauma and the structures that may be damaged, Specifically blunt splenic, hepatic, renal, pancreatic trauma, hollow viscus injury, urethral/bladder and testicular trauma	WS,SGD,SDL	E, Mi, C, ACAT
Know the indications for FAST scanning, CT, and immediate laparotomy		

Skills		
Be able to assess and repeatedly reassess the traumatic abdomen	WS,ST, BST,SEP	Mi, C, D, L
Recognize the influence of injuries elsewhere on abdominal assessment		
Be able to pass a urinary catheter and gastric tube safely		
Behaviour		
Communicate effectively with the surgical team in a timely fashion	WS,ST, BST,SEP	Mi, C

3- Major trauma - Spine

The trainee will be able to evaluate the patient who presents with major trauma and to identify and treat the life-threatening presentations, to produce a valid differential diagnosis, appropriate investigation and implement a management plan. The trainee builds on previous training with more detailed knowledge, skills and behavior **Spinal injury - recognize those patients who have suffered a spinal cord, peripheral nerve or plexus injury by appropriate history examination and investigation**		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Know the patho-physiology of the different mechanisms of spinal trauma	WS, SDL,SGD	E, Mi, C, ACAT
Know how to interpret imaging for the whole length of the spine, including plain films, CT and MRI		

Know how to care for the spinal-injured patient		
Skills		
Be able to examine a patient with possible spinal injury	WS,ST, BST,SEP	Mi, C, D, L
Be able to immobilize a patient with spinal injury		
Be able to log roll and transfer a patient		
Behaviour		
Communicate effectively with the neurosurgical or orthopedics team in a timely fashion	WS,ST, BST,SEP	Mi, C

4- Major trauma - Maxillofacial

The trainee will be able to evaluate the patient who presents with major trauma and to identify and treat the life-threatening presentations, to produce a valid differential diagnosis, appropriate investigation and implement a management plan. The trainee builds on previous training with more detailed knowledge, skills and behaviours

Maxillofacial trauma - to identify those patients and characterize their injuries, including eye trauma

Knowledge	**Teaching and Learning Strategies**	**Assessment**
Know the anatomy of the facial structures	WS,SGD,SDL	E, Mi, C, ACAT

Know when underlying structures may be at risk from facial lacerations-specifically parotid duct, facial nerve and lacrimal duct		
Be able to identify and initially manage nasal, Le Fort, mandibular, orbital and zygomatic fractures and TMJ dislocation. Be able to identify and initially manage dental fractures, tooth avulsion		
Be able to recognize hyphaema, lens dislocation, orbital floor fractures, penetrating injuries of the eye and eyelid lacerations		
Skills		
Be able to systematically assess the facial structures and recognize when the airway is threatened	WS,ST, BST,SEP	Mi, C, D
Be able to initiate management of torrential nasopharyngeal bleeding by the use of Foley catheters and reduction of mid-face fractures		
Behaviour		
Know when to refer to maxillofacial specialists in a timely fashion	WS,ST, BST,SEP	Mi, C

5- Major trauma - Burns

The trainee will be able to evaluate the patient who presents with major trauma and to identify and treat the life-threatening presentations, to produce a valid differential diagnosis, appropriate investigation and implement a management plan. The trainee builds on previous training with more detailed knowledge, skills and behaviours **Burns - to be able to evaluate the patient with burns, commence resuscitation, relieve pain and refer appropriately**		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Be able to understand the patho-physiology of burns	WS,SDL,SGD	E, Mi, C, ACAT
To be able to assess the size and depth of burn and calculate the fluid requirements		
To recognize the risks to the upper and lower airway from heat and inhalation injury		
To recognize the importance of burns in special areas (face, joints, perineum)		
To know the indications for referral to burns/specialist center		
Skills		
Recognize the burns patient who has an airway at risk and needs earlyintubation	WS,ST, BST,SEP	Mi, C, D
To relieve pain effectively and promptly		
To be able to undertake escharotomy of the chest and limbs when needed		
To be able to manage minor burns		

Behaviour		
To identify those patients that need referral to a specialist Centre	WS,ST, BST,SEP	Mi, C

6- Traumatic limb and joint injuries – Lower limb

The trainee will be able to evaluate the patient who presents with a traumatic limb or joint injury, to produce a valid differential diagnosis, appropriate investigation and implement a management plan		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Fractures of the neck of femur, femur, supra-condylar, tibia and fibula, tibial plateau, ankle, calcaneal, metatarsal and phalanges	WS,SDL,SGD	E, Mi, C, ACAT
Dislocation - hip including prosthetic, patella		
Musculotendinous injuries: gastrocnemius tears, quadriceps and patellar tendon rupture, meniscal and ligamentous injury to knee and ankle, Achilles tendon rupture		
Vascular: compartment syndrome		
Skills		
Know how to prescribe safely for traumatic limb pain	WS,ST, BST,SEP	Mi, C, D
Be able to demonstrate assessment of limb function		

Detect neurological and vascular compromise		
Demonstrate common techniques for joint and fracture reduction, specifically reduction of dislocated ankle		
Be able to splint and plaster injured limbs safely		
Behaviour		
Know when to seek senior advice in the management of limb and joint trauma	WS,ST, BST,SEP	Mi, C
Ensure appropriate follow-up, including Physiotherapy		

7- Traumatic limb and joint injuries - Upper limb

The trainee will be able to evaluate the patient who presents with a traumatic limb or joint injury, to produce a valid differential diagnosis, appropriate investigation and implement a management plan		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Be able to recognize, including plain radiology appearances, and initiate treatment for fracture of: ▪ clavicle ▪ humerus ▪ radius and ulnar ▪ supracondylar ▪ radial head ▪ olecranon ▪ distal radius and ulna ▪ scaphoid ▪ metacarpals ▪ phalanges	WS,SGD,SDL	E, Mi, C, ACAT
Dislocations of the: ▪ AC joint ▪ shoulder ▪ elbow ▪ Pulled elbow ▪ lunate and perilunate ▪ finger		
Musculotendinous injuries: rotator cuff, biceps, tendon injuries of the hand		
Infection - paronychia, pulp space, flexor sheath		

Skills		
Be able to examine each joint	WS,ST, BST,SEP	E, Mi, C, D
Be able to demonstrate assessment of limb function, detect neurological and vascular compromise		
Be able to demonstrate the common techniques for joint and fracture reduction, specifically reduction of dislocated shoulder, reduction of Colles' fracture		
Be able to splint and plaster injured limbs safely		
ATTITUDE		
Know when to seek senior advice in the management of limb and joint trauma	WS,ST, BST,SEP	Mi, C
Ensure appropriate follow-up including physiotherapy		

8- Interpretation of abnormal blood gas results in the Emergency Department

	The trainee will be able to evaluate the blood gas results of critically ill patients in the resuscitation room, identifying the abnormalities and producing a valid differential diagnosis		
	LOC	**Teaching and Learning Strategies**	**Assessment**
Knowledge	Be able to interpret blood gas results establishing if acidotic, alkalotic, and the underlying metabolic / respiratory disturbance	SGD, SDL	E, Mi, C, ACAT
	Produce a differential diagnosis for each disturbance		
	Know the causes of acidosis with both normal and raised anion gap		
	Understand the significance of lactic acidosis in the critically ill patient		
	Be able to interpret blood gases to assess effectiveness of ventilation		
Skills	Be able to place an arterial line	ST, BST,SEP	D
	To be able to take an arterial blood gas from an arterial line aseptically		

BEHIVOUR	Establish the abnormality, suggest treatment and ensure repeat blood gas taken to assess response	ST, BST,SEP	Mi, C

9- Abnormal blood glucose

The trainee will be able to evaluate the patient who presents with hypo and hyperglycemia, correct and establish underlying cause. Produce a valid differential diagnosis, appropriate investigation and implement a management plan		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Know in detail the presentation and management of diabetic ketoacidosis, hyperosmolar non-ketotic coma and hypoglycaemia	SGD,SDL	E, ACAT, AA, C, Mi
Be able to investigate for and identify precipitating causes		
Skills		
Administers intravenous glucose and glucagon safely and rapidly to reverse hypoglycaemia	ST, BST	
Prescribes intravenous fluids, insulin and potassium safely for the hyperglycaemic patient		Mi, C, D

Identifies those patients that will need critical care		
Behaviour		
Ensures repeated assessment	ST, BST	Mi, C
Liaises with Intensive Care Medicine specialists in a timely and effective way		

10- Dysuria

The trainee will be able to evaluate the patient who presents with dysuria and produce a valid differential diagnosis, appropriate investigation and implement a management plan		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Be able to diagnose urinary tract infections including the correct interpretation of urinary tests, select appropriate antibiotics and identify those patients who need further investigation e.g. male with UTI	SGD.SDL	E, ACAT, AA, C, Mi
To be able to establish the underlying cause and search for the complications of urinary tract infections e.g. pyelonephritis		
Skills		
Be able to take a history and conduct an examination sensitively	SGD,ST,BST	Mi, C
Ensure appropriate tests undertaken and treatment started		

Behaviour		
Ensure follow-up of all patients	ST,BST	Mi, C

11- Emergency airway care

The trainee will be able to evaluate the patient who presents with emergency airway problems, and be able to provide a patent airway working within an airway team		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Be able to identify those patients who need intubation	WS,SGD,SEP	E, ACAT, AA, C, Mi
Be able to identify the potentially difficult airway		
Knows the pharmacology of induction agents and paralyzing agents used in the resuscitation room		
Skills		
Can initiate monitoring and preparation for RSI	WS,SGD,SEP,ST	Mi, C, D, S
Can intubate and use LMA		
Knows the failed airway drill including LMA needle and surgical cricothyroidotomy		
Knows how to maintain sedation and paralysis post intubation		

Can use simple transport ventilators		
Can recognize and anticipate the difficulties associated with RSI in the resuscitation room e.g.asthmatic		
Behaviour		
Building on ACCS training, becomes integral part of the airway team which **always** includes a senior competent airway practitioner	WS,SGD,SEP,ST	Mi, C
Maintains a log book of all airway interventions		

12- Needle stick injury

The trainee will be able to evaluate the patient who presents with a needle stick injury and be able to start appropriate investigation and implement a management plan		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Be able to identify those patients who need prophylactic treatment for HIV, hepatitis B and tetanus using departmental protocols	SGD,SDL	E, ACAT, AA, C, Mi
Knows which tests should be undertaken from whom and when		
Skills		
Ensure prompt care	ST,BST	Mi, C

Behaviours		
Handle issues sensitively	ST,BST	Mi, C
Ensure appropriate follow-up		

13- Testicular pain

The trainee will be able to evaluate the patient who presents with acute testicular pain, produce a valid differential diagnosis, appropriate investigation and implement a management plan		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Know and be able to recognize the causes of scrotal pain including epididymo-orchitis, testicular torsion, trauma and tumour, synergistic gangrene	SGD, SDL,	E, ACAT, AA, C, Mi
Know appropriate investigations including ultrasound		
Know the treatments for these conditions		
Skills		
Identify and refer those patients with testicular torsion promptly	ST,SGD,SDL	Mi, C
Behaviour		
Ensure appropriate and timely treatment	WS,SGD,SEP,ST	Mi, C

14- Urinary retention

The trainee will be able to evaluate the patient who presents with urinary retention and produce a valid differential diagnosis, appropriate investigation and implement a management plan		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Know the causes of acute urinary retention	SGD,SDL	E, Mi, C, ACAT
Skills		
Be able to relieve symptoms by passage of a urethral catheter	BST, ST,SEP	Mi, C, D, E
Be able to insert a supra-pubic catheter		
Behaviour		
Identify those patients that need referral for admission	BST,ST,SEP	Mi, C

CURRICULUM FOR PAEDIATRIC EMERGENCY MEDICINE

Major and Acute presentations

Children will be seen throughout the whole of the training programme from PGY-3 onwards. The focus on children in the third year of training inevitably leads to some arbitrary divisions of what should be known and by when. It is important that all paediatric encounters are used to their maximum educational potential regardless of when they occur. Some of the emergency presentations listed below are rare and may occur only once or twice throughout the whole training programme.

The PEM curriculum is built on an understanding of the preceding parts of the curriculum, which is assumed. Thus, for example the principles of wound management should already be known and are the same regardless of age.

Paediatrics continues throughout the whole of training and although it is indicated that additional areas should be covered in PGY4-5, all the areas previously specified will be seen repeatedly and this provides the opportunity for the trainee to become more experienced and expert–dealing with cases of greater complexity and acuity, becoming better at leading and coordinating resuscitation and more skilled at practical procedures (spiral learning).

Inevitably in a symptom-based curriculum a particular condition may appear in many guises and it is not possible to list all the causes of a particular presentation. However, we have indicated the most important and often indicated the same condition under different presentations.

Emergency Physicians treating children need to:

- Be able to interact with children of different stages of development to elicit the history and undertake a careful, sensitive and flexible examination
- Be aware of the different developmental stages of children and their assessment
- Acquire the special skills needed for children – e.g. airway management, vascular access
- Know that the interpretation of tests is age dependent e.g. ECG,radiology, FBC
- Be aware that paediatric life-threatening emergencies are infrequent and therefore prior preparation is

essential i.e. successful completion of APLS is needed

- Be able to prescribe safely for children
- Know that some of the presenting symptoms could be manifestations of non-accidental injury (NAI)
- Be able to identify those patients needing urgent specialist attention
- Have an understanding of which patients can be safely sent home and what follow-up they may need
- Know the immunization schedules
- Know and respect the legal framework and ethical issues relating to children in the ED including consent andconfidentiality

CURRICULAR CONTENT

Below is a list of presenting complaints that the EM trainee will need to know how to assess and manage. These are divided into paediatric major presentations (PMPs) and paediatric acute presentations(PAPs). Competences of PMP may be achieved by successful completion of an Advanced Paediatric Life Support (APLS) or a course with equivalent curricula coverage and assessments, approved by the University. Mandatory assessment for the following paediatric acute presentations (PAPs) fever, abdominal pain, breathlessness, and pain, which is also required by the end of PGY-3

Paediatric major presentations

1. Anaphylaxis
2. Apnoea, stridor and airway obstruction
3. Cardio-respiratory arrest
4. Major trauma in children
5. The shocked child
6. The unconscious child

Paediatric Acute Presentations

1. Abdominal pain
2. Accidental poisoning, poisoning and self-harm
3. Acute life-threatening event (ALTE)
4. Blood disorders

5. Breathing difficulties
6. Dehydration secondary to diarrhea and vomiting
7. Fever in all age groups
8. Floppy child
9. Gastro-intestinal bleeding
10. Headache
11. Neonatal presentations
12. Ophthalmology
13. Pain in children
14. Painful limbs – atraumatic
15. Painful limbs- traumatic
16. Rashes in children
17. Sore throat

LEARNING OUTCOMES FOR PEADRIATIC EMERGENCY MEDICINE ROTATION

1. Recognizes, assesses and manages the full range of paediatric emergency conditions.
2. Assumes the role of paediatric emergency team leader and takes responsibility for this domain of service.
3. Performs high-level clinical and technical skills and procedures in the paediatric emergency setting.
4. Liaises effectively with pre-hospital, hospital and community specialist teams.
5. Effectively manages and coordinates patient flow, staffing, safety and quality in a PED.
6. Demonstrates the ability to make pragmatic and rapid decisions across a broad range of paediatric emergencies.

PAEDIATRIC MAJOR PRESENTATIONS

1 Anaphylaxis

	LOC		Teaching and Learning Strategies	Assessment
	PGY-1-2	**PGY-3-5**		
Knowledge	Understand presentation and management of anaphylaxis in children	Be able to start treatment	**SGD,SDL**	E, ACAT, AA, C, Mi,D, L
Skills	Be able to institute appropriate management for anaphylaxis	Know when to ask for help	ST,BST,	

2 Apnoea, stridor and airway obstruction

	LOC		Teaching and Learning Strategies	Assessment
	PGY-1-2	**PGY-3-5**		
Knowledge	Know the infective, allergic and obstructive causes of airway obstruction in children including epiglottitis and post-tonsillectomy bleeding Know the indications and contraindications for a surgical airway Know the age appropriate algorithms for obstructed airway including choking Know how to assess, establish and maintain a patent airway in a child		**WS, SGD,ST,BST**	D, E, ACAT, AA, C, Mi, L,S

Skills	Be able to recognize signs of airway obstruction Be able to perform the basic and advanced life support manoeuvres for the choking child Call for senior help when appropriate	Be able to perform a surgical airway in children (Simulation for surgical airway)	WS,SEP,BST ST	

3 Cardio-respiratory arrest

	LOC		Teaching and Learning Strategies	Assessment
	PGY-1-2	**PGY 3-5**		
Knowledge	Understand the causes of cardiac arrest in children, recognizing respiratory and circulatory failure are the commonest precipitants but including drowning, electrocution and hypothermia Understand the prognostic factors influencing the outcome of cardiac arrest in children Know the APLS/EPLS/NLS guidelines Understand the pharmacology, indications and contraindications, dose calculation and routes of administration of drugs used in resuscitation and in the stabilisation of children in cardiac arrest Know when to cease resuscitation	Be able to resuscitate the new born It is recommended that trainees know the content of and have successfully completed a neonatal life support course	WS,ST,BST	E, ACAT,AA, C, Mi

	Understand the appropriate management of sudden death in infancy and the local management guidelines for supporting the family			
Skills	Be able to establish and maintain a patent airway using basic airway manoeuvres and adjuncts and ventilate using BVM Be able to intubate Be able to lead a resuscitation team Be able to obtain peripheral venous, arterial and intra-osseousaccess Be able to institute re- warming techniques in the hypothermic patient	Be able to participate with the paediatrician in the management of sudden death in infancy understanding investigations, procedures and care of the parents To be able to lead and coordinate a paediatric cardiac arrest (resuscitation)	WS,ST,BST, SEP	E, ACAT, AA, C, Mi D,L

4- Major trauma in children

	LOC		Teaching and Learning Strategies	Assessment
	PGY-1-2	**PGY-3-5**		
Knowledge	Understand and apply the principles of ATLS/APLS to paediatric trauma management **Head injury** Understand the pathophysiology and clinical signs of severe head injury and when neurosurgical involvement is needed Understand the NICE guidelines **Chest injury** Know the likely chest injuries through the different age groups including pulmonary contusion and flail chest **Abdominal injury**	More complex presentations with greater instability and in young children.	**WS,ST,BST, SDL**	E, ACAT,AA, C, Mi

	Understand the common types of injury, their clinical detection and investigation **Spinal injury** Understand the mechanisms and risk of spinal injury in children Be aware of SCIWORA Understand the pathophysiology and signs of neurogenic shock **Burns** Be able to calculate the % burn surface area for children and fluid requirements Recognize depth of burn, specific				

	areas e.g. face and who needs specialist referralRecognize burns as presentation of possible NAI **Pelvic fractures** Understand the common fracturepatterns **Physical Abuse** Understand how to recognize signs of physical abuse and how to proceed with local safeguarding children protocols			
Skills	To recognize those patients who need intubation Be able to assess the level of consciousness in a child using AVPU, GCS Be able to request appropriate imaging as per national guidelines Be able to initiate management of children with scalp wounds Be able to manage the anxious immobilised child	To be able to lead and coordinate a paediatric trauma resuscitation To be able to perform pericardiocentesis (by simulation)	BST,ST,WS,SEP	E, ACAT, AA, C, Mi D, L, S

	Be able to examine the spine and apply the indications for being able to 'clear' the spine Be able to interpret paediatric spinal x-rays and their common abnormalities Be able to recognize possible patterns of NAI in burns injury and make appropriate referral Be able to splint the pelvis during the primary survey Be able to treat pneumo- and haemothoraces Be able to recognize the non-responder to fluid therapy and need for urgent surgical attendance			

5- The shocked child

	LOC		Teaching and Learning Strategies	Assessment
	PGY-1-2	**PGY-3-5**		
Knowledge	Be able to recognize the child in shock and formulate a differential diagnosis Understand the pathophysiology, classification and management of septic shock	Become more expert in achieving diagnosis	WS,ST,SEP	E, ACAT, AA, C, Mi
Skills	Be able to recognize and initiate treatment of the septic child asper national guidelines		WS,ST,BST,SEP	E, ACAT, AA, C, Mi, D, L

6 The unconscious child

	LOC				Teaching and Learning Strategies	Assessment
	PGY-1-2			PGY-3-5		
Knowledge	**Seizures** including status epilepticus in children Know the differential diagnosis of seizures including febrile convulsions	**Hypoglycaemia** Understand the causes, presentations, complications, investigations and emergency treatment in the neonatal period and beyond	**Diabetic ketoacidosis in children** Understand local and national guidelines for themanagement of diabetic ketoacidosis including the principles of fluid management and insulin therapies	Become more expert in dealing with the unconsciouschild Understanding inborn error as a cause of hypoglycaemia and its initial investigation in theED	SGD,SDL,	E, ACAT, AA, C, Mi

Skills	Be able to recognize and treat the life-threatening complications Be able to institute appropriate management for status epilepticus (e.g. APLS protocol)	Able to reverse hypoglycaemia	Be able to formulate a likely diagnosis and recognize features of the presentation and complications Be able to recognize the features of cerebral oedema and be able to provide emergency treatment Be able to perform appropriate investigations and act on the results Be able to prescribe fluid, electrolyte and insulin therapy according to local guidelines		ST, BST, SGD,SDL	E, ACAT, AA, C, Mi,D, LS

Paediatric Acute Presentations

1 Abdominal pain

	LOC		Teaching and Learning Strategies	Assessment
	PGY-1-2	**PGY-3-5**		
Knowledge	Know and recognize the causes of abdominal pain in all age groups Scrotal pain - understand differential diagnosis, investigation and management including those requiring surgical referral	Recurrent abdominal pain - understand contributing factors Ensure appropriate follow-up Constipation - identify contributing factors, initiate treatment and ensure follow - up	SGD, SDL	E, ACAT, AA, C, Mi
Skills	Be able to examine and recognize the cause of acute abdominal pain		BST, ST	E, ACAT, AA, C, Mel, D

2-Accidental poisoning, poisoning and self-harm

	LOC			
	PGY-1-2	**PGY-3-5**	**Teaching and Learning Strategies**	**Assessment**
Knowledge	Identify the major types of ingestion by age Understand the specific signs and symptoms of poisoning with a range of toxic agents Be able to investigate Understand the role of antidotes and charcoal Be able to access poisons information Understand the pharmacology and treatment of common poisonings Be aware of OD as expression of self-harm	How to manage the adolescent refusing treatment for a life-threatening overdose	SGD, SDL,	E, ACAT, AA, C, Mi, L
Skills	Self-harm in children and adolescents		BST, ST,	E, ACAT, AA, C, Mi, L

	Recognize this as an expression of distress, acute or long-term Recognize self-harm as indicating serious emotional distress Refer to the Child and Adolescent Mental Health Service team			

3 Acute life-threatening event(ALTE)

			Teaching and Learning Strategies	Assessment
	PGY-1-2	**PGY-3-5**		
Knowledge	Know when an infant may be seriously ill, exhibits apnoea, colour change, change in muscle tone, choking or gagging Know the common causes: Central apnoea Obstructive apnoea GO Reflux Arrhythmias and myocarditis Breath holding Near SIDs Toxins		SGD, SDL	E, ACAT, AA, C, Mi, L,
Skills	Be able to take full history and examination and initiate appropriate tests Arrange admission		BST,ST	E, ACAT, AA, C, Mi, L

4 - Blood disorders

	PGY-1-2		PGY-3-5	Teaching and Learning Strategies	Assessment
Knowledge	**Sickle cell anaemia Anaemia** Understand the common presentations and complications of sickle cell crises Provide emergency management as well as appropriate pain control and fluid balance Understand the presentation and causes of anaemia and ensure appropriate referral	**Purpura and bruising in children** Understand the causes of purpura Be able to recognize features in the presentation which suggest serious pathology including meningo- coccaemia and leukaemia	**Leukaemia/ lymphoma in children** Understand the presentations	SGD, SDL	E, ACAT, AA,C, Mi, L
Skills	Be able to prescribe fluids and analgesia safely	Be able to manage life-threatening causes of purpura	Be able to recognize and ensure referral	BST,ST,	E, ACAT, AA,C, Mi, L

		Be able to diagnose organize follow- up and explain Henoch Schönlein purpura and idiopathic thrombo- cytopenia Be able to recognize patterns suggestive of NAI and organize care			

5- Breathing difficulties - recognize the critically ill and those who will need intubation and ventilation

	LOC		Teaching and Learning Strategies	Assessment
	PGY1-2	**PGY3-5**		
Knowledge	**Asthma in children** Understand and apply the BTS guidelines for the management of asthma Understand the indications, contraindications and pharmacology of the therapies available Understand indications for intubation in severe asthma and the drugs used **Bronchiolitis** Understand the principles of management **Pneumonia in children** Understand the principles of management of community acquired pneumonia **Pertussis** Understand the age dependent presentations and indications for admission Initiate appropriate treatment of patient and contacts **Cardiac causes** Heart failure and dysrhythmias		WS, SGD,SDL	E, ACAT, AA,C, Mi, L
Skills	Recognize life-threatening asthma, and who may need intubation and ventilation Be able to provide BVM Prescribing skills		WS,BST,ST	E, ACAT, AA,C, Mi, L review of drug charts

6 - Concerning presentations

	LOC				Teaching and Learning Strategies	Assessment
	PGY1-2			PGY3-5		
Knowledge	**Physical abuse** Understand the signs of physical abuse Understand the signs of common injury or illness that may mimic physical abuse Understand the common fractures seen in physical abuse	**Sexual abuse** Understand the ways in which children might reveal sexual abuse Understand and recognize the signs and symptoms of sexual abuse Understand the importance of seeking help from experienced colleagues in the assessment of children where NAI might be an issue	**Neglect** Understand the ways in which children may present with neglect		SDG,SDL	E, ACAT, AA, C, Mi, L

Skills	Be able to recognize patterns of injury or illness which might suggest NAI Be able to initiate safeguarding children procedures as per local policy	Be able to institute appropriate safeguarding children procedures if sexual abuse suspected	Be able to refer appropriately		ST,BST	E, ACAT, AA, C, Mel,

7 - Dehydration secondary to diarrhoea and vomiting

	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY1-2	**PGY3-5**		
Knowledge	Know the aetiology, patho-physiology and presentation of dehydration Be able to recognize the life-threatening complications of dehydration	**Pyloric stenosis** Understanding of the presentation, investigation and treatment of life- threatening electrolyte disturbances	SGD,SDL	E, ACAT, AA, C, Mel,

Skills	Be able to calculate and prescribe fluid replacement, maintenance fluids and replacement for ongoing losses		BST,ST,	E, ACAT, AA, C, Mi, L

8 - ENT

	LOC			**Teaching and Learning Strategies**	**Assessment**
	PGY1-5				
Knowledge	**Traumatic ear conditions in children** Be aware of the possibility of NAI in cases of ear trauma	**Earache or discharge in children** Understand the presentation of otitis media and glue ear and their association with hearing loss in children	**Painful noses** Identify FBs Identify fractured nose, septalhaematoma	SGD,SDL	E, ACAT, AA,C, Mi, L

Skills	Be able to remove foreign bodies in the ear canal or pinna Be able to recognize a haematoma requiring surgical drainage	Be able to perform otoscopy correctly Be able to identify otitis externa and otitis media and treat them appropriately	Recognize that language delay or attention deficit requires onward referral	ST,BST,SEP	E, ACAT, AA,C, Mi, L

9- Fever in all age groups

	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY1-2	**PGY3-5**		
Knowledge	Be able to take a comprehensive history and examination of a feverish child. Know of national guidelines for the management of fever in children To identify possible causes **Urinary tract infections**	Becoming more expertise with presentations Knowing which children can be safely sent home	SGD,SDL,	E, ACAT, AA, C, Mi

	Understand the presentation aetiology and management of UTI in the acute setting for different age groups Understand the range and accuracy of the different methods of urine collection Be able to interpret microbiological findings and institute appropriate treatment Understand need for and types of further investigation **Meningitis/encephalitis** Understand the bacterial and viral aetiologies for all age groups and the appropriate antimicrobial/antiviral treatment Be able to recognize and institute treatment for life- threatening complications including raised intracranial pressure				

	Understand and recognize the presentation, signs and management of Kawasaki disease			
	When no focus found Understand the implications for the different age groups			
Skills	Prescribing skills for antipyretics and antibiotics Be able to collect blood cultures, perform SPA and LP Knowing when to admit and ask for help		BST,ST,SEP	E, ACAT, AA, C, Mi,D, L

10- Floppy child

	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY1-2	**PGY3-5**		
Knowledge	Understand the differential diagnosis of presentation of a child who is floppy		**SGD,SDL**	E, ACAT, AA, C, Mi, L

Skills	Being able to recognize and treat life-threatening conditions		ST, BST	

11 - Gastro-intestinal bleeding

	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY1-2	**PGY3-5**		
Knowledge	Understand the causes of upper and lower GI bleeding, recognizing life- threatening causes including intussusception		SGD,SDL	E, ACAT, AA, C, Mi, L
Skills	Be able to stabilize the hemodynamically compromised patient including use of intraosseous and central access Be able to identify appropriately the need for investigations including endoscopy, blood transfusion and surgical referral		BST,ST,SEP	E, ACAT, AA, C, Mel, D

12 - Headache

	LOC	**Teaching and Learning**	**Assessment**
	PGY1-5		

			Strategies	
Knowledge	**Meningitis/encephalitis in children** Understand the bacterial and viral aetiologies for all age groups and the appropriate antimicrobial / antiviral treatment	**Headaches in children** Know the causes and differential diagnosis in children	SGD,SDL	E, ACAT, AA,C, Mi, L
Skills	Be able to recognize and institute treatment for life-threatening complications, including raised intracranial pressure	Initiate investigation and management	BST,ST,	E, ACAT, AA,C, Mi, L

13- Neonatal presentations

					Teaching and Learning Strategies	Assessment
	PGY1-2	**PGY3-5**				
Knowledge	**Delivery* and resuscitation of the newborn** To have the knowledge and skills to be able toassess and manage	**Neonatal sepsis** Know symptoms and signs of sepsis in children e.g. hypothermia, apnoea	**Cyanotic/ non- cyanotic congenital heart disease** Importance and relevance of duct dependent	**Jaundice** Understand the causes and investigation of neonatal jaundice	SGD.SDL	E, ACAT, AA, C, Mi, L

	neonates presenting to the ED. Be able to formulate a differential diagnosis for a variety of common presenting symptoms. Be able to lead a resuscitation team as per APLS / EPLS / NLS guidelines To understand the patho-physiological processes leading to neonatal cardio-pulmonary instability, including the role of thermos-regulation. Be able to identify neonates requiring admission, midwife or health visitor input and identify mothers requiring	Understand d the importance of timely treatment and the range of treatments for likely pathogens	heart disease			

14- Ophthalmology

	LOC	Teaching and Learning Strategies	Assessment
	PGY1-5		
Knowledge	Orbital cellulitis	**SGD,SDL**	E, ACAT, AA, C, Mel, D
Skills	Be able to test for visual acuity	BST,ST,SEP	

15 - Pain in children

	LOC		Teaching and Learning Strategies	Assessment
	PGY1-2	PGY3-5		
Knowledge	Know how to assess pain in children Know the range of options to relieve pain – non-pharmacological and pharmacological - agents, routes of administration, dosage Know how to select best option. Know the safe doses, side effects and toxicity of different agents	Become more expert in the use of all analgesics in children especially ketamine	**WS,SGD,SDL**	E, ACAT, AA, C, Mel, D

	Know principles of how to safely sedate using ketamine including use of sedation check lists, management of complications including larnygospasm and discharge instructions			
Skills	Be able to prescribe and safely deliver nasal diamorphine, intravenous opiates, local anaesthetic blocks, oral analgesics and entonox		WS,BST,ST,SEP	

16 - Painful limbs – atraumatic

	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY1-2	**PGY3-5**		
Knowledge	Be aware of rheumatological, infectious, malignant and non-accidental causes of musculoskeletal presentations **Limping child** Be able to examine gait, posture and hip joints of all age groups	Non-traumatic backpain	**SGD,SDL**	E, ACAT, AA, C, Mi, L

	Understand the differential diagnosis of limp **Septic arthritis** Be able to suspect this in different age groups			
Skills	Be able order the correct bloodtests Be able to order the correct imaging Know when to refer for specialist opinion		BST, ST,	

17 - Painful limbs- traumatic

	LOC		**Teaching and Learning Strategies**	**Assessment**
	PGY1-2	**PGY3-5**		
Knowledge	Understand the likely types of soft tissue and bony injuries for each age group Be able to judge if these relate appropriately to the stated mechanism of injury Be aware of rheumatological, infectious, malignant and non-accidental causes of musculoskeletal presentations Be able to examine a child in a way which localizes the injury Understand the Salter-Harris classification of		WS,SGD,SDL	E, ACAT, AA, C, Mi, L

	epiphyseal injuries Understand the likely time-frame for recovery in children Know the common fractures and injuries, specifically: Hand injuries including nail bed injuries Distal radius and scaphoid fractures Dislocated shoulder Supracondylar fracture of the elbow and be able to identify those with neurovascular problems Pulled elbow - be able to reduce Forearmfracture dislocations Fractured femur and be able to perform femoral nerve block and splintage Toddler's fracture Compartment syndrome Patellar dislocation Amputation and preservation of tissue			
SKILLS	Be able to examine the joints Be able to check for neurovascular compromise Be able to reduce a dislocation Be able to recognize which fractures need an orthopedic opinion and those that cannot betreated in the ED		WS,ST,BST	E, ACAT, AA, C, Mi, L

18- Rashes in children

	LOC PGY1-5		Teaching and Learning Strategies	Assessment
Knowledge	**Eczema and seborrheic dermatitis** Understand the common treatments for eczema and reasons for treatment failure	**Bites and infestations** Understand the aetiology by age and the pathophysiology of bites and infestations Understand and recognize the signs and symptoms of bites and infestations	**SGD,SDL,**	
Skills	Be able to manage eczema and seborrheic dermatitis Be able to advise patients and families about disease process and treatment	Be able to manage children with acute bites and infestations, including recognition of signs and symptoms of life- and limb- threatening complications	BST,ST	E, ACAT, AA,C, Mi, L

19- Sore throat

	LOC PGY1-5	Teaching and Learning Strategies	Assessment
Knowledge	**Acute throat infections in children** Be aware of life- threatening airway obstruction in epiglottitis, and how to avoid it Be able to identify quinsy Be able to manage or refer for FBs in the throat	SGD, SDL, BST,	E, ACAT, AA, C, Mi, L
Skills	Recognize the potentially life-threatening nature of post-tonsillectomy bleeding	ST,BST	

CURRICULUM OF EMERGENCY MEDICINE ULTRASOUND EDUCATION

The curriculum and assessment system for ultrasound in EM should be delivered during PGY4-5. It is anticipated that some trainees will become familiar with the theoretical principles of ultrasound during PGY3. However, the formal assessment and examination of these skills and the theoretical principles will not be undertaken until the trainee is in year 4 & 5. Most of the learning will be delivered by SGD, workshops and hands on training.

SYLLABUS OF RADIOLOGY ROTATION

Point-Of-Care Ultrasound

1. Focused cardiac ultrasound:
2. FAST (Focused Assessment with Sonography in Trauma)Abdominal ultrasound:
3. Ultrasound-guided procedures:
4. Lung ultrasound
5. Soft tissue ultrasound
6. Venous and arterial Doppler

Radiology

1. Indications, contraindications and risk of contrast studies
2. Indications and benefits of MRI in special circumstances
3. Basic interpretations of different x-ray findings
4. Basic interpretations of different CT scans in ER

1- Ultrasound physics

	PGY-4-5	Teaching and Learning Strategies	Assessment
Knowledge	The basic components of an ultrasound System. Types of transducers and the production of ultrasound, with an emphasis on operator- controlled variables Use of ultrasound controls Know the frequencies used in medical ultrasound and the effect on image quality and penetration The interaction of ultrasound with tissue including biological effects Safety issues in ultrasound The basic principles of real time and Doppler ultrasound including colour flow and power Doppler The recognition and explanation of common artefacts in image recording systems	DIDACTIC LECTURE, WS, SDL	C, AA, W
Skills	Can operate the key machine controls Transducer changing Image manipulation and storage	WS,ST,SEP	D
Behaviour	Safe practice Recognizes limitations of own skills	ST	E, C

2- Sectional and ultrasonic anatomy

	PGY4-5	Teaching and Learning Strategies	Assessment
Knowledge	Kidneys, liver, spleen retro-peritoneal structures (aorta, IVC) recto-vesical, vesical-uterine and recto-uterine pouches Heart and pericardium Vessels: internal jugular veins, carotid arteries, femoral veins and arteries, antecubital and basilic veins	DIDACTIC LECTURE, SDL	E, C, W
Skills	Describe and sketch key anatomy	ST,SEP	D
Behaviour	Adheres to rule-in philosophy	ST,SEP	E, C

3- Pathology in relation to ultrasound

	PGY4-5	Teaching and Learning Strategies	Assessment
Knowledge	Kidneys: trauma/free fluid Liver and spleen: trauma/free fluid Retroperitoneal: presence or absence of abdominal aortic aneurysm (AAA) Vessels: vascular access Cardiac scan: trauma/pericardial tamponade, pericardial effusions, asystole	DIDACTIC LECTURE, SDL	E, C, W
Skills	Describe and sketch key pathologies	ST,SEP	C, D
Behaviour	Adheres to rule in philosophy	ST,SEP	E, C

4- Administration and governance

	PGY4-5	Teaching and Learning Strategies	Assessment
Knowledge	Image recording, storing and filing. Reporting medico-legal aspects – outlining the responsibility to practise within specific levels of competence and the requirements for training. Consent. The value and role of departmental protocols. The resource implications of ultrasound use	**DIDACTIC LECTURE ,SDL**	E, C, W
Skills	Integrate EMUS into departmental clinical governance system	ST,SEP	D
Behaviour	Adheres to rule-in philosophy	ST,SEP	C

5- Focused assessment using sonography in trauma(FAST)

	PGY4-5	Teaching and Learning Strategies	Assessment
Knowledge	Use focused ultrasound to assist in bedside emergency department decisions Four areas to scan How to position the patient Key indications Obtaining better views Understand common aortic artefacts Recognize the limitations of a scan and be able to explain these limitations to patients/carers Recognize patients requiring formal specialist sonographic assessment Incorporate ultrasound findings with the rest of the clinical assessment Appearances of pleural and pericardial fluid Appearances of fluid in Morison's pouch, spleno-renal recess, and pelvis	DIDACTIC LECTURE, SDL, ST	E, C, AA, W
Skills	Can obtain adequate images Can interpret accurately in the clinical setting	ST, WS	D
Behaviours	Safe practice Recognizes limitations of own skills	ST,WS	E, C

6- Assessment of the abdominal aorta competency

	PGY4-5	Teaching and Learning Strategies	Assessment
Knowledge	Use focused ultrasound to assist in bedside emergency department decisions Recognize the limitations of a scan and be able to explain these limitations to patients/carers How to position the patient Key indications Knows anatomy Understands common aortic artefacts Knows the views to obtain Can measure aortic diameter Recognizes different types of aneurysm Understands when to use Knows normal limits Distinguishes aorta from IVC Can identify SMA and coeliac axis Knows leaks /bleeding cannot be seen Incorporate ultrasound findings with the rest of the clinical assessment	DIDACTIC LECTURE, SDL,ST	E, C, AA, W
Skills	Can obtain adequate images Can interpret accurately in the clinical setting	ST,	D
Behaviours	Safe practice Recognizes limitations of own skills Adheres to rule-in philosophy	ST	E, C

7- Vascular access competency

	PGY4-5	Teaching and Learning Strategies	Assessment
Knowledge	Knows vascular anatomy Can locate IJV, femoral vein and basilic veins Can describe use of ultrasound to assist or to guide cannulation Understands parallelism and angle of approach	DIDACTIC LECTURE ,ST	E, C, AA, W
Skills	Can obtain adequate images Can use sterile probe covers Can cannulate using ultrasound guidance Can avoid risk of air embolism Can avoid significant bleeding Can conduct without unnecessary discomfort to thepatient	ST	D
Behaviours	Safe practice Recognizes limitations of own skills Adheres to rule-in philosophy	ST	E, C

8- Echo in Life Support (ELS)

	PGY4-5	Teaching and Learning Strategies	Assessment
Knowledge	Limited echocardiogram in the setting of non-shockable cardiac arrest rhythms (PEA and asystole) Detecting wall motion Knows the treatable causes of PEA (cardiac tamponade, hypovolaemia, and pulmonary embolism) Views used - sub-xiphoid view first, augmented by a further view - the parasternal long axis view Visualisation of the inferior vena cava (IVC) for assessment of diameter and collapsibility	DIDACTIC LECTURE, ST	E, C, AA, W
Skills	Can obtain adequate images Can interpret accurately in the clinical setting	ST	D
Behaviours	Safe practice Recognizes limitations of own skills Adheres to rule-in philosophy	ST	E, C

CURRICULUM FOR ANAESTHESIA IN EMERGENCY MEDICINE

PGY1-5

During rotation in anaesthesia department, trainees must achieve following competencies;

- Preoperative assessment
- Premedication
- Induction of general anaesthesia
- Intra-operative care
- Postoperative and recovery room care
- Management of respiratory and cardiac arrest
- Control of infection
- Introduction to anaesthesia for emergency surgery
- Sedation
- Critical incidents

1- Preoperative Assessment

Is able to perform a structured preoperative anaesthetic assessment of a patient prior to surgery and recognize when further assessment/optimization is required prior to commencing anaesthesia/surgery

A) History Taking This training will: • Develop the ability to elicit a relevant structured history from patients • Ensure the history obtained is recorded accurately • Ensure the history is synthesized with the relevant clinical examination			
	LOC	**Teaching and Learning Strategies**	**Assessment**
	Recognizes the importance of different elements of history		

Knowledge	Recognizes that patients do not always present history in a structured fashion	SGD, SDL, BST	A,C,E
	Knows the likely causes and risk factors for conditions relevant to mode of presentation		
	Recognizes that the patient's agenda and the history should inform examination, investigation and management		
Skill	Identifies and overcomes possible barriers to effective communication	BST, ST, SGD	A,C,D,M
	Recognizes that effective history taking in non- urgent cases may require several discussions with the patient and other parties, over time		
	Assimilates history from the available information from the patient and other sources including members of the multi- professional team		
	Recognizes and interprets appropriately the use of non-verbal communication from patients and carers		
	Focuses on relevant aspects of history and maintains focus despite multiple and often conflicting agendas		

B) initial Examination

This training will enable the learner to:

- Develop the ability to perform focused, relevant and accurate clinical examination in patients with increasingly complex issues and in increasingly challenging circumstances
- Develop the ability to relate physical findings to history in order to establish diagnosis[es] and formulate managementplan[s]

	LOC	Teaching and Learning Strategies	Assessment
Knowledge	Understands the need for a targeted and relevant clinical examination	SGD, SDL, ST	A,C,E
	Understands the basis for clinical signs and the relevance of positive and negative physical signs		
	Recognizes constraints to performing physical examination and strategies that may be used to overcome them		
Skills	Performs an examination relevant to the presentation and risk factors that is valid, targeted and time efficient	BST,ST,	A,C,D
	Recognizes the possibility of deliberate harm [both self harm and harm by others] in vulnerable patients and report to appropriate agencies		
	Actively elicits important clinical findings		
	Performs relevant adjunctive examinations		

c) SPECIFIC ANAESTHETIC EVALUATION

This training will:

- Develop the ability to establish a problem list
- Develop the ability to judge whether the patient is fit for and optimally prepared for the proposed intervention
- Develop the ability to plan anaesthesia and post-operative care for common surgical procedures
- Develop the ability to recognize the trainee's limitations and reliably determine the level of supervision they will need
- Ensure trainees can explain options and risks of routine anaesthesia to patients, in a way they understand, and obtain theirconsent for anaesthesia

	Description	**Teaching and Learning Strategies**	**Assessment**
Knowledge	Knows the methods of anaesthesia that are suitable for common operations in the surgical specialties. Typical experience at this early stage of training will be in: General surgery, Gynaecology, Urology,Orthopaedic surgery, ENT, Dental	DIDACTIC LECTURE ,SDL, ST, BST	A,C,D,E
	Describes the ASA classifications and their implications in preparing for and planning anaesthesia		
	Explains the indications for and interpretation of preoperative investigations		
	Lists the indications for preoperative fasting and understand appropriate regimens		
	Explains the methods commonly used for assessing the airway to predict difficulty with tracheal intubation		
	Discusses the indications for RSI		

	Gives examples of how common co-existing diseases affect anaesthesia and surgery including, but not exclusively: obesity, diabetes, asthma, ischaemic heart disease, hypertension and rheumatoid disease, epilepsy		
	Discusses how to manage drug therapy for co- existing disease in the peri-operative period including, but not exclusively: obesity, diabetic		
	treatment, steroids, anti-coagulants, cardiovascular medication, epilepsy		
	Explains the available methods to minimize the risk of thromboembolic disease following surgery		
	Knows about the complications of anaesthetic drugs [including anaphylaxis, suxamethonium apnoea and malignant hyperpyrexia] and how to predict patients who are at increased risk of these complications		
	Identifies the principles of consent for surgery and anaesthesia,		
SKILLS	Demonstrates satisfactory proficiency in obtaining a history specifically relevant to the planned anaesthesia and surgery		A,C,D,E,M
	Demonstrates satisfactory proficiency in performing a relevant clinical examination	BAT,ST, SGD	
	Demonstrates understanding of clinical data including, but not exclusively: Patient's clinical case notes and associated records		

	Demonstrates understanding of clinical laboratory data including: Hematology, Biochemistry, Urea and electrolytes, Liver function & Thyroid function		
	Identifies normal appearances and significant abnormalities in radiographs		
	Presents all information to patients [and carers] in a format they understand, checking understanding and allowing time for reflection on thedecision to give consent		

2- Premedication

Learning outcomes:

- Understands the issues of preoperative anxiety and the ways to alleviate it
- Understands that the majority of patients do not require pre-medication
- Understands the use of preoperative medications in connection with anesthesia and surgery
- Is able to prescribe premedication as and when indicated, especially for the high-risk population

	LOC	**Teaching and Learning Strategies**	**Assessment**
	Summarizes the value of appropriate explanations and reassurance in alleviating the patient's anxiety		
	Lists basic indications for prescription of premedicant drugs		
	Explains how to select appropriate sedative or anxiolytic agents		
	Discusses the applied pharmacology of these drugs	DIDACTIC LECTURE,	

Knowledge	Recalls/describes the applied pharmacology of pro-kinetic and antacids including simple alkalis,H_2 and proton pump antagonists	SDL, ST	A,C,D,E
	Identifies local/national guidelines on management of thromboembolic risk and how to apply them		
	Explains the principles and practice of using prophylactic antibiotics		
SKILL	Selects and prescribes appropriate agents to reduce the risk of regurgitation and aspiration, in timeframe available	BST, ST, SGD	A,C,D,E,M
	Explains, in a way the patient understands, the benefits and possible risks of sedative premedication		
	Selects and prescribes appropriate anxiolytic/sedative premedication when indicated		

3- Induction of general anaesthesia

Learning outcomes:
The ability to conduct safe induction of anaesthesia in ASA grade 1-2 patients confidently
The ability to recognize and treat immediate complications of induction, including tracheal tube misplacement and adverse drug reactions
The ability to manage the effects of common co-morbidities on the induction process
Core clinical learning outcomes:
Demonstrates correct pre-anaesthetic check of all equipment required ensuring its safe functioning [including the anaesthetic machine/ventilator in both the anaesthetic room and theatre if necessary]
Demonstrates safe induction of anaesthesia, using preoperative knowledge of individual patient's co-morbidity to influence appropriate induction technique; shows awareness of the potential complications of process and how to identify and manage them(The use of simulators may assist in the teaching and assessment of some aspects of this section e.g. failed intubation drill)

	LOC	Teaching and Learning Strategies	Assessment
Knowledge	In respect of the drugs used for the induction of anaesthesia: recalls/summarizes the pharmacology and pharmacokinetics, including doses, interactions and significant side effects of: induction agents, muscle relaxants, analgesics, inhalational agents including side effects, interactions and doses. Identifies the factors that contribute to drug errors in anaesthesiaand the systems to reduce them	DIDACTIC LECTURE, SDL, ST, BST,WS	A,C,D,E
	In respect of the equipment in the operating environment: describes the basic function of monitors and knows what monitoring is appropriate for induction including consensus minimum monitoring standards and the indications for additional monitoring Explains the function of the anaesthetic machine including: the basic functions of gas flow, pre-use checking of the anaesthetic machine, the structural features of the anaesthetic machine that minimize errors, the operation of the anaesthetic ventilator, the function of the anaesthetic vaporizers, the operation of any monitoring equipment that is integral with the anaesthetic machine, knows how to replenish anaesthetic vaporizer		
	Identifies the special problems of induction associated with cardiac disease, respiratory disease, musculoskeletal disease, obesity and those at risk of regurgitation /pulmonary aspiration		
	Describes the principles of management of the airway including: Techniques to keep the airway open and the use of face masks, oral and nasopharyngeal airways and laryngeal mask airways		

	In respect of tracheal intubation: • Lists its indications • Lists the available types of tracheal tube and identifies their applications • Explains how to choose the correct size and length of tracheal tube • Explains the advantages/disadvantages of different types of laryngoscopes and blades including, but not exclusively, the Macintosh and McCoy • Outlines how to confirm correct placement of a tracheal tube and knows how to identify the complications of intubation including endo-bronchial and oesophageal intubation • Discusses the methods available to manage difficult intubation and failed intubation • Explains how to identify patients who are at increased risk of regurgitation and pulmonary aspiration and knows the measures that minimize the risk • Categorizes the signs of pulmonary aspiration and the methodsfor its emergency management		
	Explains the importance of maintaining the principles of aseptic practice and minimizing the risks of hospital acquired infection		
	Demonstrates safe practice in checking the patient in the anaesthetic room		
	Demonstrates appropriate checking of equipment prior to induction, including equipment for emergency use		

SKILLS	In respect of the equipment in the operating environment:
	• Demonstrates understanding of the function of the anaesthetic machine including:
	  ○ Performing proper pre-use checks
	  ○ Changing/checking the breathing system
	  ○ Replenishing the vaporizer
	  ○ Changing the vaporizer
		BST, ST, WS,	A,C,D,E,M

	Demonstrates safe practice in selecting, checking, drawing up, diluting, labelling and administering drugs		
	In respect of intravenous cannulation: • Obtains intravascular access using appropriate size cannula inappropriate anatomical location • Demonstrates rigorous aseptic technique when inserting a cannula		
	In respect of monitoring: • Demonstrates appropriate placement of monitoring, including ECG electrodes and NIBP cuff • Manages monitors appropriately e.g. set alarms, start automatic blood pressure • Demonstrates proficiency in the interpretation of monitors		
	Demonstrates effective pre-oxygenation, including correct use of the mask, head position and clear explanation to the patient		

	In respect of intravenous induction: • Makes necessary explanations to the patient • Demonstrates satisfactory practice in preparing drugs for the induction of anaesthesia • Demonstrates proper technique in injecting drugs at induction of anaesthesia		
	• Manages the cardiovascular and respiratory changes associated with induction of general anaesthesia		
	In respect of inhalational induction of anaesthesia: • Satisfactorily communicates with the patient during induction • Satisfactorily conducts induction		
	In respect of airway management: • Demonstrates optimal patient position for airway management • Manages airway with mask and oral/nasopharyngeal airways • Demonstrates hand ventilation with bag and mask • Able to insert and confirm placement of a Laryngeal Mask Airway • Demonstrates correct head positioning, direct laryngoscopy and successful nasal/oral intubation techniques and confirms correct trachealtube placement • Demonstrates proper use of bougies • Demonstrates correct securing and protection of LMAs/tracheal tubes during movement, positioning and transfer • Correctly conducts RSI sequence • Correctly demonstrates the technique of cricoid pressure		

	Demonstrates correct use of oropharyngeal, laryngeal and tracheal suctioning		
	Demonstrates failed intubation drill		

4- Intra-operative care

Learning outcomes:

- Demonstrates safe maintenance of anaesthesia and shows awareness of the potential complications and how to identify and manage them
- The ability to use the anaesthesia monitoring systems to guide the progress of the patient and ensure safety
- Understanding the importance of taking account of the effects that co-existing diseases and planned surgery may have on the progress of anaesthesia
- Recognize the importance of working as a member of the theatre team

	LOC	Teaching and Learning Strategies	Assessment
KNOWLEDGE	Demonstrates how to direct the team to safely transfer the patient and position of patient on the operating table and is aware of the potential hazards including, but not exclusively: nerve injury, pressure points, ophthalmic injuries	DIDACTIC LECTURE, SDL, ST	A,C,D,E
Skills	Manages the intra-operative progress of spontaneously breathing and ventilated patients	ST, BST, WS, SGD	
	Demonstrates the ability to maintain anaesthesia with a face mask in the spontaneously breathing patient		
	Demonstrates the use of a nerve stimulator to assess the level of neuromuscular blockade		
	Manages the sedated patient for surgery		

	Maintains accurate, detailed, legible anaesthetic records and relevant documentation		
	Demonstrates role as team player and when appropriate leader in the intra-operative environment		
	Able to respond in a timely and appropriate manner to events that may affect the safety of patients [e.g. hypotension, massive haemorrhage]		
	Manages common co-existing medical problems		

5- Post-operative and recovery room care

Learning outcomes:

- The ability to manage the recovery of patients from general anaesthesia
- Safely manage emergence from anaesthesia and extubation
- Understanding the organisation and requirements of a safe recovery room
- The ability to identify and manage common post-operative complications in patients with a variety of co-morbidities and how to manage them
- The ability to manage post-operative pain and nausea
- Prescribes appropriate post-operative analgesic regimes and treatment of PONV
- The ability to manage post-operative fluid therapy

	LOC	**Teaching and Learning Strategies**	**Assessment**
	Lists the equipment required in the recovery unit	DIDACTIC LECTURE, SDL, WS, ST	A,C,D,E
	Lists the types of monitoring and the appropriate frequency of observations required for patients having undergone different types of surgery		
	Describes the care of an unconscious patient in the recovery room, including safe positioning		

Knowledge	In respect of restoring spontaneous respiration and maintaining the airway at the end of surgery: • Explains how to remove the tracheal tube and describes the associated problems and complications • Recalls/describes how to manage laryngo spasm at extubation • Recalls/lists the reasons why the patient may not breathe adequately at the end of surgery • Recalls/identifies how to distinguish between the possible causes of apnoea • Lists the possible causes of post-operative cyanosis		
	With respect to oxygen therapy: • Lists its indications • Knows the techniques for oxygen therapy and the performance characteristics of available devices • Recalls/explains the causes and management of stridor		
	Outlines/recalls the principles of appropriate post-operative fluid regimes including volumes, types of fluids and monitoring of fluid balance including indications for urethral catheterization		A,C,D,E

	In respect of post-operative pain: • Describes how to assess the severity of acute pain • Knows the 'analgesic ladder" • Discusses how emotions contribute to pain • Identifies appropriate post-operative analgesic regimes including types of drugs and doses • Explains how to manage 'rescue analgesia' for the patient with severe pain • Lists the complications of analgesic drugs		
	In respect of PONV: • Accepts fully how distressing this symptom is • Recalls/lists the factors that predispose to PONV • Recalls/describes the basic pharmacology of anti-emetic drugs • Describes appropriate regimes for PONV		
	Recalls/lists the possible causes and management of post-operative confusion		
	Knows the causes and describes the management of post-operative hypotension and hypertension		
	Identifies the special precautions necessary for the post-operative management of patients with co-existing diseases including: cardiac disease, respiratory disease, metabolic disease, musculoskeletal disease, obesity and those at risk of regurgitation/pulmonary aspiration		

	Explains the prevention, diagnosis and management of post-operative pulmonary atelectasis		A,C,D,E
	Lists the appropriate discharge criteria for day stay patients to go home and for patients leaving the recovery room to go to the ward		
	Explains the importance of following up patients in the ward after surgery		
SKILLS	Demonstrate appropriate management of tracheal extubation, including; • Assessment of return of protective reflexes • Assessment of adequacy of ventilation • Safe practice in the presence of potentially full stomach	BST, ST, WS	A,C,D,M
	Evaluates partial reversal of neuromuscular blockade, including the use of a nerve stimulator		
	Demonstrates the safe transfer of the unconscious patient from the operating theatre to the recovery room		
	Demonstrates how to turn a patient into the recovery position		
	Makes a clear handover to recovery staff of peri-operative management and the post- operative plan		
	Prescribes appropriate post-operative fluid regimes		

	Demonstrates the assessment of post-operative pain and prescribes appropriate post-operative analgesia regimes		A,C,D,M
	Demonstrates the assessment and management of post-operative nauseaand vomiting		
	Demonstrates the assessment and management of post-operative confusion		
	Recognizes when discharge criteria have been met for patients going home or to the ward		
	Undertakes follow-up visits to patients after surgery on the ward		

6- Management of Respiratory and cardiac arrest

Management of respiratory and cardiac arrest

For those who have not completed an ALS/APLS/EPLS course successfully, simulation may be used to assist in the teaching and assessment of these competences.

Learning outcomes:

- To have gained a thorough understanding of the pathophysiology of respiratory and cardiac arrest and the skills required to resuscitate patients
- Understand the ethics associated with resuscitation

	LOC	**Teaching and Learning Strategies**	**Assessment**
	Recalls/lists the causes of a respiratory arrest, including but not limited to: • Drugs, toxins	WS, SGD, SDL, ST,	A,C,E,S

	• Trauma • Pulmonary infection • Neurological disorders • Muscular disorders		
KNOWLEDGE	Identifies the causes of cardiac arrest, including but limited to: • Ischaemic heart disease • Valvar heart disease • Drugs • Hereditary cardiac disease • Cardiac conduction abnormalities • Electrolyte abnormalities • Electrocution • Trauma • Thromboembolism		
	Demonstrates an understanding of the basic principles of the ECG, and the ability to recognize arrhythmias including but not exclusively:] • Ventricular fibrillation • Ventricular tachycardia • Asystole • Rhythms associated with pulseless electrical activity [PEA]		
	Discuss the mode of action of drugs used in the management of respiratory and cardiac arrest in adults and children including but not limited to: • Adrenaline • Atropine • Amiodarone • Lidocaine • Magnesium sulphate • Naloxone		
KNOWLEDGE	Identifies the doses of drugs, routes given [including potential difficulty with gaining intravenous access and how this is managed] and frequency, during resuscitation from a respiratory or cardiac		A,C,E,S

	arrest		
	Explains the physiology underpinning expired air ventilation and external chest compressions		
	Explains the need for supplementary oxygen during resuscitation from a respiratory or cardiac arrest in adults and children		
	Lists advantages and disadvantages of different techniques for airway management during resuscitation of adults and children, including but not limited to: • Oro and nasopharyngeal airways • Laryngeal Mask type supraglottic airways including but not limited to: LMA, Proseal,LMA supreme, iGel • Tracheal intubation		
	Explains the reasons for avoiding hyperventilation during resuscitation		
	Compares the methods by which ventilation can be maintained ina patient suffering a respiratory or cardiac arrest, using: • Mouth to mask • Self inflating bag • Anaesthetic circuit • Mechanical ventilator		
	Recalls/explains the mechanism of defibrillation and the factors influencing the success of defibrillation		
	Identifies the energies used to defibrillate a patient		
	Recalls/discusses the principles of safely and effectively delivering a shock using both manual and automated defibrillator		
	Explains the need for continuous chest compressions during resuscitation from cardiac arrest once the trachea is intubated		
	Explains the need for minimizing interruptions to chest compressions		
	Recalls/discusses the reversible causes of cardiac arrest and their		

KNOWLEDGE	treatment, including but not limited to: • Hypoxia • Hypotension • Electrolyte and metabolic disorders • Hypothermia • Tension pneumothorax • Cardiac tamponade • Drugs and toxins • Coronary or pulmonary thrombosis		A,C,E,S
	Recalls/describes the Adult and Paediatric Advanced Life Support algorithms		
	Discusses the specific actions required when managing a cardiac arrest due to: • Poisoning • Electrolyte disorders • Hypo/hyperthermia • Drowning • Anaphylaxis • Asthma • Trauma • Pregnancy [including peri-mortem Caesarean Section] • Electrocution		
	Identifies the signs indicating return of a spontaneous circulation		
	Recalls/lists the investigations needed after recovery from a respiratory or cardiac arrest and describes the potential difficulties with obtaining arterial blood samples and how this may be overcome in these patients.		
	Discusses the principles of care required immediately after successful resuscitation from a respiratory or cardiac arrest		A,C,E,S
	Discusses the importance of respecting the wishes of patients		

KNOWLEDGE	regarding end of life decisions		
	Outlines who might benefit from resuscitation attempts and the importance of knowing/accepting when to stop		
	Discusses the importance of respecting the wishes of relatives to be present during a resuscitation attempt		
	Describes the value of debriefing meetings and the importance of active participation		
SKILLS	Uses and ABCDE approach to diagnose and commence management of respiratory and cardiac arrest in adults and children	WS, ST	A,S,D,M
	Demonstrates correct interpretation of the signs of respiratory and cardiac arrest		
	Maintains a clear airway using basic techniques with or without simple adjuncts: • Head tilt • Chin lift • Jaw thrust • Oro- and nasopharyngeal airways		
	Demonstrates correct use of advanced airway techniques including: • Supraglottic devices, including but not limited to LMA, Proseal, LMA supreme,iGel • Tracheal intubation		
	Maintain ventilation using: • Expired air via a pocket mask • Self-inflating bag via facemask,oradvanced airway • Mechanical ventilator		
	Performs external cardiac compression		
	Monitor cardiac rhythm using defibrillator pads, paddles or ECG lead		
	Uses a manual or automated defibrillator to safely defibrillate a		

	patient		
	Turn a patient into the recovery position		
	Prepare a patient for transfer to a higher level of care		
	Maintains accurate records of all resuscitation events		

7- Introduction to anaesthesia for emergency surgery

Introduction to anaesthesia for emergency surgery Learning outcomes: • Undertake anaesthesia for ASA 1E and 2E patients requiring emergency surgery for common conditions • Undertake anaesthesia for sick patients and patients with major co-existing diseases, under the supervision of a more senior colleague			
	LOC	**Teaching and Learning Strategies**	**Assessment**
KNOWLEDGE	Discusses the special problems encountered in patients requiring emergency surgery and how these may be managed including: • Knowing that patients may be very frightened and how this should be managed • Recognizing that the patient may have severe pain which needs immediate treatment • Understanding that patients presenting for emergency surgery are more likely to have inadequately treated coexisting disease • Understanding how to decide on the severity of illness inthe frightened apprehensive emergency patient • Understanding the pathophysiological changes and organ dysfunction associated with acute illness • How to recognize that the patient may be dehydrated or hypovolaemic and understanding the importance of preoperative resuscitation	DIDACTIC LECTURE, WS, SDL	A,C,E,S

	In respect of the preparation of acutely ill patients for emergency surgery discusses: • How to resuscitate the patient with respect to hypovolaemia and electrolyte abnormalities • The fact that patients may be inadequately fasted and how this problem is managed • The importance of dealing with acute preoperative pain and how this should be managed		
	Describes how to recognize the 'sick' patient [including sepsis], their appropriate management and the increased risks associated with surgery		
	Understands the airway management in a patient with acute illness who is at risk of gastric reflux		
SKILLS		ST, SGD	D,S
	Manages preoperative assessment and resuscitation/optimization of acutely ill patients correctly		
	Demonstrates safe perioperative management of ASA 1 and 2 patients requiring emergency surgery		
	Manages rapid sequence induction in the high risk situation of emergency surgery for the acutely ill patient		

8- Airway Management

learning outcomes:

- Able to predict difficulty with an airway at preoperative assessment and obtain appropriate help
- Able to maintain an airway and provide definitive airway management as part of emergency resuscitation
- Demonstrates the safe management of the 'can't intubate, can't ventilate' scenario
- Maintains anaesthesia in a spontaneously breathing patient via a face mask fora short surgical procedure [less than 30minutes]

	LOC	Teaching and Learning Strategies	Assessment
Knowledge	Explains the methods commonly used for assessing the airway to predict difficulty with tracheal intubation	**WS, SGD, SDL, ST**	A,C,D,E
	Describes the effect of pre-oxygenation and knows the correct technique for its use		
	Describes the principles of management of the airway including techniques to keep the airway open and the use of face masks, oral and nasopharyngeal airways and laryngeal mask airways		
	Explains the technique of inhalational induction and describes the advantages and disadvantages of the technique		
	Knows the factors influencing the choice between agents for inhalational induction of anaesthesia		
	In respect of tracheal intubation: • Lists its indications • Lists the available types of tracheal tube and identifies their applications • Explains how to choose the correct size and length of tracheal tube		

	• Explains the advantages/disadvantages of different types the laryngoscopes and blades including, but not exclusively, the Macintosh and McCoy • Outlines how to confirm correct placement of a tracheal tube and knows how to identify the complications of intubation including endobronchial and esophageal intubation • Discusses the methods available to manage difficult intubation and failed intubation • Explains how to identify patients who are at increased risk of regurgitation and pulmonary aspiration and knows the measures that minimize the risk • Understands the airway management inpatient with acute illness who is at risk of gastric reflux • Categorizes the signs of pulmonary aspiration and the methods for its emergency management • Knows the techniques for oxygen therapy and the performance characteristics of available devices • Describes the correct prescribing of oxygen • Recalls/explains the causes and management of stridor		
	Discusses the indications for RSI		
	Describes the care of the airway in an unconscious patient in the recoveryroom, including safe positioning		
	Lists advantages and disadvantages of different techniques for airway management during resuscitation, including but not limited to: • Oral and nasopharyngeal airways • Laryngeal Mask type supra-glottic airways including but not limited to: LMA,Proseal, LMA supreme, iGel • Tracheal intubation		

	Compares the methods by which ventilation can be maintained in a patient suffering a respiratory or cardiac arrest, using: • Mouth-to- mask • Self-inflating bag • Anaesthetic circuit • Mechanical ventilator		
	Discusses the different types of laryngoscope blades available in routine practice and the indications for their use		
	Outlines the advantages/disadvantages and reasons for development of new laryngoscopes [e.g. glide scope]		
	Outlines the indications for fiber-optic intubation and how awake intubation may be achieved		
	Describes the management of the 'can't intubate, can't ventilate' scenario		
	Describes the principles of, and indications for, the use of needle cricothyrotomy and manual jet ventilation		
SKILLS	Demonstrates satisfactory proficiency in performing a relevant clinical examination and assessment of the airway and dentition	**WS, ST,**	A,C,D,E,S
	Identifies normal appearances and significant abnormalities in radiographs including: • Cervical spine, chest • Head CT and MRI showing clear abnormalities relevant to the airway		

	Reliably predicts the level of supervision they will require		
	Demonstrates effective pre-oxygenation, including correct use of the mask, head position and clear explanation to the patient		
	In respect of airway management: • Demonstrates optimal patient position for airway management, including head tilt, chin lift, jaw thrust • Manages airway with mask and oral/nasopharyngeal airways • Demonstrates hand ventilation with bag and mask [including self-inflatingbag] • Able to insert and confirm placement of a Laryngeal Mask Airway • Demonstrates correct head positioning, direct laryngoscopy and successful nasal/oral intubation techniques and confirms correct tracheal tube placement • Demonstrates proper use of bougies • Demonstrates correct securing and protection of LMAs/tracheal tubes during movement, positioning and transfer • Correctly conducts RSI sequence • Correctly demonstrates the technique of cricoid pressure		
	Demonstrates correct use of advanced airway techniques, including but not limited to: Proseal, LMA supreme, iGel		
	In respect of inhalational induction of an aesthesia: Satisfactorily communicates with the patient during induction • Chooses appropriate agent • Satisfactorily conducts induction		

	Demonstrates the ability to maintain an aesthesia with a face mask inthe spontaneously breathing patient		
	Demonstrates failed intubation drill		
	Demonstrates management of 'can't intubate, can't ventilate' scenario		
	Demonstrates correct use of oropharyngeal, laryngeal and tracheal suctioning		
	Demonstrate appropriate management of tracheal extubation, including; • Assessment of return of protective reflexes • Assessment of adequacy of ventilation Safe practice in the presence of potentially full stomach		
	Demonstrates how to turn a patient into the recovery position		
	Demonstrates small and large bore needle cricothyrotomy and manual jet ventilation		
	Demonstrates surgical cricothyrotomy		

9- Procedural Sedation

Learning outcomes:

- To be able to safely deliver pharmacological sedation to appropriate patients

	LOC	Teaching and Learning Strategies	Assessment
Knowledge	Can explain • What is meant by conscious sedation and why understanding the definition is crucial to patient safety • The differences between conscious sedation and deep sedation and general anaesthesia • The fundamental difference in techniques/drugs used/patient safety • That the significant risks to patient safety associated with sedation technique requires meticulous attention for patient safety, safe monitoring and contemporaneous record keeping	**DIDACTIC LECTURE, SDL, ST**	A,D,E
	Describes the pharmacology of drugs commonly used to produce sedation		
	Describes the indications for the use of conscious sedation		
	Can explain the use of single drug, multiple drug and inhalation techniques		
	Describes the particular risks of multiple drug sedation techniques		
	Outlines the unpredictable nature of sedation techniques in children		
SKILLS	Demonstrates the ability to select patients for whom sedation is appropriate part of clinical management	**ST, BST, WS**	A,C,D
	Demonstrates the ability to explain sedation to patients and to obtain consent		
	Demonstrates the ability to administer and monitor inhalational sedation to		

	patients for clinical procedures		
	Demonstrates the ability to administer and monitor intravenous sedation to patients for clinical procedures		
	Demonstrates the ability to recognize and manage the complications of sedation techniques appropriately including recognition and correct management of loss of verbal responsiveness		

10- Transfer Medicine

Learning outcomes:

- Correctly assesses the clinical status of patients and decides whether they are in a suitably stable condition to allow **intra-hospital transfer[only]**
- Gains understanding of the associated risks and ensures they can put all possible measures in place to minimize these risks

	LOC	Teaching and Learning Strategies	Assessment
KNOWLEDGE	Explains the importance of ensuring the patients clinical condition is optimized and stable prior to transfer	DIDACTIC LECTURE, SDL,	A,C,E
	Explains the risks/benefits on intra-hospital transfer		
	Recalls/describes the minimal monitoring requirements for transfer		
	Lists the equipment [and back up equipment] that is required for intra-hospital transfer		
	Outlines the physical hazards associated with intra-hospital transfer		

	Explains the problems caused by complications arising during transfer and the measures necessary to minimize and pre-empt difficulties		
	Outlines the basic principles of how the ventilators used for transfer function		
	Indicates the lines of responsibility that should be followed during transfer		
	Outlines the consent requirements and the need to brief patients in transfer situations		
	Outlines the issues surrounding the carrying/recording of controlled drugs during transfer		
	Describes the importance of keeping records during transfer		
	Outlines the problem of infection and contamination risks when moving an infected patient		
	Explains how to assess and manage an uncooperative and aggressive patient during transfer		
	Understands hospital protocols governing transfer patients between departments		
	Outlines the importance of maintaining communication, when appropriate with the patient and members of the transfer team		

SKILLS	Demonstrates the necessary organizational and communication skills to plan, manage and lead an intra- hospital transfer of a stable patient	SGD, SDL, ST, WS	A,C,D,M
	Demonstrates how to set up the ventilator and confirm correct functioning prior to commencing transfer		
	Demonstrates safety in securing the tracheal tube securely prior to commencing the movement/transfer		
	Demonstrates the ability to calculate oxygen and power requirements for the journey		
	Demonstrates safety in securing patient, monitoring and therapeutics before transfer		
	Demonstrates how to check the functioning of drug delivery systems		
	Demonstrates appropriate choices of sedation, muscle relaxation and analgesia to maintain the patient's clinical status during transfer		
	Demonstrates the ability to maintain monitoring of vital signs throughout transfer		
	Demonstrates the ability to maintain clinical case recording during transfer		
	Demonstrates the ability to maintain monitoring of vital signs throughout transfer		
	Demonstrates the ability to maintain clinical case recording during transfer		

CRITICAL INCIDENTS IN ANAESTHESIA

Critical incidents

Given the importance of the recognition and management of critical incidents, they are all included under this one heading for clarity.

Whilst trainees may come across the critical incidents listed below during the course of clinical practice, it is anticipated that many will not be encountered in this way and as a result, the use of simulation to assist teaching and assessment is expected.

Core clinical learning outcomes:

- To gain knowledge of the principle causes, detection and management of critical incidents that can occur in theatre
- To be able to recognize critical incidents early and manage them with appropriate supervision
- To learn how to follow through a critical incident with reporting, presentation at audit meetings, and discussions with patients
- To recognize the importance of personal non-technical skills and the use of simulation in reducing the potential harm caused by critical incidents.

Recall/describes the causes, detection and management of the following airway and respiratory/ventilation incidents:

Cardiac and/or respiratory arrest
Unexpected fall in SpO2 with or without cyanosis
Unexpected increase in peak airway pressure
Progressive fall in minute volume during spontaneous ventilation or IPPV
Fall in end tidal CO2
Rise in end tidal CO2

Rise in inspired CO2
Unexpected hypotension
Unexpected hypertension
Sinus tachycardia
Arrhythmias: • ST segment changes • Sudden tachyarrhythmias • Sudden bradycardia • Ventricular ectopics • Broad complex tachycardia • Atrial fibrillation • Ventricular fibrillation • Pulseless electrical activity (PEA)
Convulsions

Recalls/describes the causes, detection and management of the following specific conditions:

Difficult/failed mask ventilation
Failed intubation
Can't intubate, can't ventilate

Regurgitation/aspiration of stomach contents
Laryngospasm
Difficulty with IPPV, sudden or progressive loss of minute volume
Bronchospasm
Pneumothorax and tension pneumothorax
Gas/fat/pulmonary embolism
Adverse drug reaction
Anaphylaxis
Transfusion reactions, transfusions of mis-matched blood or blood products
Inadvertent intra-arterial injection of irritant fluids
High spinal block
Local anaesthesia toxicity
Accidental decannulation of tracheostomy
Coning due to increases in intracranial pressure
Malignant hyperpyrexia

Discuss the importance of understanding the need for the following attitudes & behaviours:

Awareness of human factors concepts and terminology and the importance of non- technical skills in achieving consistently high performance such as: effective communication, team working, leadership, decision making and maintenance of situational awareness
Awareness of the importance of the process of critical incident reporting
Acceptance that it can happen to you; the unexpected can happen to anyone
To practice response protocols in resuscitation room or in simulation with other healthcare professionals as appropriate
The need to follow through a critical incident with proper reporting, presentation at morbidity meetings and warning flags as necessary, with appropriate supervision
The provision of information to the patient and where necessary ensuring they get the appropriate counselling and advice, with appropriate supervision

CURRICULUM FOR INTENSIVE CARE MEDICINE

ICM Competences

It is expected that all trainees of EM will achieve Basic Level Competence during MD training. Used alongside the rest of the ACCS Curriculum, these ICM specialty-specific competences are designed to enhance skills of trainees for management of critically ill patients. Assessment should be made using the workplace based assessment tools described, as part of the overall process used to complete this documentation.

Competences in the following areas are detailed in the following section:

1. Demonstrates aseptic peripheral venous cannulation
2. Demonstrates aseptic arterial cannulation (+ local anaesthetic)
3. Obtains an arterial blood gas sample safely, interprets results correctly
4. Demonstrates aseptic placement of central venous catheter
5. Connects mechanical ventilator and selects initial settings
6. Describes safe use of drugs to facilitate mechanical ventilation
7. Describes principles of monitoring respiratory function
8. Describes the assessment of the patient with poor compliance during ventilatory support ('fighting the ventilator')
9. Prescribes safe use of vasoactive drugs and electrolytes
10. Delivers a fluid challenge safely to an acutely unwell patient
11. Describes actions required for accidental displacement of tracheal tube or tracheostomy

1- Demonstrates aseptic peripheral venous cannulation

The trainee will be able to establish venous access a peripheral route		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Demonstrates knowledge of venous anatomy and surface anatomy	SDG, SDL	D
To demonstrate an understanding of the need for using appropriate infection control measures when establishing venous access, including but not limited to:		
Understanding of aseptic 'no touch' technique (ANTT) of venous cannulation		
Understanding of sterile techniques of venous cannulation		
Establishing venous access in an appropriate environment and use of appropriate equipment in an aseptic or sterile way appropriate to the procedure		
Use of appropriate skin cleaning methods and the currently recommended cleaning agents		
Skills		
Demonstrate the ability to establish peripheral venous cannulation using an appropriate technique, demonstrating effective infection control measures and proper regard for patient safety and well being	ST, WS	D
Behaviour		
Obtains consent wherever possible	ST, WS,	D, AA, C, Mi ,ACAT
Demonstrates the ability to communicate effectively with the patient and other staff when establishing venous access		

Maintains safety of environment for patient and health workers including safe sharps disposal		
Adequately documents procedures including date labelling of peripheral cannula and completion of departmental audit databases		
Demonstrates ability to consult with a senior, seeks appropriate team support		

2- Demonstrates aseptic arterial cannulation (+ local anaesthetic)

The trainee discusses indications and contraindications to arterial cannulation and demonstrates aseptic placement of an arterial cannula, using local anaesthesia where appropriate		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Demonstrates knowledge of anatomy of radial, femoral and brachial arteries	SGD, SDL,WS	Mi, C
Demonstrates knowledge of indications & contraindications of arterial cannulation		
Demonstrates knowledge of equipment used in arterial cannulation		
Skills		
The trainee demonstrates the ability to run-through a disposable transducer system	SGD, SDL, WS	E, D
The trainee performs arterial cannulation using the transfixion or Seldinger technique.		

Behaviour		
Seeks consent wherever possible	SGD, SDL, WS	ACAT, C, Mi
Demonstrates the ability to communicate effectively with the patient and other staff when establishing venous access		
Maintains safety of environment for patient and health workers including safe sharps disposal		
Seeks senior help when appropriate		

3- Obtains An Arterial Blood Gas Sample Safely, Interprets Results Correctly

The trainee will be able to obtain an arterial blood gas safely and correctly interpret the results		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Demonstrates knowledge of • the surface anatomy of the radial and femoral arteries • use of appropriate skin cleaning methods and the currently recommended cleaning agents • use of appropriate sterile techniques • the requirement for heparinized syringes and transport of samples on ice	WS, SGD, SDL	E, C, M, ACAT,

Demonstrates knowledge of normal values of pH, PaO_2,$PaCO_2$, standard bicarbonate or base excess and lactate		
Demonstrates understanding of common blood gas derangements including but notlimited to: • Hypoxia • Hypercapnia • Metabolic acidosis and lactic acidosis • Metabolic alkalosis		
Demonstrate an understanding of the need for appropriate communication with the patient about arterial blood gas sampling, including but not limited to: ▪ Appropriate explanation to the patient ▪ Obtaining implied or explicit consent		
Skills		
The trainee is able to safely obtain an arterial blood gas sample using either the radial or femoral route	WS,ST	D
Demonstrates rigorous aseptic technique when obtaining blood gas sampleCompresses artery following sampling Correctly interpret the results. Records the results in the patient's record		
Behaviour		
Follows local protocols in use of near-patient testing versus laboratory testing	WS,ST	ACAT, C, Mi
Demonstrates the ability to effectively communicate the procedure with nursing and other staff		

4- Demonstrates aseptic placement of central venous catheter

The trainee will be able to discuss indications, contraindications and complications of central venous catheters (CVC's). The trainee describes indications and contraindications of the internal jugular, subclavian and femoral route. The trainee can describe the advantages and disadvantages of peripherally inserted central venous catheters (PICC lines). The trainee demonstrates aseptic placement of a CVC by the above routes		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Demonstrates knowledge of the anatomy of the anterior triangle of the neck, the subclavian region and the groin	WS,SGD,SDL	E,C, Mi, ACAT
Knowledge of ultrasound anatomy of the anterior triangle of the neck and the groin		
Discusses indications for CVC insertion in the critically ill patient Demonstrates an understanding of the specific risks and benefits of selected insertion sites including but not limited to: ▪ Arterial puncture ▪ Arterio-venous fistulae ▪ Cranial nerve damage ▪ Pneumothorax ▪ Infection Understands relative and absolute contra-indications		
Knowledge of local anaesthetic pharmacology		

Demonstrates knowledge of equipment used for central venous catheterization including but not limited to: Seldinger technique, multi-lumen catheters, ultrasound systems, transducer systems		
Demonstrates knowledge of the correct positioning of central venous catheters on the supine CXR. Knowledge of complications of CVC insertion		
Skills		
The trainee can set up the ultrasound machine, select appropriate depth and gain and apply a sterility sheath	WS,ST	C, D, Mi, ACAT
The trainee safely and aseptically performs placement of CVC's using the: • Internal Jugular approach • Subclavian approach • Femoral approach		
The trainee correctly interprets the post-procedure CXR,confirming correct positioning and excluding major complications		
Behaviour		
Obtains consent where possible	WS,ST	AA,ACAT, C, Mi
Uses sedation and local anaesthesia appropriately		
Observes local infection control procedures including ANTT and local "High Impact Intervention" central line"Care Bundle"		
Maintain safety of environment for patient and health workers including safe sharps disposal		
Adequately documents procedures including date labelling of peripheral cannula andcompletion of departmental audit databases		

Demonstrates the ability to work in a team and succinctly present clinical details of the situation to senior doctor		
Demonstrates ability to consult with a senior, seek appropriate team support		

5- Connects mechanical ventilator and selects initial settings

Knowledge	**Teaching and Learning Strategies**	**Assessment**
Lists the indications for mechanical ventilation including but not limited to: • Respiratory disease (differentiating Types 1 and2) • Chest wall disease • Neuromuscular disease • Central nervous system impairment • Cardiovascular disease • Post-operative management	WS, DIDACTIC LECTURE, ST	

Demonstrates knowledge of the modes of mechanical ventilation including • Volume controlled and pressure controlled ventilation • Timing windows and the use of SIMV • The use of pressure supported breaths • The rationale for the use of PEEP • Rationale and use of inverse ratio ventilation • The causes and detection of "auto-PEEP"		C, Mi, ACAT, AA
Demonstrates knowledge of a lung protective ventilator strategy including • Volume and pressure limitation • The use of permissive hypercapnia and its side effects • Contraindications to lung protective ventilation		
Demonstrates knowledge of the "Ventilator Care Bundle"		
Skills		
Sets up and performs circuit check and safety check of the relevant ventilator	WS,ST	
Sets appropriate settings including: • Peak inspiratory pressure or tidal volume • i:e ratio • PEEP		D, C, ACAT
Behaviour		

Ensures patient safety throughout	ST,WS	C, Mi, ACAT
Uses appropriate monitoring including pulse oximetry and capnography		
Communicates target values and parameters to other members of the team and ensures appropriate documentation		
Sets appropriate alarms		

6- Describes Safe Use of Drugs to Facilitate Mechanical Ventilation

The trainee will be able to describe the use of drugs to facilitate mechanical ventilation, the safe and appropriate use of sedative drugs, analgesics and paralytic agents, appropriate methods of administration and problems associated with use of such agents		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Demonstrate knowledge of drugs which can be used to induce anaesthesia and facilitate tracheal intubation	DIDACTIC LECTURE, SDL	C, Mi
Demonstrate knowledge of drugs which can be used to sedate patients during mechanical ventilation, and the advantages and disadvantages of these drugs Demonstrate an understanding of how using combinations of sedative agents may be preferable to use of single agents		

Outlines rationale for use of neuromuscular blocking drugs during mechanical ventilation and appropriate pharmacology		
Demonstrate an understanding of the role of regular 'sedation interruptions' in the management of the critically ill patient		
Outline problems associated with the use of sedation to facilitate ventilation in the critically ill		
Skills		
The trainee will be able to demonstrate the safe handling of equipment used to deliver sedative agents used during mechanical ventilation, including appropriate useof syringe drivers	ST, WS	D, C, Mi
Demonstrate the ability to effectively used appropriate scoring systems to assess level of sedation		
Practice safe prescribing of all agents used to facilitate mechanical ventilation		
Behaviour		
Demonstrate the ability to communicate the sedation requirements of a patient to the Intensive Care Medicine team	ST,WS	C, Mi, ACAT, AA
Demonstrate the ability to work in a team and succinctly present clinical details of the situation to a senior doctor		

7-	Demonstrate ability to consult with a senior, seek appropriate team support		

Describes Principles of Monitoring Respiratory Function

The trainee will describe methods used to monitor respiratory function		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Demonstrate an ability to perform an effective evaluation of respiratory function in the critically ill patient, including but not limited to: ▪ Clinical evaluation of the respiratory system ▪ Use of respiratory parameters monitored by artificial ventilators, including airway pressure, tidal volumes, minute ventilation, respiratory rates and spirometry	DIDACTIC LECTURE, SDL	C, D, Mi
Skills		
Perform immediate (physical) assessment of the respiratory system	ST,	D, Mi, C.ACAT, E
Be able to order and interpret and act on investigations appropriately, including but not limited to: ▪ CXR ▪ CT scans ▪ USS		
Demonstrate ability to interpret capnography wave forms and pressure volume loops during mechanical ventilation		
Behaviour		

Exhibit calm and methodical approach to assessing the critically ill patient	ST,	ACAT, AA,C, Mi
Adopt leadership role where appropriate		
Involve senior and specialist (e.g. radiology)services promptly		

8- Describes the assessment of the patient with poor compliance during ventilatory support ('fighting the ventilator')

The trainee will be able to describe the assessment of the patient showing poor compliance with mechanical ventilation, and an understanding of the steps which may be used to improve compliance		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Demonstrate knowledge of conditions which may require ventilatory support, including but not limited to: ▪ Infection ▪ Acute Respiratory Distress Syndrome (ARDS) ▪ Cardiac failure ▪ Obstructive airways disease (acute and chronic)	DIDACTIC LECTURE, SDL	C, Mi, D

Demonstrate knowledge of the different modes of respiratory support, including but not limited to: ▪ Continuous mandatory ventilation / assist-control ventilation ▪ Intermittent mandatory ventilation ▪ Pressure support ventilation ▪ PEEP/CPAP		
Be able to describe the possible causes of poor compliance with respiratory support, including but not limited to: ▪ Airway obstruction or other mechanical problems ▪ Altered clinical condition ▪ Altered sedation requirements ▪ Selection of inappropriate mode of ventilatory support		
Be aware of the role drugs and combinations of drugs in the facilitation of mechanical ventilation, including but not limited to: • Sedative agents • Drugs with respiratory depressant effects • Drugs with neuromuscular blocking actions		
Demonstration of understanding of the need for prompt and appropriate action to prevent hypoxia and respiratory distress when faced with the patient who is not compliant with ventilation, including but not limited to: ▪ Increasing inspired oxygen fraction ▪ Use of manual ventilation techniques when required		
Skills		

Be able to demonstrate appropriate rapid assessment of the patient who is non-compliant with ventilation, and to institute appropriate life-saving measures until help arrives, including increasing the inspired oxygen settings	WS, ST	D, ACAT, C, Mi
Demonstrate the ability to effectively decide when manual ventilation techniques should be used until experienced help arrives		
Demonstrate the ability to order appropriate tests and investigations, including but not limited to: ▪ Chest radiography ▪ Arterial blood gas analysis		
Behaviour		
Demonstrate the ability to communicate the ventilatory requirements of a patient to the Intensive Care Medicine team	WS,ST	ACAT, C, Mi
Maintain safety of environment for patient and health workers		
Demonstrate the ability to work in a team and succinctly present clinical details of the situation to a senior doctor		
Demonstrate ability to consult with a senior, seek appropriate team support		

9- Prescribes safe use of vasoactive drugs and electrolytes

The trainee will understand the use of electrolyte-containing solutions and vasopressors in the critically ill patient, and be able to prescribe such agents safely

Knowledge	Teaching and Learning Strategies	Assessment
List physiological electrolyte requirements in health and in the critically ill patient, and list common causes of electrolyte disturbances in the critically ill, including but not limited to: ▪ Altered cardiovascular, respiratory and renal function ▪ Altered metabolic processes ▪ Iatrogenic causes of electrolyte imbalance	DIDACTIC LECTURE, SDL	E ,ACAT, AA,C, Mi
Demonstrate knowledge of commonly available electrolyte solutions, and the advantages and disadvantages of using such solutions		
Demonstrate knowledge of the use of potassium containing solutions, including but not limited to: • Clinical situations where such solutions maybe required • Problems associated with the use of K+solutions • Precautions and safety measures required • Appropriate monitoring and assessment during administration		
Demonstrate knowledge of pharmacology of commonly used vasoactive agents		

Demonstrate knowledge of the use of vasopressors, including but not limitedto: ▪ Clinical situations when vasopressor agents maybe used ▪ Problems associated with the use of vasopressors ▪ Appropriate levels of monitoring and assessment during the administration ofvasopressors ▪ Venous access required for the safe administration of vasopressors		
Skills		
Perform safe prescription of electrolyte solutions and vasoactive agents	ST,	ACAT, AA,C, Mi
Arrange monitoring of relevant indices		
Order, interpret and act on initial investigations		
Behaviour		
Exhibit a calm and methodical approach to the critically ill patient	ST	ACAT, AA,C, Mi
Adopt leadership role where appropriate		
Involve senior and specialist services appropriately		

10- Delivers a fluid challenge safely to an acutely unwell patient

The trainee will demonstrate an understanding of the need to assess the fluid status of an acutely unwell patient, the ability to do perform this assessment using clinical and other means, and to safely administer an appropriate fluid bolus to such a patient		
Knowledge	**Teaching and Learning Strategies**	**Assessment**
Demonstrates an understanding of the need to assess the fluid status of the acutely unwell patient, when such assessment is necessary, and the need for reassessment and additional monitoring	DIDACTIC LECTURE, SDL	ACAT, C, Mi
Lists methods available to assess fluid status of the acutely unwell patient, including but not limited to clinical assessment and use of monitoring devices (for example, central venous pressure and saturation, oesophageal Doppler)		
Outlines advantages and disadvantages of the different fluids which can be used for administration during the management of the acutely unwell patient, including but not limited to: ▪ Crystalloid solutions ▪ Colloids ▪ Blood products		
Skills		

Appropriately assesses and establishes the need for a fluid bolus in an acutely unwell patient	ST,	ACAT, Mi,C, D
Selects appropriate fluid and prescribes appropriate volumes during administration of a fluid bolus		
Effectively assesses the response to a fluid bolus, and makes appropriate clinical decisions based on this response		
Completes adequate documentation of fluids prescribed and documents the response to any fluid challenge administered		
Behaviour		
Demonstrate the ability to communicate effectively with the patient and other staff when delivering a fluid bolus	ST,	ACAT, C, Mi
Demonstrates the ability to effectively communicate the procedure with nursing and other staff		
Involves senior and specialist services appropriately.		

11- Describes actions required for accidental displacement of tracheal tube or tracheostomy

The trainee will describe or demonstrate their approach to the management of a displaced endotracheal or tracheostomy tube

Knowledge	**Teaching and Learning Strategies**	**Assessment**
To demonstrate an understanding of the need for immediate assessment of the patient with a suspected airway problem	SGD, SDL,	ACAT, C, Mi
Outlines immediate airway management appropriate to the patient's needs, including but not limited to: Simple airway manoeuvres Use of airway adjuncts Delivery of 'high-flow' oxygen using appropriate devices Re-establishing a definitive airway (re-intubation) Use of bag, valve mask ventilation		
Lists the drugs which may be required to re-establish endotracheal intubation, including but not limited to: Sedative agents Analgesic agents Neuromuscular blocking agents		
To demonstrate an understanding of the need for continued or additional monitoring, including but not limited to: Pulse oximetry Capnography		
Skills		

Performs an effective, organized and airway assessment, including but not limited to: Use of simple airway manoeuvres to restore a patent airway Use of airway adjuncts to restore a patent airway Selection of appropriate oxygen delivery devices Use of bag, valve mask ventilation The need for rapid assessment of circulatory status Appropriate use of crystalloid or other fluids for volume resuscitation where required	WS, ST,BST	ACAT, C,Mi, D
Completes adequate documentation and communicates effectively with medical and other ward staff		
Behaviour		
Demonstrate the ability to lead a full, prompt assessment of a patient with a compromised airway	WS, ST, BST	ACAT, C, Mi
Demonstrates the ability to communicate effectively WITH both the patient and their relatives		
Demonstrates the ability to effectively communicate with nursing and other staff		
Involves senior and specialist services appropriately		

PROCEDURAL AND CLINICAL SKILLS

PROCEDURAL AND CLINICAL SKILLS FOR ADULT PATIENTS

Below are listed the practical procedures in adults that the trainee would be expected to undertake during the five years of training. Those that must be assessed during the first two years by a particular specialty (and are mandatory) are indicated in blue box in the table below. Those boxes that are unfilled are also important: these assessments can be using any of the WPBA tools available and that can be recorded in LOGBOOK.

CORE COMPETENCIES

The competencies which a specialist must have are varied and complex. A list of the core procedural and clinical competencies required during training in the Department of Emergency Medicine is given below. The level of competencies to be achieved each year is specified according to the key. These are to be taken as guidelines ratherthan definitive requirements.

Key to competency levels in clinical skills: (EPA- Entrust able Professional Activity)

1. Observer status- Not allowed to practice - clinician is an observer only (EPA-1)
2. Assistant status- Direct active – full supervision by a senior clinician, with prompting or verbal and actual guidance and help throughout (EPA-2)
3. Performed under supervision - Indirect active- partial supervision by senior clinician, no prompting or help provided, direct line of vision or supervisor immediately available (EPA-3)
4. Performed independently- Passive- full entrustment to carry out competence, no senior support provided (EPA-4)

CLINCAL COMPETENCIES

1. INITIAL ASSESSMENT OF THE ACUTELY UNWELL
2. ELICIT A PERTINENT HISTORY
3. PERFORM PHYSICAL EXAM
4. ORDER APPROPRIATE INVESTIGATIONS
5. INTERPRET RESULTS OF INVESTIGATIONS
6. MAKE TREATMENT AND MANAGEMENT PLANS
7. APPROPRIATE DISPOSITION / HANDOVER OF PATIENTS
8. MANAGEMENT OF COMATOSE PATIENT
9. ANAPHYLAXIS MANAGEMENT
10. ASTHMA RESUSCITATION - ADULT
11. STATUS EPILEPTICUS - ADULT
12. ACTING AS CARDIAC ARREST TEAM LEADER
13. ACTING AS TRAUMA TEAM LEADER
14. ATLS

AIRWAY TECHNIQUES (BASIC AND ADVANCE)

1. BASIC AIRWAY MANGEMENT (BLS)
2. ADVANCE AIRWAY MANAGEMENT (ACLS)
3. RAPID SEQUENCE ENDOTRACHEAL INTUBATION
4. CRASH ENDOTRACHEAL INTUBATION
5. USE OF PARALYZING AGENTS
6. UPPER AIRWAY OBSTRUCTION
7. CRICOTHYROTOMY
8. FOREIGN BODY REMOVAL
9. MECHANICAL VENTILATION
10. CONNECTION TO A MECHANICAL VENTILATOR
11. SAFE USE OF DRUGS TO FACILITATE MECHANICAL VENTILATION
12. MANAGING THE PATIENT FIGHTING THE VENTILATOR

13. MONITORING RESPIRATORY FUNCTION DURING VENTILATION
14. NON-INVASIVE VENILATORY MANAGEMENT
15. CAPNOMETRY

CARDIAC RESUSCITATION

1. ECG INTERPRETATION
2. EMERGENCY ECHOCARDIOGRAPHY INTERPRETATION
3. STREPTOKINASE ADMINISTRATION
4. TPA ADMINISTRATION
5. CARDIOVERSION (MEDICAL) ATRIAL
6. CARDIOVERSION (MEDICAL) VENTRICULAR
7. CARDIOVERSION (DC) ATRIAL
8. CARDIOVERSION (DC) VENTRICULAR
9. EXTERNAL PACEMAKER PLACEMENT AND PACING

ANESTHESIA

1. LOCAL ANESTHESIA
2. PERIPHERAL/ REGIONAL NERVE BLOCKS
3. PROCEDURAL SEDATION & ANALGESIA

HEMODYNAMIC TECHNIQUES AND VASCULAR ASCESS

1. ARTERIAL PUNCTURE/LINE INSERTION
2. VENEPUNCTURE

3. INTERNAL JUGULAR LINE PLACEMENT
4. SUBCLAVIAN LINE PLACEMENT
5. FEMORAL LINE PLACEMENT
6. INTRAOSSEOUS LINE INSERTION AND INFUSION
7. VENOUS CUT DOWN FOR IV ACCESS
8. DELIVER A FLUID CHALLENGE SAFELY
9. USE OF BLOOD PRODUCTS

WOUND MANAGEMENT

1. SKIN/ SUBCUTANEOUS TISSUE WOUND MANAGEMENT/CLOSURE
2. LAYERED LACERATION CLOSURE
3. EAR/NOSE LACERATION REPAIR
4. LIP/INTRAORAL LACERATION REPAIR
5. FELON DRAINAGE
6. ABSCESS / HEMATOMA I & D / PACK
7. BURN PATIENT RESUSCITATION/ WOUND CARE
8. BITES MANAGEMENT
9. FASCIOTOMY/ESCHARATOMY
10. TREATMENT OF INGROWN TOENAIL/ PARONYCHIA

FRACTURE/ DISLOCATIONS

1. SPLINTING OF FRACTURE/DISLOCATION
2. LARGE JOINT EXAMINATION/ARTHROSCOPY
3. BACKSLAB APPLICATION
4. POP APPLICATION
5. ARHROCENTESIS
6. DISLOCATION/FRACTURE IMMOBILIZATION AND REDUCTION
7. KNEE DISLOCATION/FRACTURE MANAGEMENT

8. SHOULDER DISLOCATION/FRACTURE MANAGEMENT
9. HIP JOINT DISLOCATION/FRACTURE MANAGEMENT
10. JOINTS OF FINGERS/TOES DISLOCATION/FRACTURE MANAGEMENT

OPTHALMOLOGY

1. EYE EXAMINATION
2. USE OF SLIT LAMP
3. OPTHALMOSCOPY
4. TONOMETRY
5. FOREIGN BODY REMOVAL FROM EYE

ENT

1. EAR/NOSE EXAMINATION
2. PHARYNX/LARYNX EXAMINATION
3. LARYNGOSCOPY (INDIRECT)
4. EPISTAXIS (ANTERIOR PACK)
5. EPISTAXIS (POSTERIOR PACK)
6. FOREIGN BODY REMOVAL (ENT)

RADIOLOGY

1. Procedural/Bedside USG
2. Focused USG for trauma-interpretation
3. Ultrasound use for detecting pericardial tamponade
4. Ultrasound use for insertion of central lines
5. Emergency CT/MRI interpretation

MISCELLANEOUS

1. PERICARDIOCENTESIS
2. NEEDLE THORACOSTOMY
3. TUBE THORACOSTOMY
4. PLEURAL FLUID ASPIRATION
5. PERITONEAL TAP
6. LUMBAR PUNCTURE - ADULT
7. NG INSERTION
8. GASTRIC LAVAGE
9. FOLEYS CATHETERIZATION
10. SUPRAPUBIC CATHETERIZATION
11. PROCTOSCOPY/SIGMOIDOSCOPY/ANOSCOPY
12. EXTERNAL HEMORRHOIDS DRAINAGE
13. COMPARTMENT PRESSURE MEASUREMENT
14. VAGINAL DELIVERY
15. GASTROSTOMY TUBE REPLACEMENT

ASSESSMENT REQUIREMENTS (EPA and Minimum No of Procedures)

PROCEDURAL AND CLINICAL SKILLS FOR ADULT PATIENTS

	PGY-1		PGY-2		PGY-3		PGY-4		PGY-5	
	EPA	NO	EPA	NO	EPA	NO	EPA	NO	EPA	NO
CLINCAL COMPETENCIES										
1. INITIAL ASSESSMENT OF THE ACUTELY UNWELL	2-3	400	3-4	400	4	400	4	400	4	400
2. ELICIT A PERTINENT HISTORY	3-4	400	3-4	400	4	400	4	400	4	400
3. PERFORM PHYSICAL EXAM	3-4	400	3-4	400	4	400	4	400	4	400
4. ORDER APPROPRIATE INVESTIGATIONS	2-3	400	3-4	400	4	400	4	400	4	400
5. INTERPRET RESULTS OF INVESTIGATIONS	2-3	400	3-4	400	4	400	4	400	4	400
6. MAKE TREATMENT AND MANAGEMENT PLANS	2-3	400	3-4	400	4	400	4	400	4	400
7. APPROPRIATE DISPOSITION / HANDOVER OF PATIENTS	2-3	400	3-4	400	4	400	4	400	4	400
8. MANAGEMENT OF COMATOSE PATIENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
9. ANAPHYLAXIS MANAGEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
10. ASTHMA RESUSCITATION - ADULT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
11. STATUS EPILEPTICUS – ADULT	1-2	10	2-3	10	3-4	10	3-4	20	4	10

12. ACTING AS CARDIAC ARREST TEAM LEADER	1-2	10	2-3	10	3-4	10	3-4	20	4	10
13. ACTING AS TRAUMA TEAM LEADER	1-2	10	2-3	10	3-4	10	3-4	20	4	10
14. ATLS	1-2	10	2-3	10	3-4	10	3-4	20	4	10
AIRWAY TECHNIQUES (BASIC AND ADVANCE)										
1. BASIC AIRWAY MANGEMENT (BLS)	1-2	10	2-3	10	3-4	10	3-4	20	4	10
2. ADVANCE AIRWAY MANAGEMENT (ACLS)	1-2	10	2-3	10	3-4	10	3-4	20	4	10
3. RAPID SEQUENCE ENDOTRACHEAL INTUBATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
4. CRASH ENDOTRACHEAL INTUBATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
5. USE OF PARALYZING AGENTS	1-2	10	2-3	10	3-4	10	3-4	20	4	10
6. AIRWAY ADJUNCTS	1-2	10	2-3	10	3-4	10	3-4	20	4	10
7. CRICOTHYROTOMY	1-2	10	2-3	10	3-4	10	3-4	20	4	10
8. FOREIGN BODY REMOVAL	1-2	10	2-3	10	3-4	10	3-4	20	4	10
9. MECHANICAL VENTILATION	_	_	1-2	10	2-3	10	3-4	10	4	10
10. CONNECTION TO A MECHANICAL VENTILATOR	_	_	1-2	10	2-3	10	3-4	10	4	10
11. SAFE USE OF DRUGS TO FACILITATE MECHANICAL VENTILATION	_	_	1-2	10	2-3	10	3-4	10	4	10
12. MANAGING THE PATIENT FIGHTING THE VENTILATOR	_	_	1-2	10	2-3	10	3-4	10	4	10
13. MONITORING RESPIRATORY FUNCTION DURING VENTILATION	_	_	1-2	10	2-3	10	3-4	10	4	10

14. NON-INVASIVE VENILATORY MANAGEMENT	_	_	1-2	10	2-3	10	3-4	10	4	10
15. CAPNOMETRY	_	_	1-2	10	2-3	10	3-4	10	4	10
CARDIAC RESUSCITATION										
1. ECG INTERPRETATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
2. EMERGENCY ECHOCARDIOGRAPHY INTERPRETATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
3. STREPTOKINASE ADMINISTRATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
4. TPA ADMINISTRATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
5. CARDIOVERSION (MEDICAL) ATRIAL	1-2	10	2-3	10	3-4	10	3-4	20	4	10
6. CARDIOVERSION (MEDICAL) VENTRICULAR	1-2	10	2-3	10	3-4	10	3-4	20	4	10
7. CARDIOVERSION (DC) ATRIAL	1-2	10	2-3	10	3-4	10	3-4	20	4	10
8. CARDIOVERSION (DC) VENTRICULAR	1-2	10	2-3	10	3-4	10	3-4	20	4	10
9. EXTERNAL PACEMAKER PLACEMENT AND PACING	1-2	10	2-3	10	3-4	10	3-4	20	4	10
ANESTHESIA										
1. LOCAL ANESTHESIA	_	_	1-2	100	2-3	100	3-4	100	4	100
2. PERIPHERAL/REGIONAL NERVE BLOCK	_	_	1-2	100	2-3	100	3-4	100	4	100
3. PROCEDURAL SEDATION & ANALGESIA	_	_	1-2	100	2-3	100	3-4	100	4	100
HEMODYNAMIC TECHNIQUES AND VASCULAR ASCESS										

1. ARTERIAL PUNCTURE/ LINE INSERTION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
2. VENEPUNCTURE	1-2	10	2-3	10	3-4	10	3-4	20	4	10
3. CENTRAL VENOUS ACCESS	1-2	10	2-3	10	3-4	10	3-4	20	4	10
4. INTERNAL JUGULAR LINE PLACEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
5. SUBCLAVIAN LINE PLACEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
6. FEMORAL LINE PLACEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
7. INTRAOSSEOUS LINE INSERTION AND INFUSION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
8. VENOUS CUT DOWN FOR IV ACCESS	1-2	10	2-3	10	3-4	10	3-4	20	4	10
9. DELIVER A FLUID CHALLENGE SAFELY	1-2	10	2-3	10	3-4	10	3-4	20	4	10
10. USE OF BLOOD PRODUCTS	1-2	10	2-3	10	3-4	10	3-4	20	4	10
WOUND MANAGEMENT										
1. SKIN/ SUBCUTANEOUS TISSUE WOUND MANAGEMENT/CLOSURE	1-2	10	2-3	10	3-4	10	3-4	20	4	10
2. LAYERED LACERATION CLOSURE	1-2	10	2-3	10	3-4	10	3-4	20	4	10
3. EAR/NOSE LACERATION REPAIR	1-2	10	2-3	10	3-4	10	3-4	20	4	10
4. LIP/INTRAORAL LACERATION REPAIR	1-2	10	2-3	10	3-4	10	3-4	20	4	10
5. FELON DRAINAGE	1-2	10	2-3	10	3-4	10	3-4	20	4	10
6. ABSCESS / HEMATOMA I & D / PACK	1-2	10	2-3	10	3-4	10	3-4	20	4	10
7. BURN PATIENT RESUSCITATION/WOUND CARE	1-2	10	2-3	10	3-4	10	3-4	20	4	10

8. BITES MANAGEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
9. FASCIOTOMY/ ESCHARATOMY	1-2	10	2-3	10	3-4	10	3-4	20	4	10
10. TREATMENT OF INGROWN TOENAIL/ PARONYCHIA	1-2	10	2-3	10	3-4	10	3-4	20	4	10
FRACTURES/DISLOCATIONS										
1. SPLINTING OF FRACTURE/DISLOCATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
2. LARGE JOINT EXAMINATION/ARTHROSCOPY	1-2	10	2-3	10	3-4	10	3-4	20	4	10
3. BACKSLAB APPLICATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
4. POP APPLICATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
5. ARHROCENTESIS	1-2	10	2-3	10	3-4	10	3-4	20	4	10
6. DISLOCATION/FRACTURE IMMOBILIZATION AND REDUCTION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
7. KNEE DISLOCATION/FRACTURE MANAGEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
8. SHOULDER DISLOCATION/FRACTURE MANAGEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
9. HIP JOINT DISLOCATION/FRACTURE MANAGEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10

10. JOINTS OF FINGERS/TOES DISLOCATION/FRACTURE MANAGEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
OPHTHALMOLOGY										
1. EYE EXAMINATION	_	_	_	_	1-2	10	2-3	10	3-4	10
2. USE OF SLIT LAMP	_	_	_	_	1-2	10	2-3	10	3-4	10
3. OPTHALMOSCOPY	_	_	_	_	1-2	10	2-3	10	3-4	10
4. TONOMETRY	_	_	_	_	1-2	10	2-3	10	3-4	10
5. FOREIGN BODY REMOVAL FROM EYE	_	_	_	_	1-2	10	2-3	10	3-4	10
ENT										
1. EAR/NOSE EXAMINATION	_	_	_	_	1-2	10	2-3	10	3-4	10
2. PHARYNX/LARYNX EXAMINATION	_	_	_	_	1-2	10	2-3	10	3-4	10
3. LARYNGOSCOPY (INDIRECT)	_	_	_	_	1-2	10	2-3	10	3-4	10
4. EPISTAXIS (ANTERIOR PACK)	_	_	_	_	1-2	10	2-3	10	3-4	10
5. EPISTAXIS (POSTERIOR PACK)	_	_	_	_	1-2	10	2-3	10	3-4	10
6. FOREIGN BODY REMOVAL	_	_	_	_	1-2	10	2-3	10	3-4	10

RADIOLOGY											
1.	Procedural/ Bedside USG	_	_	_	_	1-2	10	2-3	10	3-4	10
2.	Focused USG for trauma-interpretation	_	_	_	_	1-2	10	2-3	10	3-4	10
3.	Ultrasound use for detecting pericardial tamponade	_	_	_	_	1-2	10	2-3	10	3-4	10
4.	Ultrasound use for insertion of central lines	_	_	_	_	1-2	10	2-3	10	3-4	10
5.	Emergency CT/MRI interpretation	_	_	_	_	1-2	10	2-3	10	3-4	10
MISCELLANEOUS											
1.	PERICARDIOCENTESIS	1-2	10	2-3	10	3-4	10	3-4	20	4	10
2.	NEEDLE THORACOSTOMY	1-2	10	2-3	10	3-4	10	3-4	20	4	10
3.	TUBE THORACOSTOMY	1-2	10	2-3	10	3-4	10	3-4	20	4	10
4.	PLEURAL FLUID ASPIRATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
5.	PERITONEAL TAP	1-2	10	2-3	10	3-4	10	3-4	20	4	10
6.	LUMBAR PUNCTURE - ADULT	1-2	10	2-3	10	3-4	10	3-4	20	4	10
7.	NG INSERTION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
8.	GASTRIC LAVAGE	1-2	10	2-3	10	3-4	10	3-4	20	4	10
9.	FOLEYS CATHETERIZATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
10.	SUPRAPUBIC CATHETERIZATION	1-2	10	2-3	10	3-4	10	3-4	20	4	10
11.	PROCTOSCOPY/SIGMOIDOSCOPY	1-2	10	2-3	10	3-4	10	3-4	20	4	10

12. EXTERNAL HEMORRHOIDS DRAINAGE	1-2	10	2-3	10	3-4	10	3-4	20	4	10
13. COMPARTMENT PRESSURE MEASUREME	1-2	10	2-3	10	3-4	10	3-4	20	4	10
14. VAGINAL DELIVERY	_	_	_	_	1-2	10	2-3	10	3-4	10
15. GASTROSTOMY TUBE REPLACEMENT	1-2	10	2-3	10	3-4	10	3-4	20	4	10

PROCEDURAL COMPETENCES FOR PEADRIATIC PATIENTS

Below are listed the practical procedural skills that should be acquired. The acquisition of these skills are achieved at different stages of training. Assessment is done specifically with DOPs and in general with other tools of WPBAs. It is not expected that trainees will be assessed for all the listed procedures below but wherever the opportunity arises the trainees should seek to be observed by a trainer and as a minimum should maintain a record of these procedures in log book. Some skills may be acquired using simulation techniques . Trainee should show gradual progression in expertise over the 5 years of training.

During last two years of training, trainees will be expected to become more expert in all the practical procedures previously undertaken and should keep records of such procedures and undertake a DOP assessment wherever possible.

PROCEDURAL AND CLINICAL SKILLS FOR PEADRIATIC PATIENTS
1. Be able to perform a pediatric primary survey
2. Pediatric Resuscitation - PALS
3. Asthma Resuscitation
4. Status Epilepticus
5. Neonatal Resuscitation
6. Basic airway maneuvers including use of airway adjuncts, oxygen delivery techniques
7. Choking child
8. Orotracheal intubation - may have been acquired during rotation in anesthesia

9. Needle thoracentesis
10. Tube thoracotomy
11. Lumbar Puncture (Pediatric)
12. Lumbar Puncture (Neonate)
13. Venous access
14. Intraosseous line insertion
15. Direct current electrical cardioversion defibrillation
16. Infiltration of local anesthetic
17. Incision and drainage of abscesses
18. Incision and drainage of paronychia
19. Evacuation of subungual hematoma
20. Immobilization techniques a. Application of broad arm sling b. Application of collar and cuff c. Application of Thomas splint or similar d. Pelvic stabilization techniques e. Spinal immobilization/log rolling
21. Wound exploration and irrigation
22. Wound repair with glue, adhesive strips and sutures
23. Oro/nasogastric tube replacement

24. Replacement of tracheostomy tube
25. Cricothyrotomy and percutaneous trans-tracheal ventilation
26. External cardiac pacing
27. Safe sedation in children
28. Foreign body removal a. Nose b. Ear c. In soft tissue d. Eye e. Ring removal
29. Fracture/dislocation reduction techniques a. Shoulder dislocation b. Elbow dislocation c. Phalangeal dislocation d. Supracondylar fracture with limb-threatening vascular compromise e. Patellar dislocation f. Ankle reduction
30. Equipment and guidelines a. Must be familiar with the pediatric equipment and guidelines in the resuscitation room
31. Plaster techniques

a. Backslabs / splints

b. POP

ASSESSMENT REQUIREMENTS (EPA AND MINIMUM NO OF PROCEDURES)

PROCEDURAL AND CLINICAL SKILLS FOR PEADRIATIC PATIENTS

	PGY-1		PGY-2		PGY-3		PGY-4		PGY-5	
	EPA	NO	EPA	NO	EPA	NO	EPA	NO	EPA	NO
1. Be able to perform a pediatric primary survey	_	_	1-2	10	2-3	10	3-4	10	4	10
2. Pediatric Resuscitation - PALS	_	_	1-2	10	2-3	10	3-4	10	4	10
3. Asthma Resuscitation	_	_	1-2	10	2-3	10	3-4	10	4	10
4. Status Epilepticus	_	_	1-2	10	2-3	10	3-4	10	4	10
5. Neonatal Resuscitation	_	_	1-2	10	2-3	10	3-4	10	4	10
6. Basic airway maneuvers including use of airway adjuncts, oxygen delivery techniques	_	_	1-2	10	2-3	10	3-4	10	4	10
7. Choking child	_	_	1-2	10	2-3	10	3-4	10	4	10
8. Orotracheal intubation - may have been acquired during rotation in anesthesia	_	_	1-2	10	2-3	10	3-4	10	4	10
9. Needle thoracentesis	_	_	1-2	10	2-3	10	3-4	10	4	10
10. Tube thoracotomy	_	_	1-2	10	2-3	10	3-4	10	4	10
11. Lumber Puncture – Pediatric	_	_	1-2	10	2-3	10	3-4	10	4	10
12. Lumber Puncture – Neonate	_	_	1-2	10	2-3	10	3-4	10	4	10
13. Venous access	_	_	1-2	10	2-3	10	3-4	10	4	10

14. Intraosseous line insertion	_	_	1-2	10	2-3	10	3-4	10	4	10
15. Direct current electrical cardioversion defibrillation	_	_	1-2	10	2-3	10	3-4	10	4	10
16. Infiltration of local anesthetic	_	_	1-2	10	2-3	10	3-4	10	4	10
17. Incision and drainage of abscesses	_	_	1-2	10	2-3	10	3-4	10	4	10
18. Incision and drainage of paronychia	_	_	1-2	10	2-3	10	3-4	10	4	10
19. Evacuation of subungual hematoma	_	_	1-2	10	2-3	10	3-4	10	4	10
20. Immobilization techniques a. Application of broad arm sling b. Application of collar and cuff c. Application of Thomas splint or similar d. Pelvic stabilization techniques e. Spinal immobilization/log rolling	_	_	1-2	10	2-3	10	3-4	10	4	10
21. Wound exploration and irrigation	_	_	1-2	10	2-3	10	3-4	10	4	10
22. Wound repair with glue, adhesive strips and sutures	_	_	1-2	10	2-3	10	3-4	10	4	10
23. Oro/nasogastric tube replacement	_	_	1-2	10	2-3	10	3-4	10	4	10
24. Replacement of tracheostomy tube	_	_	1-2	10	2-3	10	3-4	10	4	10
25. Cricothyrotomy and percutaneous trans-tracheal ventilation	_	_	1-2	10	2-3	10	3-4	10	4	10

26. External cardiac pacing	_	_	1-2	10	2-3	10	3-4	10	4	10
27. Safe sedation in children	_	_	1-2	10	2-3	10	3-4	10	4	10
28. Foreign body removal a. Nose b. Ear c. In soft tissue d. Eye e. Ring removal	_	_	1-2	10	2-3	10	3-4	10	4	10
29. Fracture/dislocation reduction techniques a. Shoulder dislocation b. Elbow dislocation c. Phalangeal dislocation d. Supracondylar fracture with limb-threatening vascular compromise e. Patellar dislocation f. Ankle reduction	_	_	1-2	10	2-3	10	3-4	10	4	10
30. Equipment and guidelines a. Must be familiar with the pediatric equipment and guidelines in the resuscitation room	_	_	1-2	10	2-3	10	3-4	10	4	10

31. Plaster techniques a. Backslabs / splints b. POP	_	_	1-2	10	2-3	10	3-4	10	4	10

FINAL LEARNING OUTCOMES (FLO) FOR MD EMERGENCY MEDICINE

- FLO 1 – CARE FOR PHYSIOLOGICALLY STABLE ADULT PATIENTS PRESENTING ACROSS THE FULL RANGE OF COMPLEXITY
- FLO 2 – SUPPORT THE CLINICAL TEAM BY ANSWERING CLINICAL QUESTIONS AND MAKING SAFE DECISIONS
- FLO 3 – IDENTIFY SICK ADULT PATIENTS, BE ABLE TO RESUSCITATE AND STABILISE AND KNOW WHEN IT IS APPROPRIATE TO STOP
- FLO 4 – CARE FOR ACUTELY INJURED PATIENTS ACROSS THE FULL RANGE OF COMPLEXITY
- SLO 5 – CARE FOR CHILDREN OF ALL AGES IN THE ED, AT ALL STAGES OF DEVELOPMENT AND CHILDREN WITH COMPLEX NEEDS
- SLO 6 – DELIVER KEY EM PROCEDURAL SKILLS
- FLO 7 – DEAL WITH COMPLEX OR CHALLENGING SITUATIONS IN THE WORKPLACE
- FLO 8 – LEAD THE ED SHIFT
- FLO 9 – SUPPORT, SUPERVISE, MENTOR AND EDUCATE THE ED TEAM
- FLO 10 – PARTICIPATE IN RESEARCH AND MANAGE DATA APPROPRIATELY
- FLO 11 – PARTICIPATE IN AND PROMOTE ACTIVITY TO IMPROVE THE QUALITY AND SAFETY OF PATIENT CARE AND CLINICAL OUTCOMES
- FLO 12 – ADMINISTER, MANAGE AND LEAD
- FLO-13- PROVIDE SAFE BASIC ANAESTHETIC CARE INCLUDING SEDATION
- FLO-14; MANAGE PATIENTS WITH ORGAN DYSFUNCTION AND FAILURE

- **FLO 1 – CARE FOR PHYSIOLOGICALLY STABLE ADULT PATIENTS PRESENTING ACROSS THE FULL RANGE OF COMPLEXITY**

This Learning Outcome is the basic building block for patient care within the ED. It outlines the development of expertise in history taking, examination, decision making and management of individual adult patients presenting to the ED. It includes the care of all physiologically stable adult patients.

It also includes an understanding and aptitude in caring for patients with mental health problems, those with complex co-morbidities and those with frailty needs.

KEY EM CAPABILITIES

At completion of PGY-2 Be able to manage with Supervisor 'on call' from home for queries (EPA-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (EPA-4)
• gather appropriate information, perform a relevant clinical examination and be able to formulate and communicate a management plan • assess and manage all adult patients attending the ED. • assess and formulate a management plan for patients who present with complex medical and social needs	• Be expert in assessing and managing all adult patients attending the ED. These capabilities will apply to patients attending with both physical and psychological ill health

- **FLO 2 – SUPPORT THE CLINICAL TEAM BY ANSWERING CLINICAL QUESTIONS AND MAKING SAFE DECISIONS**

EM clinicians need to be expert decision makers. This Specialty Learning Outcome incorporates an understanding of the key steps in diagnostic reasoning, how clinicians make decisions and the factors that have a negative or positive impact on this fundamental skill. Good clinical knowledge remains key and the trainee will be able to apply the core principles of evidence based medicine to everyday clinical problems. This will extend to understanding how safe plans can be formulated, including deciding to discharge patients.

KEY EM CAPABILITIES

At completion of PGY-2 Be able to manage with Supervisor 'on call' from home for queries (EPA-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (EPA-4)
• Understand how to apply clinical guidelines • Understand how to use diagnostic tests in ruling out key pathology, and be able to describe a safe management plan, including discharge where appropriate, knowing when help is required. • Be aware of the human factors at play in clinical decision making and their impact on patient safety • Able to support the pre-hospital, medical, nursing and administrative team in answering clinical questions and in making safe decisions for discharge, with appropriate advice for management beyond the ed. • Aware of when it is appropriate to review patients	• Able to support the pre-hospital, medical, nursing and administrative team in answering clinical questions and in making safe decisions for discharge, with appropriate advice for management beyond the ED. • Aware of when it is appropriate to review patients remotely or directly and able to teach these principles to others.

remotely or directly	

- **FLO 3 – IDENTIFY SICK ADULT PATIENTS, BE ABLE TO RESUSCITATE AND STABILISE AND KNOW WHEN IT IS APPROPRIATE TO STOP**

EM clinicians need to be expert in the resuscitation and stabilization of critically ill adults. This outcome outlines what is needed to be able to deliver that role. It includes the leadership of resuscitation teams, communication with patients and their loved ones and the support of the whole resuscitation team. It also includes knowing when not to resuscitate and when to stop. The care of those at the end of their life is also represented in this Learning Outcome.

Key EM capabilities

At completion of PGY-2 Be able to manage with Supervisor 'on call' from home for queries (EPA-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (EPA-4)
• Recognize and manage the initial phases of any acute life threatening presentation including cardiac arrest and peri-arrest situations • Be able to provide definitive airway, respiratory and circulatory support to critically ill patients • Be able to establish the most appropriate level of care for critically unwell patients – including end-of life decisions – and support their needs as well as those of their loved ones • Manage all life-threatening conditions including peri-arrest & arrest situations in the ED	• provide airway management & ventilatory support to critically ill patients • be expert in fluid management and circulatory support in critically ill patients • manage all life-threatening conditions including peri-arrest & arrest situations in the ED • be expert in caring for ED patients and their relatives and loved ones at the end of the patient's life • effectively lead and support resuscitation teams

• Care for ED patients and their relatives and loved ones at the end of the patient's life • Effectively lead resuscitation teams	

• FLO 4 – CARE FOR ACUTELY INJURED PATIENTS ACROSS THE FULL RANGE OF COMPLEXITY

Manage all injured patients presenting to ED including major incidents.

KEY EM CAPABILITIES

At completion of PGY-2 Be able to manage with Supervisor 'on call' from home for queries (EPA-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (EPA-4)
• An effective member of the multidisciplinary trauma team • Able to assess, investigate and manage low energy injuries in stable patients • Assess, investigate and manage patients attending with all injuries, regardless of complexity • Provide leadership of the trauma team	• Be expert in assessment, investigation and initial management of patients attending with all injuries, regardless of complexity Provide expert leadership of the major trauma team

- **SLO 5 – CARE FOR CHILDREN OF ALL AGES IN THE ED, AT ALL STAGES OF DEVELOPMENT AND CHILDREN WITH COMPLEX NEEDS**

This Learning Outcome covers paediatric emergency medicine. It includes the fundamentals of evaluation, investigation, decision making, safeguarding, resuscitation and caring for families and loved ones of children attending the ED.

At completion of PGY-2 Be able to manage with Supervisor 'on call' from home for queries (EPA-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (EPA-4)
• Be able to gather appropriate information, perform a relevant clinical examination and be able to formulate and communicate a management plan that prioritises the child and where relevant the family's choices that is in their best interests. • Be able to identify the sick child and initiate appropriate management steps • Acquire the special skills needed to resuscitate children of all ages, and know that this may differ dependent on developmental age and know how this differs from adult resuscitation	• Be expert in assessing and managing all children and young adult patients attending the ED. These capabilities will apply to patients attending with both physical and psychological ill health and include concerning presentations that could be manifestations of abuse • Be able to lead a multidisciplinary paediatric resuscitation including trauma • Be able to assess and formulate a management plan for children and young adults who present with complex medical and social needs

• Assess children and young people with concerning presentations and know that some of the presenting symptoms could be manifestations of abuse	

• SLO 6 – DELIVER KEY EM PROCEDURAL SKILLS

The EM Physician will be able to perform key emergency skills that are time critical and/or life/limb saving. This includes skills that are very rarely used. It is possible that the first time some of these are delivered is after completion. This Learning Outcome defines the skillset required and includes how an EM clinician will be prepared for tasks that are rare and delivered for the first time after the end of training.

Key capabilities

At completion of PGY-2 Be able to manage with Supervisor 'on call' from home for queries (EPA-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (EPA-4)
• the clinical knowledge to identify when key ACCS practical emergency skills are indicated • the knowledge and psychomotor skills to perform the ACCS procedural skills safely and in a timely fashion • the clinical knowledge to identify when key EM procedural skills are indicated • the knowledge and psychomotor skills to perform the ACCS procedural skills safely and in a timely fashion	• the clinical knowledge to identify when key EM practical emergency skills are indicated • the knowledge and psychomotor skills to perform EM procedural skills safely and in a timely fashion • Will be able to supervise and guide colleagues in delivering procedural skills

• FLO 7 – DEAL WITH COMPLEX OR CHALLENGING SITUATIONS IN THE WORKPLACE

The Emergency Physician frequently needs to manage specific situations or circumstances that have the potential to significantly impact upon patient care or the functioning of the Emergency Department. These may relate directly to interactions with patients attending the ED, other agencies attending the ED, challenging professional interactions or events that impact on the delivery of EM care. These can not necessarily be predicted, other than they will happen at some point and this learning outcome is concerned with readying the EM physician to deal with them effectively. The Emergency Physician needs at all times to behave in a professional manner with patient safety as a priority, whilst working in a multi-disciplinary team that interacts with personnel within and external to the Emergency Department.

Key capabilities

At completion of PGY-2 Be able to manage with Supervisor 'on call' from home for queries (EPA-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (EPA-4)
• Will know how to reduce the risk of harm to themselves whilst working in acute care • Will understand the personal and professional attributes of an effective acute care clinician • Will be able to effectively manage their own clinical workload • be able to work effectively with patients who appear angry or distressed • be able to negotiate or manage complicated or troubling interactions • behave professionally in dealings with colleagues	• have expert communication skills to negotiate manage complicated or troubling interactions • behave professionally in dealings with colleagues and team members within the ED • work professionally and effectively with those outside the ED

and team members within the ED • work professionally and effectively with those outside ED	

FLO 8 – LEAD THE ED SHIFT

Provide leadership to whole department of Emergency , and link with wider health community.

KEY EM CAPABILITIES

At completion of PGY-2 Be able to manage with Supervisor 'on call' from home for queries (EPA-3)	At completion of **PGY-5** Be able to manage with no supervisor involvement (EPA-4)
• Have an awareness of other's workload and supports other staff members. • Be able to be function as senior clinician in the ED overnight.	• Will provide support to ED staff of all levels and disciplines on the ED shift • Will be able to liaise with the rest of the acute / urgent care team and wider hospital as shift leader • Will maintain situational awareness throughout the shift to ensure safety is optimized • Will anticipate challenges, generate options, make decisions and communicate these effectively to the team as lead clinician

- **FLO 9 – SUPPORT, SUPERVISE, MENTOR AND EDUCATE THE ED TEAM**

Support, supervise, mentor and educate his team in ED

KEY EM CAPABILITIES

At completion of PGY-2 Be able to manage with Supervisor 'on call' from home for queries (EPA-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (EPA-4)
• Will be able to set learning objectives for and deliver a teaching session • Will be able to deliver effective feedback to a junior colleague or allied health professional with an action plan • set learning objectives for and deliver a teaching session that demonstrates growing expertise • deliver effective feedback to a junior colleague or allied health professional	• be able to undertake training and supervision of members of the ED team in the clinical environment • be able to prepare and deliver teaching sessions outside of the clinical environment; including simulation, small-group work and didactic teaching • be able to provide effective constructive feedback to colleagues, including debrief • understand the principles necessary to mentor and appraise junior doctors

- **FLO 10 – PARTICIPATE IN RESEARCH AND MANAGE DATA APPROPRIATELY**

Understand and be able to utilize and support ED research.

Key ACCS capabilities

At completion of PGY-2 Be able to manage with supervisor 'on call' from home for queries (epa-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (epa-4)
• Be able to search the medical literature effectively and know how to critically appraise studies • Be able to appraise, synthesize and communicate research evidence	• Be able to appraise, synthesize, communicate and use research evidence to develop EM care Be able to actively participate in research

- **FLO 11 – PARTICIPATE IN AND PROMOTE ACTIVITY TO IMPROVE THE QUALITY AND SAFETY OF PATIENT CARE AND CLINICAL OUTCOMES**

Be able to deliver quality improvement in ED

Key capabilities

At completion of PGY-2 Be able to manage with supervisor 'on call' from home for queries (epa-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (epa-4)
• Be able to contribute effectively to a departmental quality improvement project • Be able to describe their involvement and show an understanding of qi methods and reflect on a quality improvement project they have been involved in	• Be able to provide clinical leadership on effective quality improvement work • Be able to support and develop a culture of departmental safety and good clinical governance

- **FLO 12 – ADMINISTER, MANAGE AND LEAD**

Be able to deliver administrative task in ED

At completion of PGY-2 Be able to manage with supervisor 'on call' from home for queries (epa-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (epa-4)
• Have experience of handling a complaint or preparing a report, and be aware of the relevant medico-legal directives	• Have experience of handling a complaint, preparing a report, and be aware of the relevant medico-legal directives (elements not completed in intermediate) • Be able to investigate a critical incident, participate and contribute effectively to department clinical governance activities and risk reduction projects • Be able to manage the staff rota, being aware of relevant employment law and recruitment activities including interviews and involvement in induction • Be able to effectively represent the ED at interspecialty meetings

- **FLO-13- PROVIDE SAFE BASIC ANAESTHETIC CARE INCLUDING SEDATION**

Provide safe basic anesthesia care and sedation

At completion of PGY-2 Be able to manage with supervisor 'on call' from home for queries (epa-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (epa-4)
• Understand the risks, aetiology, treatment and control processes of infection including the need for and ability to perform an aseptic non-touch technique • Pre-operatively assess, optimize and prepare patients for anaesthesia • Safely induce, maintain and support recovery from anaesthesia including recognition and management of complications • Provide urgent or emergency anaesthesia to as a 1eand 2e patients requiring uncomplicated surgery including stabilization and transfer • Provide safe procedural sedation for as a 1e and 2epatients	• Pre-operatively assess patients' suitability for anaesthesia, prescribe suitable pre-medication and recognize when further investigation or optimization is required prior to commencing surgery and adequately communicate this to the patient or their family • Safely induce anaesthesia in as a 1 and 2patients, recognize and deal with complications associated with induction • Maintain anaesthesia for the relevant procedure, utilize appropriate monitoring and effectively interpret the information it provides to ensure the safety of the anaesthetized patient, as a member of the multi-disciplinary theatre team • Safely care for a patient recovering from anaesthesia, recognize and treat the common associated complications and manage appropriate post-operative analgesia, anti-emesis and fluid therapies

	• Provide urgent or emergency anaesthesia to as a 1e and 2e patients requiring uncomplicated surgery • Plan and deliver safe sedation using appropriate agents for as a 1e and 2e patientsrequiring procedures

FLO-14; MANAGE PATIENTS WITH ORGAN DYSFUNCTION AND FAILURE

At completion of PGY-2 Be able to manage with supervisor 'on call' from home for queries (epa-3)	**At completion of PGY-5** Be able to manage with no supervisor involvement (epa-4)
• Will be able to provide safe and effective care for critically ill patients across the spectrum of single or multiple organ failure • Will be able to plan and communicate effectively with patients, relatives and the wider multi-professional team when attending to the clinical and holistic needs of patients • Recognize the limitations of intensive care and employ appropriate admission criteria • Recognize, assesses and initiate management for acutely ill adults across the spectrum of single or multiple organ failure • Recognize and manage the patient with sepsis and employ local infection control policies •	• Perform safely and effectively the clinical invasive procedures to maintain cardiovascular, renal, and respiratory support. • Undertake and evaluate laboratory and clinical imaging investigations to manage patients during their intensive care stay • Manage the ongoing medical/surgical needs and organ support of patients during a critical illness, including the holistic care of patients and relatives • Plan and communicate the appropriate discharge of patients from intensive care to health care professionals, patients and relatives • Support the management of end of life care within the intensive care environment with

	patients, relatives and the multi-professional team • Understand the role of transplant services when appropriate and the principles of brain-stem death testing • Support clinical staff outside the icu to enable the early detection of the deteriorating patient

SECTION – III

Emergency Medicine Milestones

The Milestones are designed only for use in evaluation of residents in the context of their participation in an accredited residency programs. The Milestones provide a framework for the assessment of the development of the resident in key dimensions of the elements of physician competence in a specialty or subspecialty. They neither represent the entirety of the dimensions of the six domains of physician competency,nor are they designed to be relevant in any other context.

Understanding Milestone Levels and Reporting

This document presents the Milestones, which programs use in a semi-annual review of resident performance, and then report to the DME. Milestones are knowledge, skills, attitudes, and other attributes for each of the Competencies organized in a developmental framework. The narrative descriptions are targets for resident performance throughout their educational program.

Milestones are arranged into levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert resident in the specialty or subspecialty. For each reporting period, the Clinical Competency Committee will review the completed evaluations to select the milestone levels that best describe each learner's current performance, abilities, and attributes for each sub competency.

These levels *do not* correspond with post-graduate year of education. Depending on previous experience, a junior resident may achieve higher levels early in his/her educational program just as a senior resident may be at a lower level later in his/her educational program. There is no predetermined timing for a resident to attain any particular level. Residents may also regress in achievement of their milestones. This may happen for many reasons, such as over scoring in a previous review, a disjointed experience in a particular procedure, or a significant act by the resident.

MILESTONES

1 **Patient Care**
   a. Emergency Stabilization
   b. Performance of a Focused History and Physical Exam
   c. Diagnostic Studies
   d. Diagnosis
   e. Pharmacotherapy
   f. Reassessment and Disposition
   g. Multitasking (Task-Switching)
   h. General Approach to Procedures

2 **Medical Knowledge**
   a. Scientific Knowledge
   b. Treatment and Clinical Reasoning

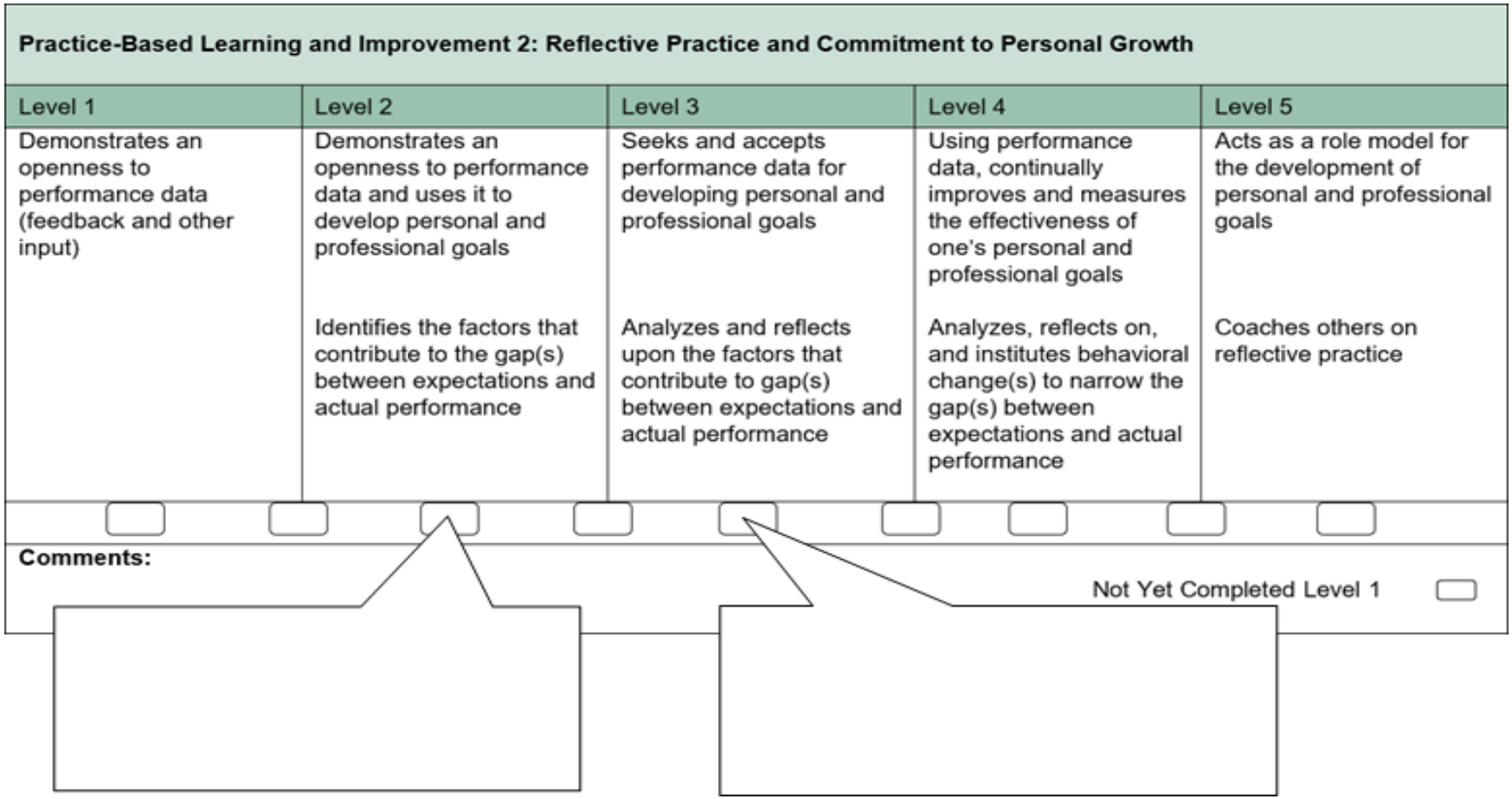
3 **Systems-Based Practice**
   a. Patient Safety
   b. Quality Improvement
   c. System Navigation for Patient-Centered Care
   d. Physician Role in Health Care Systems

4 **Practice-Based Learning and Improvement**
   a. Evidence-Based and Informed Practice
   b. Reflective Practice and Commitment to Personal Growth

5 **Professionalism**
   a. Professional Behavior and Ethical Principles
   b. Accountability/Conscientiousness
   c. Self-Awareness and Well-Being

6 **Interpersonal and Communication Skills**
   a. Patient- and Family-Centered Communication
   b. Interprofessional and Team Communication
   c. Communication within Health Care Systems

The diagram below presents an example set of milestones for one sub-competency.



Patient Care 1: Emergency Stabilization				
Level 1	Level 2	Level 3	Level 4	Level 5
Detects when a patient's vital signs are abnormal Assesses a patient's ABCs and performs basic interventions	Identifies a patient who is unstable and requires immediate intervention Addresses the unstable vital signs and initiates advanced resuscitation procedures and protocols	Identifies a patient with occult presentation that is at risk for instability or deterioration Reassesses the patient's status after implementing a stabilizing intervention	Ascertains, in a timely fashion, when further clinical intervention for a patient is futile Integrates hospital support services into the management of critically-ill or -injured patients	Manages patients with rare or complex presentations requiring emergency stabilization
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐				
Comments:				

Patient Care 2: Performance of a Focused History and Physical Exam				
Level 1	Level 2	Level 3	Level 4	Level 5
Elicits and communicates a reliable comprehensive patient history and performs a physical exam	Elicits and communicates a focused patient history and performs a focused physical exam that effectively address the patient's chief complaint and urgent issues	Prioritizes essential components of a patient history and physical exam, given a limited or dynamic circumstance	Using all potential sources of data, gathers those that are necessary for the beneficial management of patients	Models the effective use of a patient history and physical exam to minimize the need for further diagnostic testing
☐	☐	☐	☐	☐
Comments:				

Not Yet Completed Level 1

Not Yet Assessable ☐

Patient Care 3: Diagnostic Studies				
Level 1	Level 2	Level 3	Level 4	Level 5
Determines the need for diagnostic studies	Selects appropriate diagnostic studies and reviews the risks, benefits, and contraindications of them	Given a limited or dynamic circumstance, prioritizes the diagnostic studies that are essential	Practices cost-effective ordering of diagnostic studies	Proposes alternatives when barriers exist to specific diagnostic studies
Demonstrates understanding of diagnostic testing principles	Interprets results of diagnostic testing (e.g., electrocardiogram (EKG), diagnostic radiology, point-of-care ultrasound)	Orders and performs diagnostic testing, considering the pre-test probability of disease and the likelihood of test results altering management	Considers the factors that impact post-test probability	In the context of the patient presentation, discriminates between subtle and/or conflicting diagnostic results
☐	☐	☐	☐	☐
Comments:				
			Not Yet Completed Level 1	☐
			Not Yet Assessable	☐

Patient Care 4: Diagnosis				
Level 1	Level 2	Level 3	Level 4	Level 5
Constructs a list of potential diagnoses based on the patient's chief complaint and initial Assessment	Provides a prioritized differential diagnosis	Provides a diagnosis for common medical conditions and demonstrates the ability to modify a diagnosis based on a patient's clinical course and additional data	Provides a diagnosis for patients with multiple comorbidities or uncommon medical conditions, recognizing errors in clinical reasoning	Serves as a role model and educator to other learners for deriving diagnoses and recognizing errors in clinical reasoning
☐	☐	☐	☐	☐ ☐ ☐ ☐ ☐
Comments:				
			Not Yet Completed Level 1	☐
			Not Yet Assessable	☐

Patient Care 5: Pharmacotherapy				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes the different classifications of pharmacologic agents Consistently asks patients for drug allergies	Selects appropriate agent for therapeutic intervention Evaluates for potential adverse effects of pharmacotherapy and drug-to-drug interactions	Considers array of drug therapy and selects appropriate agent based on mechanism of action and intended effect Recognizes and acts upon common adverse effects and interactions	Selects the appropriate agent based on patient preferences, allergies, cost, policies, and clinical guidelines Recognizes and acts upon uncommon and unanticipated adverse effects and interactions	Participates in developing departmental and/or institutional policies on pharmacy and therapeutics
☐	☐	☐	☐	☐
Comments:				
			Not Yet Completed Level 1	
			Not Yet Assessable	☐

Patient Care 6: Reassessment and Disposition				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes basic resources available (e.g., follow-up care, rehabilitation, transfer centers)	Makes a disposition decision for patients with routine conditions needing minimal resources	Makes a disposition decision for patients with routine conditions, with resource utilization	Makes disposition decision for patients with complex conditions, with resource utilization	Participates in institutional committees to develop systems that enhance safe patient disposition and maximizes resources
Describes basic patient education plans	Educates patients on simple discharge and admission plans	Educates patients regarding diagnosis, treatment plan, medication review and primary care physician/consultant appointments	Educates patients on complex discharge and admission plans, including complex transfers	☐ ☐
Identifies the need for patient re-evaluation	Monitors that necessary diagnostic and therapeutic interventions are performed	Identifies which patients will require ongoing emergency department evaluation and evaluates the effectiveness of diagnostic and therapeutic interventions	Evaluates changes in clinical status during a patient's emergency department course	Participates in the development of protocols to enhance patient safety
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐				
Comments: Not Yet Completed Level 1Not Yet Assessable				

Patient Care 7: Multitasking (Task-Switching)				
Level 1	Level 2	Level 3	Level 4	Level 5
Manages a single patient amidst distractions	Task-switches between different patients of similar acuity	Employs task-switching in an efficient manner to manage multiple patients of varying acuity and at varying stages of work-up	Employs task-switching in an efficient manner to manage the emergency department	Employs task switching in an efficient manner to manage the emergency department under high-volume or surge situations
☐	☐	☐	☐	☐
Comments:				

Not Yet Completed Level 1

Not Yet Assessable

Patient Care 8: General Approach to Procedures				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies indications for a procedure and pertinent anatomy and physiology	Assesses indications, risks, benefits, and alternatives and obtains informed consent in low- to moderate-risk situations	Assesses indications, risks, and benefits and weighs alternatives in high-risk situations	Acts to mitigate modifiable risk factors in high-risk situations	
Performs basic therapeutic procedures (e.g., suturing, splinting)	Performs and interprets basic procedures, with assistance	Performs and interprets advanced procedures, with guidance	Independently performs and interprets advanced procedures	Teaches advanced procedures and independently performs rare, time-sensitive procedures
	Recognizes common complications	Manages common complications	Independently recognizes and manages complex and uncommon complications	Performs procedural peer review
☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐			
Comments:				
			Not Yet Completed Level 1 ☐	
			Not Yet Assessable ☐	

Medical Knowledge 1: Scientific Knowledge				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates scientific knowledge of common presentations and conditions	Demonstrates scientific knowledge of complex presentations and conditions	Integrates scientific knowledge of comorbid conditions for complex presentations	Integrates scientific knowledge of uncommon, atypical, or complex comorbid conditions for complex presentations	Pursues and integrates new and emerging knowledge
☐	☐	☐	☐	☐ ☐ ☐ ☐
Comments:				
				Not Yet Completed Level 1 ☐
				Not Yet Assessable ☐

Medical Knowledge 2: Treatment and Clinical Reasoning				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of treatment of common conditions Identifies types of clinical reasoning errors within patient care, with substantial guidance	Demonstrates knowledge of treatment of patients with complex conditions Identifies types of clinical reasoning errors within patient care	Demonstrates knowledge of the impact of patient factors on treatment Applies clinical reasoning principles to retrospectively identify cognitive errors	Demonstrates comprehensive knowledge of the varying patterns of disease presentation and alternative and adjuvant treatments of patients Continually re-appraises one's clinical reasoning to prospectively minimize cognitive errors and manage uncertainty	Contributes to the body of knowledge on the varying patterns of disease presentation, and alternative and adjuvant treatments of patients Coaches others to recognize and avoid cognitive errors
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐				
Comments:				
Not Yet Completed Level 1 ☐ Not Yet Assessable ☐				

Systems-Based Practice 1: Patient Safety				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of common patient safety events	Identifies system factors that lead to patient safety events	Participates in analysis of patient safety events (simulated or actual)	Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)	Actively engages teams and processes to modify systems for preventing patient safety events
Demonstrates knowledge of how to report patient safety events	Reports patient safety events through institutional reporting systems (simulated or actual)	Participates in disclosure of patient safety events to patients and families (simulated or actual)	Discloses patient safety events to patients and families (simulated or actual)	Acts as a role model and/or mentor for others in the disclosing of patient safety events
☐	☐	☐	☐	☐
Comments:				
				Not Yet Completed Level 1 ☐

Systems-Based Practice 2: Quality Improvement				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of basic quality improvement methodologies and metrics	Describes local quality improvement initiatives (e.g., emergency department throughput, testing turnaround times)	Participates in local quality improvement initiatives	Demonstrates the skills required for identifying, developing, implementing, and analyzing a quality improvement project	Creates, implements, and assesses quality improvement initiatives at the institutional or community level
☐	☐	☐	☐	☐ ☐ ☐ ☐ ☐
Comments:				
				Not Yet Completed Level 1 ☐

Systems-Based Practice 3: System Navigation for Patient-Centered Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of care coordination	In routine clinical situations, effectively coordinates patient care integrating the roles of interprofessional teams	In complex clinical situations, effectively coordinates patient care by integrating the roles of the interprofessional teams	Serves as a role model, effectively coordinates patient-centered care among different disciplines and specialties	Analyzes the process of care coordination and leads in the design and implementation of improvements
Identifies key elements for safe and effective transitions of care and hand-offs	In routine clinical situations, enables safe and effective transitions of care/hand-offs	In complex clinical situations, enables safe and effective transitions of care/hand-offs	Serves as a role model, advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems, including outpatient settings	Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes
Demonstrates knowledge of population and community health needs and disparities	Identifies specific population and community health needs and inequities for their local population	Effectively uses local resources to meet the needs of a patient population and community	Participates in changing and adapting practice to provide for the needs of specific populations	Leads innovations and advocates for populations and communities with health care inequities
☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐			
Comments:				
			Not Yet Completed Level 1	☐

Systems-Based Practice 4: Physician Role in Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies key components of the complex health care system (e.g., hospital, skilled nursing facility, finance, personnel, technology) Describes basic health payment systems, including (e.g., government, private, public, uninsured care) practice models	Describes how components of a complex health care system are interrelated, and how this impacts patient care Delivers care with consideration of each patient's payment model (e.g., insurance type) Identifies basic knowledge domains required for medical practice (e.g., information technology, legal, billing, coding, financial, and personnel aspects)	Discusses how individual practice affects the broader system (e.g., length of stay, readmission rates, clinical efficiency) Engages patients in shared decision making, informed by each patient's payment models Demonstrates efficient integration of information technology required for medical practice (e.g., electronic health record, documentation required for billing and coding)	Manages various components of the complex health care system to provide efficient and effective patient care and the transition of care Advocates for patient care needs with consideration of the limitations of each patient's payment model Describes core administrative knowledge needed for the transition to practice (e.g., contract negotiation, malpractice insurance, government regulation, compliance)	Advocates for or leads systems change that enhances high value, efficient, and effective patient care, and the transition of care Participates in health policy advocacy activities Analyzes individual practice patterns and professional requirements
☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Comments: Not Yet Completed Level 1 ☐				

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and use available evidence	Articulates the clinical questions that are necessary to guide evidence-based care	Locates and applies the best available evidence, integrating it with patient preference, to the care of complex patients	Critically appraises and applies evidence even in the face of uncertainty and of conflicting evidence to guide care that is tailored to the individual patient	Coaches others to critically appraise and apply evidence for complex patients, and/or participates in the development of guidelines
☐	☐	☐	☐	☐
Comments:				
Not Yet Completed Level 1 ☐				

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates an openness to performance data (feedback and other input)	Demonstrates an openness to performance data and uses it to develop personal and professional goals Identifies the factors that contribute to the gap(s) between expectations and actual performance	Seeks and accepts performance data for developing personal and professional goals Analyzes and reflects upon the factors that contribute to gap(s) between expectations and actual performance	Using performance data, continually improves and measures the effectiveness of one's personal and professional goals Analyzes, reflects on, and institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance	Acts as a role model for the development of personal and professional goals Coaches others on reflective practice
☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1 ☐

Professionalism 1: Professional Behavior and Ethical Principles				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates professional behavior in routine situations and in how to report professionalism lapses	Identifies and describes potential triggers and takes responsibility for professionalism lapses	Exhibits professional behavior in complex and/or stressful situations	Sets apart those situations that might trigger professionalism lapses and intervenes to prevent them in oneself and others	Coaches others when their behavior fails to meet professional expectations
Demonstrates knowledge of the ethical principles underlying patient care	Analyzes straightforward situations using ethical principles	Analyzes complex situations using ethical principles, and recognizes the need to seek help in managing and resolving them	Uses appropriate resources for managing and resolving ethical dilemmas	Identifies and addresses system-level factors that either induce or exacerbate ethical problems or impede their resolution
☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐
Comments:				
				Not Yet Completed Level 1 ☐

Professionalism 2: Accountability/Conscientiousness				
Level 1	Level 2	Level 3	Level 4	Level 5
In routine situations, performs tasks and responsibilities with appropriate attention to detail Responds promptly to requests and reminders to complete tasks and responsibilities	In routine situations, performs tasks and responsibilities in a timely manner with appropriate attention to detail Takes responsibility for failure to complete tasks and responsibilities	In complex or stressful situations, performs tasks and responsibilities in a timely manner with appropriate attention to detail Recognizes situations that might impact one's own ability to complete tasks and responsibilities in a timely manner, and describes strategies for ensuring timely task completion in the future	Recognizes situations that might impact others' ability to complete tasks and responsibilities Proactively implements strategies to ensure that the needs of patients, teams, and systems are met	Takes ownership of system outcomes
☐	☐	☐	☐	☐
Comments:				
			Not Yet Completed Level 1	☐

Professionalism 3: Self-Awareness and Well-Being				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes, with assistance, the status of one's personal and professional well-being	Independently recognizes the status of one's personal and professional well-being and engages in help-seeking behaviors	With assistance, proposes a plan to optimize personal and professional well-being	Independently develops a plan to optimize one's personal and professional well-being	Coaches others when their emotional responses or level of knowledge/skills fail to meet professional expectations
☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐ ☐ ☐
Comments:				
Not Yet Completed Level 1 ☐				

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Uses language and non-verbal behavior to reflect respect and establish rapport while accurately communicating one's own role within the health care system	Establishes a therapeutic relationship in straightforward encounters with patients using active listening and clear language	Establishes a therapeutic relationship in challenging patient encounters	Easily establishes therapeutic relationships with patients, regardless of the complexity of cases	Acts as a mentor to others in situational awareness and critical self-reflection with the aim of consistently developing positive therapeutic relationships and minimizing communication barriers
Identifies common barriers to effective communication (e.g., language, disability)	Identifies complex barriers to effective communication (e.g., health literacy, cultural, technology)	When prompted, reflects on one's personal biases, while attempting to minimize communication barriers	Independently recognizes personal biases of patients, while attempting to proactively minimize communication barriers	
With insight gained through an assessment of patient/family expectations coupled with an understanding of their health status and treatment options, adjusts one's communication Strategies	Organizes and initiates communication with a patient/family by clarifying expectations and verifying one's understanding of the clinical situation	With guidance, sensitively and compassionately delivers medical information to patients, elicits patient/family values, learns their goals and preferences, and acknowledges uncertainty and conflict	Independently uses shared decision making with a patient/family to align their values, goals, and preferences with potential treatment options and ultimately to achieve a personalized care plan	Acts as a role model to exemplify shared decision making in patient/family communication that embodies various degrees of uncertainty/conflict
☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐			
Comments: ☐				

Interpersonal and Communication Skills 2: Interprofessional and Team Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Respectfully requests a consultation	Clearly and concisely requests a consultation or other resources for patient care	Integrates recommendations made by various members of the health care team to optimize patient care	Acts as a role model for flexible communication strategies, i.e., those strategies that value input from all health care team members and that resolve conflict when needed	
Uses language that reflects the values all members of the health care team	Communicates information effectively with all health care team members	Engages in active listening to adapt to the communication styles of the team	Uses effective communication to leader manage health care teams	Acts as a role model for communication skills necessary to lead or manage health care teams
Receives feedback in a respectful manner	Solicits feedback on performance as a member of the health care team	Communicates concerns and provides feedback to peers and learners	Communicates feedback and constructive criticism to superiors	In complex situations, facilitates regular health care team-based feedback
☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐			
Comments:				
			Not Yet Completed Level 1 ☐	

Interpersonal and Communication Skills 3: Communication within Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Accurately documents information in the patient's record and safeguards the patient's personal information Communicates through appropriate channels as required by institutional policy (e.g., patient safety reports, cell phone/pager usage)	Demonstrates organized diagnostic and therapeutic reasoning through the patient record in a timely manner Respectfully communicates concerns about the system	Concisely reports diagnostic and therapeutic reasoning in the patient record Uses appropriate channels to offer clear and constructive suggestions for improving thesystem	Communicates clearly, concisely, and contemporaneously in an organized written form, including anticipatory guidance Initiates difficult conversations with appropriate stakeholders to improve the system	Models feedback to improve others' written communication Facilitates dialogue regarding systems issues among larger community stakeholders (e.g., institution, the health care system, and/or the field)
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

SECTION – IV

RESEARCH & THESIS WRITING

Total of one year will be allocated for work on a research project with thesis writing. Project must be completed and thesis be submitted before the end of training. Research can be done as one block in 4th year of training or it can be stretched over four years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

Research Experience

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including publications in peer-reviewed journals. Residents must learn the design and interpretation of research studies, responsible use of informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the medical literature. Residents should be advised and supervised by qualified staff members in the conduct of research

Clinical Research

Each resident will participate in at least one clinical research study to become familiar with

1. Research design
2. Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
3. Data collection and data analysis
4. Research ethics and honesty

5. Peer review process

This usually is done during the consultation and outpatient clinic rotations

Case Studies or Literature Reviews

Each resident will write, and submit for publication in a peer-reviewed journal, a case study or literature review on a topic of his/her choice

Laboratory Research

1. ***Bench Research*** Participation in laboratory research is at the option of the resident and may be arranged through any faculty member of the Division. When appropriate, the research may be done at other institutions
2. ***Research involving animals***

Each resident participating in research involving animals is required to:

1. Become familiar with the pertinent Rules and Regulations of the Rawalpindi Medical University i.e. those relating to "Health and Medical Surveillance Program for Laboratory Animal Care Personnel" and "Care and Use of Vertebrate Animals as Subjects in Research and Teaching".
2. Read the "Guide for the Care and Use of Laboratory Animals".
3. View the videotape of the symposium on Humane Animal Care

3. ***Research involving Radioactivity***

Each resident participating in research involving radioactive materials is required to:

1. Attend a Radiation Review session
2. Work with an Authorized User and receive appropriate instruction from him/h

SECTION – V

CURRICULUM OF RESEARCH& MANDATORY WORKSHOPS

INTRODUCTION

With advent of Evidence Based Practice over last two to three decades in medical science, merging the best research evidence with good clinical expertise and patient values is inevitable in decision making process for patient care. Therefore apart from receiving per excellence knowledge of the essential principles of medicine and necessary skills of clinical procedures, the trainees should also be well versed and skillful in research methodologies. So the training in research being imperative is integrated longitudinally in all four year's training tenure of the trainees.

The purpose of the research training is to provide optimal knowledge and skills regarding research methods and critical appraisal. The expected outcome of this training is to make trainees dexterous and proficient to practically conduct quality research through amalgamation of their knowledge, skills and practice in research methodologies.

ORIENTATION SESSION FOR POST GRADUATE TRAINEES:

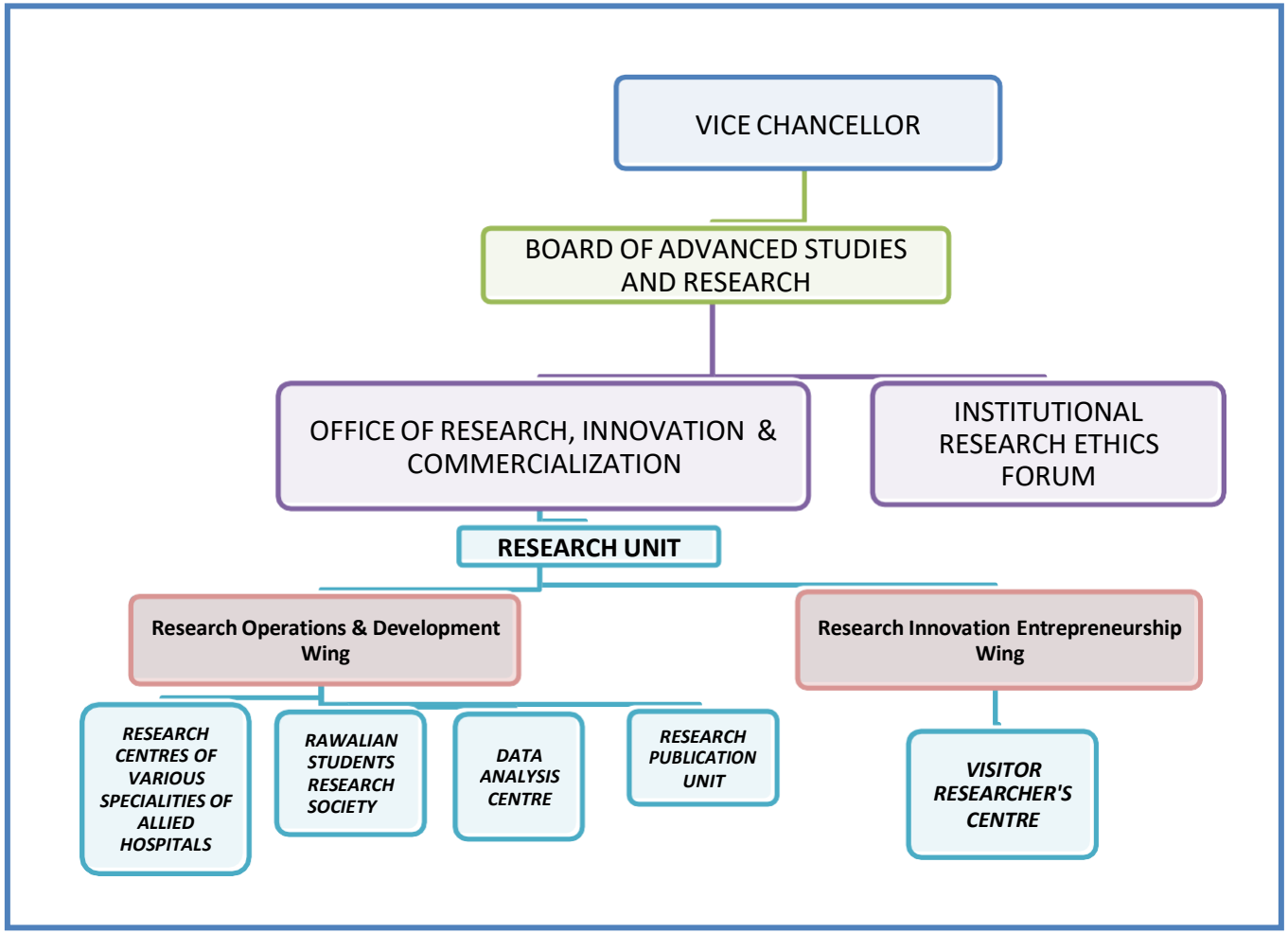
I. At the beginning of the research course, an orientation session or an introductory session of one hour duration will be held, organized by Director, Deputy Directors of ORIC (Office of Research Commercialization and Innovation) of RMU to make trainees acquainted to the research courses during four years post graduate training, the schedule of all scholarly and academic activities related to research and the assessment procedures.

II. Trainees will also be introduced to all the facilitators of the course, organizational structure of ORIC (Annexure 1) and the terms of references of corresponding authorities (Annexure 2) for any further information and facilitation.

III. All the curriculum details and materials for assistance and guidance will be provided to trainees during the orientation session.

IV. The research model of RMU as given in Figure 1 and will be introduced to the newly inducted trainees of RMU.

Figure 1. MODEL OF RESEARCH AT RAWALPINDI MEDICAL UNIVERSITY



The research training component for Post Graduate Trainees comprises of four years and the Distribution and curriculum for each year is mentioned as follows:

RESEARCH COURSE OF FIRST POST GRAUDATION TRAINING YEAR R-Y1

PURPOSE OF R-Y1 RESEARCH COURSE:

The RESEARCH YEAR 1 or R-Y1 research course of the post graduate trainees intends to provide ample knowledge to trainees regarding the importance of research, its necessity and types. This course will provide them clarity of concepts that what are the priority problems that require research, how to sort them out and select topics for research. It will also teach them the best techniques for exploring existent and previous evidences in research through well-organized literature search and also how to critically appraise them. The course will not only provide them comprehensive knowledge but will also impart optimum skills on how to practically and logically plan and design a research project by educating and coaching them about various research methodologies. The trainees will get familiarized to research ethics, concepts of protection of human study subjects, practice-based learning, evidence based practice in addition to the standard ethical and institutional appraisal procedures of Rawalpindi medical University by Board of Advanced Studies and Research and Institutional and Ethics Research Forum of RMU.

LEARNING OUTCOMES OF R-Y1 RESEARCH COURSE

After completion of R-Y1 course the trainees should be efficiently able to:

1. Discuss the value of research in health service in helping to solve priority problems in a local context.
2. Identify, analyses and describe a research problem
3. Review relevant literature and other available information

4. Formulate research question, aim, purpose and objectives
5. Identify study variables and types
6. Develop an appropriate research methodology
7. Identify appropriate setting and site for a study
8. Calculate minimally required sample size for a study.
9. Identify sampling technique, inclusion and exclusion criteria
10. Formulate appropriate data collection tools according to techniques
11. Formulate data collection procedure according to techniques
12. Pre-test data collection tools
13. Identify appropriate plan for data analysis
14. Prepare of a project plan for the study through work plans and Gantt charts
15. Identify resources required for research and means of resources
16. Prepare a realistic study budget in accordance with the work plan.
17. Critically appraise a research paper of any national or international journal.
18. Present research papers published in various national and international journals at journal club.
19. Prepare a research proposal independently.
20. Develop a strategy for dissemination and utilization of research results.
21. Familiarization with application Performa for submission of a research proposal to BASR or IREF.
22. Familiarization with format of presentations and procedure of presentation and defence of a research proposal to BASR or IREF.
23. Familiarization with the supervisor, nominated by the Dean and to develop a harmonious rapport with supervisor.

RESEARCH COURSE OF FIRST TRAINING YEAR

Following academic and scholarly activities will be carried out during year 1 i.e. R-Y1 of Research course catering the post graduate trainees

A. TEACHING SESSIONS:

Research will be taught to the trainees through following methods in various sessions. Each session will comprise of all or either one or two or all five of the following techniques;

1. Didactic lectures through power-point presentations.
2. On spot individual exercises.
3. On spot group exercises.
4. Take home individual assignment
5. Take home group assignment.

The facilitators of these sessions will be staff members (that are director, deputy directors (managers), research associates, statistician and publication in charge) of Office of Research Innovation and commercialization (ORIC) of RMC. While visitor lecturers including renowned national and international public health consultants, researchers, epidemiologists and biostatisticians will also be invited, according to their availability, for some modules of these course

Format of teaching sessions:

i. During year 1 i.e. R-Y1, 23 teaching sessions in total will be taken, with an average of three sessions per month. Each session will comprise of a didactic lecture delivered initially, to attain the mentioned learning outcomes.

ii. Each didactic lecture will be of 30 minutes' duration using the power-point medium that will be followed by a 30 minutes on spot individual or group exercises of trainees during the same session.

iii. By the end of each session, a take home individual task/assignment will be given to trainees, either individually or in groups, that will be duly evaluated and marked each month.

Course content of teaching sessions:

i. The course materials will be based on an updated modified version of course titled as "Designing Health Services Research (Basic)" that was developed in collaboration of Rawalpindi Medical College & Nuffield Institute for Health, University of Leeds, UK based adapted from "Designing and Conducting Health Systems Research Projects" by CM. Varkevisser KIT Publishers, Amsterdam (International Development Research Centre) in association with WHO Regional Office for Africa.

ii. The trainees will be provided hard copies as well as soft copies of the course content in a folder at the initiation of the course.

iii. In addition to it they will be provided various soft copies and links of updated and good resource materials regarding research by the course facilitators.

Curriculum of teaching sessions:

The details of the 22 teaching sessions of the trainees during year one R-Y1 along with the tentative time frame work, teaching strategies, content of curriculum and objectives/Learning outcomes of each sessions are displayed in table 1

TABLE 1. TEACHING SESSIONS OF RESEARCH CURRICULUM OF YEAR 1 OF TRAINEES OF POST GRADUATE TRAINEES/MD SCHOLARS OF RMU

SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 1 WEEK 1 Month 1	Lecture through power point presentation followed by both individual exercise & Group exercise	Introduction to health systems research Identifying and Prioritizing Research Problems	Describe the purpose, scope and characteristics of health systems research Identify criteria for selecting health-related problems to be given priority in research
SESSION 2 WEEK 2 Month 1	Lecture through power point presentation followed by Individual exercise	Analysis and statement of problem & Introduction to Literature review	Analyze a selected problem and the factors influencing it and understand how to prepare the statement of the problem for research. Describe the reasons for reviewing available literature and other information for preparation of a research. Identify the resources that are available for carrying out such a review.
SESSION 3 WEEK 3	Lecture through power point presentation	Literature review Referencing systems;	Describe the methods for reviewing available literature and other information for preparation

Month 1	followed by Individual exercise & Take home assignment	Vancouver & Harvard referencing systems	of a research. Should be familiar with referencing systems and its importance. Use Vancouver and Harvard referencing systems and should be able to differentiate between them.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 4 WEEK 1 Month 2	Lecture through power point presentation followed by Individual exercise & Take home assignment	Literature review Referencing managing systems	Describe the methods for reviewing available literature and other information for preparation of a research. Should be familiar with use and importance of reference managing systems; Endnote & Mendeley. Use the literature review and other information pertaining to a research topic that will adequately describe the context of study and strengthen the statement of the problem.

SESSION 5 WEEK 2 Month 2	Lecture through power point presentation followed by Individual exercise & Take home assignment	Plagiarism	Describe the significance and necessity of plagiarism detection Use online plagiarism detection tools and turn-it-in for detecting plagiarism through assessment of originality scores/similarity index for plagiarism
SESSION 6 WEEK 3 Month 2	Lecture through power point presentation followed by Individual exercise	Formulation of research objectives	State the reasons for writing objectives for a research project. Define and describe the difference between general and specific objectives. Define the characteristics of research objectives. Prepare research objectives in an appropriate format. Develop further research questions, and research hypotheses, if appropriate for study.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES*** ***i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 7 WEEK 4	Lecture through power point presentation	Formulation of Hypothesis for a	State the reasons and scenario for formull2ating research hypothesis.

Month 2	followed by Individual Assignment	research	Define and describe the types difference between one sided and two sided hypothesis. Formulate Null hypothesis and Alternate hypothesis in an appropriate format. Identify importance of hypothesis testing and to identify type I & type II errors.
SESSION 8 WEEK 1 Month 3	Lecture through power point presentation followed by a group exercise.	Research methodology; Variables and Indicators	Define what study variables are and describe why their selection is important in research. State the difference between numerical and categorical variables and define the types of scales of measurement. Discuss the difference between dependent and independent variables and how they are used in research designs. Identify the variables that will be measured in a research project and development of operational definitions with indicators for those variables that cannot be measured directly.
SESSIONS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES***

& TIMINGS			***i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 9 WEEK 2 Month 3	Lecture through power point presentation followed by a group exercise.	Research methodology; Study types	Describe the study types mostly used in HSR. Define the uses and limitations of each study type. Describe how the study design can influence the validity and reliability of the study results. Identify the most appropriate study design for a study.
SESSION 10 WEEK 1 Month 4	Lecture through power point presentation	Data collection techniques	Describe various data collection techniques and state their uses and limitations. Advantageously use a combination of different data collection techniques. Identify various sources of bias in data collection and ways of preventing bias. Identify ethical issues involved in the implementation of research and ways of ensuring that informants or subjects are not harmed. Identify appropriate data-collection techniques.

SESSION 11 WEEK 2 Month 4	Lecture through power point presentation	Data collection tools	Prepare data-collection tools that cover all important variables.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 12 WEEK 1 Month 5	Lecture through power point presentation	Sampling	Identify and define the population(s) to be studied Describe common methods of sampling. Decide on the sampling method(s) most appropriate for a research design.
SESSION 13 WEEK 2 Month 5	Lecture through power point presentation Group exercises	Sampling	List the issues to consider when deciding on sample size. Calculate minimally required sample size according to study designs Use WHO's (World Health Organization's) sample size calculator. Decide on the sample size(s) most appropriate for a

			research design.
SESSION 14 WEEK 3 Month 5	Lecture through power point presentation	Plan for Data Entry , storage and Statistical Analysis	Identify and discuss the most important points to be considered when starting to plan for data collection. Determine what resources are available and needed to carry out data collection for study. Have knowledge of resources, available for data recording, storage and to carry out data analysis of a study? Describe typical problems that may arise during data collection and how they may be solved. Identify important issues related to sorting, quality control, and processing of data.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
			Describe how data can best be analyzed and

			interpreted based on the objectives and variables of the study Prepare a plan for the processing and analysis of data (including data master sheets and dummy tables) for the research proposal being developed.
SESSION 15 WEEK 1 Month 6	Lecture through power point presentation and individual exercises	Introduction to Statistica Package of Social Sciences (SPSS)	Introduction to Statistical Package of Social Sciences. Entry of various types of variables in SPSS.
SESSION 16 WEEK 2 Month 6	Lecture through power point presentation and individual exercises	Pilot and project planning	Describe the components of a pre-test or pilot study that will allow to test and, if necessary, revise a proposed research methodology before starting the actual data collection. Plan and carry out pre-tests of research components for the proposal being developed. Describe the characteristics and purposes of various project planning and scheduling techniques such as work scheduling & GANTT charting. Determine the various tasks and the staff needed for a research project and justify any additional staff (research assistants, supervisors) apart from the

			research team, their recruitment procedure, training and
SESSIO;NS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
			supervision. Prepare a work schedule, GANTT chart and staffing plan for the project proposal.
SESSION 17 WEEK 3 Month 6	Lecture through power point presentation and individual exercises	Budgeting for a study	Identify major categories for a budget. Make reasonable estimates of the expenses in various budget categories. List various ways a budget can be reduced, if necessary, without substantially damaging a project. Prepare a realistic and appropriate budget for the project proposal
SESSION 18 WEEK 1 Month 7	Lecture through power point presentation.	Project administration Plan for dissemination Research ethics & concepts of protection of human study subjects	List the responsibilities of the team leader and project administrator related to the administration and monitoring of a research project. Prepare a brief plan for administration and monitoring of a project.

			Identify the ethical considerations mandatory during execution of a research project and their importance. Prepare a plan for actively disseminating and fostering the utilization of results for a research the project proposal.
SESSION 19 WEEK 2 Month 7	Lecture through power point presentation	Differences between original articles, short communications, case reports, systematic reviews and meta-analysis	Differentiate between original articles, short communications, case reports, systematic reviews and meta-analysis
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 20 WEEK 3 Month 7	Lecture through power point presentation and group exercises	Writing a Case report	Identify important components of a good case report. Formulate a quality case report of any rare case presented in the clinical unit during the training period

SESSION 21 WEEK 1 Month 8	Lecture through power point presentation and group exercises	Undertaking a clinical audit.	Identify Clinical audit as an essential and integral part of clinical governance. Differentiate between research and clinical audit. Identify types of Clinical Audit Understand steps of process of Clinical Audit
SESSION 22 WEEK 2 Month 8	Lecture through power point presentation and group project	Critical Appraisal of a research paper	Identify the importance and purpose of critical appraisal of research papers or articles. Have ample knowledge of important steps of critical appraisal Can effectively critically appraise a research paper published in any national or international journal.
SESSION 23 WEEK 3 Month 8	Lecture through power point presentation and individual exercises	Making effective power-point presentations Making effective poster presentations Presenting a research paper	Determine various tips for making effective power-point presentations. Determine various tips for making effective poster and its presentations. Identify important components of research paper that essentially should be communicated in a presentation. Can effectively and confidently make a power-point presentation of a research paper published in any national or international

SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
			journal. Can formulate a poster of a research paper published in any national or international journal.

Minimal Attendance of teaching sessions:

The attendance of the trainees in the Research training sessions must be 80% or above during year 1, and it will be duly recorded in each session and will be monitored all the year round.

Assessment of Trainees for teaching sessions:

i. *For didactic lectures*, the learning and knowledge of the trainees will be assessed during the end of year examination or Annual Research Paper.
ii. One examination paper of Research of R-Y1 will be taken that will comprise of 75 marks in total and will consist of two sections. Section one will be of 50 marks in total and will comprise of 25 MCQ's (multiple choice questions) while section two will comprise of 5 SAQ's (Short answer questions) and Problems/Conceptual questions.
iii. Total duration of the paper will be 90 minutes.
iv. The papers will be checked by the research associates and Deputy Directors of ORIC.

Assessment of individual and group exercises:

i. The quality, correctness and completeness of the individual as well as group exercises will be assessed during the teaching sessions, when they will be presented by the end of each session by trainees either individually or in groups respectively.

ii. The mode of presentations will be oral using media of charts, flip charts & white boards.

iii. There will be no scores or marks specified for the individual or group exercises but the feedback of evaluation by the facilitators will be on spot by end of presentations.

Assessment of individual or group; take home tasks/assignments*:*

i. The correctness, quality and completeness of the individual or group exercises will be determined once these will be submitted after completion to the facilitators after period specified for each task. Assignments should be submitted in electronic version and no manually written assignment will be accepted.

ii. Each assignment will be checked for plagiarism through turn-it-in soft ware. Any assignment that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission.

iii. Assignments will be assessed and checked during the sessions and will be scored by the facilitators who had taken the session.

iv. A total of 50 marks in total will be assigned for evaluation of all of these take home tasks/assignments.

B. PARTICIPATION IN JOURNAL CLUB SESSIONS

i. The journal club of every department will comprise of an academic meeting of the head of department, faculty members, trainees and internees at departmental level.

ii. The purpose of journal club will be to collectively attempt to seek new knowledge through awareness of current and recent research findings and also to explore best current clinical research and means of its implementation and utilization.

iii. Apart from the teaching sessions of the trainees should attend the journal club sessions of the departments and should attempt to actively participate in them too.

iv. One journal club meeting must be organized in the department in every two months of the year and its attendance by the trainees will be mandatory.

v. The journal club meeting will be chaired by the Dean of specialty.

vi. The purpose of participation of the trainees in journal club will be to enhance their scientific literacy and to have optimal insight of the relationship between clinical practice and evidenced-based medicine to continually improve patient care.

Format of Journal Club Meetings:

i. In a journal club meeting, one or two research paper/s published in an indexed national or international journal, selected by the Dean of the department will be presented by year 2 trainees; R-Y2 trainees.

ii. The research paper will be presented through power-point and the critical appraisal of the paper will follow it.

iii. The topic will also be discussed in comparison to other evidences available according to the latest research.

iv. The year one trainee i.e. R-Y1 trainee will only participate in the journal club and will not present during first year of training. He/she will be informed regarding the selected paper one and a half month prior to the meeting and should do extensive literature search on the topic and also of the research paper that will be presented in meeting.

v. The trainees should actively participate in question & answer session of the journal club meeting that will be carried out following the presentation of the critical appraisal of the research paper. It will be compulsion for each R1 trainee to ask at least one question or make at least one comment relevant to the topic and/or the research paper, during the journal club meeting.

Minimal Attendance of Journal Club meetings by R-Y1 trainee:

The R-Y1 trainees should attend at least 5 out of 6 journal club meetings during their first year of training.

Assessment of Trainees for Journal Club sessions:

There will be no formal quantitative or qualitative assessment of the trainee during year one for their participation in the journal club.

C. OBSERVATION OF MONTHLY MEETING OF INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREF) OF RMU

i. In order to provide exposure to R-Y1 trainees regarding standard operational procedures and protocols of the research activities of Rawalpindi Medical University, each R-Y1 trainee should attend at least two monthly meetings of the Institutional Research Ethics Committee of RMU and should observe the proceedings of the meeting.

ii. He/she will be informed by the research associates of ORIC about the standard procedures of application to IREF step wise including guidance regarding how an applicant should access the RMU website and download the application Performa and then how to electronically fill it in for final submission. They will also be provided format of presentation for their future presentations at IREF meetings.

Minimal Attendance of IREF meetings by R-Y1 trainee:

The R-Y1 trainees should attend at least at least two (out of 12) monthly meetings of IREF during their first year of training.

Assessment of Trainees for participation in the IREF meetings:

There will be no formal quantitative or qualitative assessment of the trainee during year one for their participation in the IREF meetings.

D. NOMINATION OF THE SUPERVISOR OF THE TRAINEE FOR THE DISSERTATION PROJECT

i. During the first year of training, the supervisor of each trainee must be nominated within first six months. The Dean of the specialty will decide the nomination of the supervisor for the post graduate trainee as well as MD scholars.

ii. A meeting will be held in the middle of the year, in June preferably, that will be attended by all heads of the departments and the Dean. The list of all the first year trainees and the available supervisors in each department will be presented by respective heads

of each department in meeting. All of the eligible trainees and supervisors will also be around for brief interviews during the meeting.

iii. The head of departments, prior to interviews of the trainees and supervisors, will inform the Dean in the meeting, their own personal observation of the level of performance, talent personality and temperament of both the trainees and the supervisors. Based on their consideration of the compatibility of both eligible trainees and the supervisors, Head of departments (HOD's) will recommend or propose most suitable supervisors for each trainee after eloquent discussions and justifications.

iv. The Dean will then call each trainee individually to inform him/her the suggested Supervisor for him/her and will also give right and time for objection or reservation in nomination, if any. The Dean will seek the trainee's final consent and then after asking the trainee to leave the meeting room, will call the supervisor for final consent.

v. If the supervisor will also be willing to happily supervise the trainee, then the Dean will finally approve the nomination.

vi. A tentative list will be issued by the office of the Dean, within three days of the meeting, copied to the HOD's and the trainees and supervisors.

vii. Both the trainees and the supervisors will be given two weeks to challenge the nominations, in case either of the two have an y qualms or objections regarding the nominations. They will also be given right to personally approach the Dean for any request for change. In case of any objection, the Dean will make changes in consultation with the HOD's, after final consent and satisfaction of both trainee and supervisor

viii. The final revised list of nominations will be then issued by the office of Dean and will be sent to the Board of Advanced studies and Research of RMU (BASR).

ix. The Board of Advanced studies and Research of RMU will issue final approval of the list and the Vice chancellor will endorse the nominations as final authority.

x. During the last few months of the first year of training, the trainees and supervisors will be advised by the Dean, to get familiar with each other and try to identify their abilities to efficiently and successfully work together as a team, especially during the project of Clinical Audit, mentioned in next section.

xi. In case of any issues, either of both will have right to request any change in nomination to the Dean, till last week of first year of training. The Dean will then consider the case and will seek modification in nomination from the BASR.

xii. After completion of first year of training, no substitution in nomination will be allowed. In case of any serious incompatibility between the trainee and the supervisor, the issue will be brought to the Vice chancellor directly by the Dean as a special case, who will make the final decision accordingly, as the final authority.

xiii. As regards the MD scholars, the external supervisors will also be nominated and those nominations will be made by Vice chancellor of RMU in consultation with the Dean of specialty. The consent of the trainees and supervisors will follow the same protocol as specified above and the final list of nominations will then be submitted to BASR for final approval.

xiv. After finalization of nominations a letter of agreement of supervision will be submitted by the trainee to the office of Dean, including consent and endorsement of both trainee and the internal and/or external supervisor, with copies to HOD, ORIC and BASR.

xv. The supervisor and the trainee will be bound to meet on weekly basis exclusively for research activity with documented record of the activity done during the meeting in the log book.

E. UNDERTAKING A CLINICAL AUDIT PROJECT

i. During ninth month of training year 1; R-Y1 the head of department will form groups of trainees, either two or three trainees in one group (along with each supervisor of each trainee), depending on the total number of trainees available in that respective first year.

ii. These groups will undertake clinical audits on various aspects of the department as a project assignment, on one topic assigned to each group by the Dean and Heads of Departments.

iii. If the group will compromise of two trainees and their supervisors' then there will be four group members in that group and if three trainees in one group, then there will be six members of that group after inclusion of their supervisors.

iv. The trainees during session 21 conducted in first week of eighth month of training R-Y1, will already have been taught how to undertake a clinical audit and this task of undertaking a clinical audit will be assigned to them as its group project. This project will also provide the trainees and the supervisors an opportunity to work closely and will help them understand and foresee their group dynamics for future dissertations.

v. The clinical audits completed in groups will be published as Annual Audit Reports of the departments by the Dean and HOD's and each member of the group will be acknowledged as author in the Annual Audit reports or if also published in any research journal.

vi. The clinical audit will also be presented in weekly Clinico-pathological conferences (CPC) of the University, if approved by the Dean. The presentation will be supervised by HOD.

vii. The contribution of the post graduate trainees'/ MD trainees in audits will be qualitatively assessed by the supervisors and the head of departments.

F. MONITORING OF RESEARCH COURSE OF YEAR 1

i. All the concerned faculty members, at department, research units of specialties (including supervisors, senior faculty members and Head of Department) and the Deputy Directors and Director at the Office of Research Innovation & Commercialization of RMU will keep vigilant and continuous monitoring of all the academic activities of each trainee.

ii. There will be a separate section of research in Structured Log books of trainees and also section of Research in portfolio record of the trainees specific to research component of the training that will be regularly observed, monitored and endorsed by all the

concerned faculty members, supervisor and facilitators. The Log and portfolio for the research curriculum of each training year will be entered separately.

iii. The Structured Research section in Log books specific to research curriculum of training year 1 will include the record of attendance of all the teaching sessions of the trainee that will be monthly updated and endorsed by the Department of Medical Education (DME) of RMU.

iv. There will also be submission record and scores attained for the individual and group assignments of the trainees, endorsed by the facilitators of ORIC including Deputy Directors and Research Associates.

v. The log books will also include the attendance of the trainees in the Journal club sessions of the department and with qualitative assessment of the trainee regarding any active participation of the trainee during the journal club. It will specifically mention whether any question or comment was raised by the trainee during each journal club session. This information will be endorsed by the supervisor of the trainee and the Head of Department.

vi. The attendance record of the trainees in the monthly meetings of the Institutional Research Ethics Forum (IREF) of RMU will also be part of the Log Book that will be endorsed by the convener of the IREF by the end of each attended meeting.

vii. The HOD will monitor the weekly meetings through observation of the documented record of meetings in log books by the end of every month.

viii. The result of the annual research paper of R-Y1 will be entered in the Log books and will be endorsed by Deputy Directors and Research Associates of ORIC.

ix. The research portfolio of the trainee R-Y1 will be qualitative and quantitative self assessment of the trainee in narrative form. It will also include the individual assessment of the objectives and aims defined by the trainee during the year and elaboration of the extent of attainment of these. The trainee will be able to specify his/her achievements or knowledge gained in any aspect of research that was not even formally part of the research curriculum. It will include reporting of any research courses, online or

physically attended by the trainee, contribution in any research paper or publication, any participation and/or presentation in any research conference, competition etc. during year R-Y1.

x. The research portfolio will assist the trainees to reinforce the importance of strategic thinking as a way to understand their context and look to the future. By having a recorded insight of the individual achievements, weaknesses and strengths, the trainee will be able to maximize his/her talent and potential of all the activities and projects of research with an aim of further progression in career development.

G. OVERALL ASSESSMENT OF PERFORMACE OF TRAINEES FOR YEAR 1

i. Quantitative assessment of the performance and accomplishment of trainees will be done in an unbiased, impartial and equitable manner by the supervisor, ORIC department and the senior faculty members at the department.

ii. The assessment of trainees will not only serve as an effective tool for evaluation of the extent and quality of knowledge gained and skills learnt by trainees but it will also effectively provide an evidence of the level of standards of teaching and training by the facilitators, supervisor and the faculty members.

iii. For annual assessment of every trainee 75 marks of Annual Research Paper of R-Y1 will be included, while 25 marks will be included from the home tasks assignments. The 50 marks of the home task assignments will be converted to 25 marks, to get an aggregate of 100 total marks. Out of these 100 total marks, 40% will be passing marks of this Research course and in case of failure in it, second attempt will be allowed to the trainees and if any one fails in second attempt too then he/she should appear next year with next batch's first attempt.

H. EVALUATION/ FEEDBACK OF RESEARCH COURSE OF YEAR 1

Success of any academic or training activities greatly rely on the honest and constructive evaluation that opens pavements of improved and more effective performances and programs. The research course of the trainees will not only be evaluated by the trainees themselves but also by the deputy directors of ORIC, supervisors and HOD's through end of sessions forms and then collectively through end of course feedback forms.

i. ***The feedback of trainees*** will include structured evaluation of each teaching session through structured and anonymous feedback forms/questionnaire that will be regularly distributed amongst the trainees. Anonymity will ensure an honest and unbiased response. They will be requested to provide their feedback regarding various aspects of teaching sessions eg content, medium used, facilitators performance and knowledge, extent of objectives attained etc. through Likert scale. They will mark, through their personal choice without any pressure or peer consultation, one particular category amongst five scales specified ranging from 1-5, I representing the poorest quality while 5 representing excellence. Apart from this structured assessment, open ended questions will also include an in depth perspective and insight. Similarly, an overall feedback questionnaire will also be rotated amongst trainees.

ii. ***The feedback of trainers*** will include structured evaluation of each teaching session by the facilitators, supervisors and senior faculty members involved in the Research training course. They will provide their feedback through structured and anonymous feedback forms/questionnaire, including closed and partially closed questions that will be regularly provided by them. They will provide their inputs and opinions regarding effectiveness of the course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.

iii. ***Three focus group discussions;*** one of the R-Y1 trainees, second of the facilitators and third of the supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement.

iv. ***The research portfolio*** will be checked and endorsed by the supervisor and the Director of ORIC.

v. ***A final evaluation report of the Research Course R-Y1*** will be formulated and compiled by the ORIC of RMU. The report will be presented all concerned stake holders, since the course evaluations will play a significant role in curriculum modification and planning.

I. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 1

i. The final quality evaluation report along with all the feedback material, randomly selected log books, research portfolios, submitted individual & groups assessments and randomly selected annual research course examination papers will be observed by an evaluation team of Research course. The quality evaluation team of research course will include the Head of departments, Deans, selected representatives of BASR, IREF, Director DME (Department of Medical Education), Director of ORIC, Director of Quality enhancement cell (QEC) and Vice chancellor of RMU, individually. The selection of representatives of the concerned departments will be made by the Vice chancellor of RMU.

ii. All the materials will be observed and evaluated by the above mentioned once during the course and finally by the end of course year.

iii. The evaluation during the year will be done at any random occasion by members of evaluation teams individually or in teams and will be done without any prior information to the trainees and trainers.

iv. The evaluation will include not only physical observation of the materials but the evaluators may also make a visit to observe any proceedings or activities of the research course e.g. a lecture, a group exercise, a journal club session and/or an IREF meeting.

v. ORIC will be responsible for submission of the evaluation content to all including a copy to the Quality Enhancement Cell (QEC) of RMU for internal evaluation.

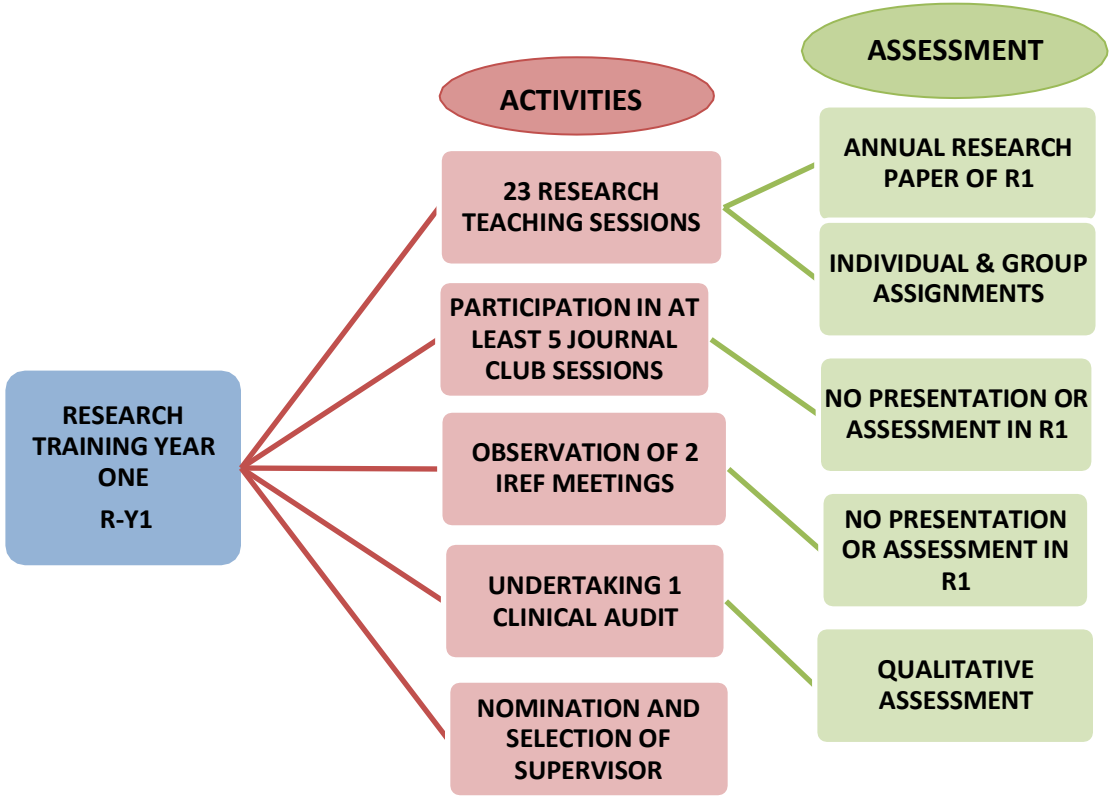
vi. The QEC will organize an external evaluation too through involvement of a third party that may include members of Quality assurance department of Higher Education Department based on their availability.

vii. An annual meeting of the quality assessment and enhancement will also be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, DME, QEC & IREF and will be chaired by Vice chancellor. During the meeting all participants will review and discuss all the evaluation material. The quality evaluation team will also share their experiences of their evaluation visits and observations to validate the existing materials.

viii. In perspective of the quality assessment, the Vice Chancellor and the Board of Advanced study and Research will finalize any modifications or enhancement in the next Research course.

The activities related to research training of post graduate trainees is also displayed in figure 1. Successful completion of above mentioned requirements of research course is one component of the all clinical and scholarly requirements for mandatory advancement to the next Post Graduate Year level i.e. year 2 training year or R-Y2.

Figure 3. A FLOW CHART OF RESEARCH ACTIVITIES OF R-Y1 POST GRADUATE/MD TRAINEE OF RMU AND THEIR ASSESSMENT



RESEARCH COURSE OF SECOND POST GRAUDATION TRAINING YEAR
R-Y2
PURPOSE OF R-Y2 RESEARCH COURSE:

The YEAR 2-R2 research course of the post graduate trainees will provide optimum skills to trainees to actually formulate their individual research proposal of the research project/dissertation, prerequisite to their degrees, in perspective of the knowledge acquired during year one of the training i.e. R-Y1. This course will provide them clarity of basic epidemiological and biostatistics concepts that they essentially require to transform their data into substantial evidences, to answer their research questions for their individual research project/dissertation. The course will also make them proficient to follow the standard ethical and institutional appraisal procedures of Rawalpindi medical University by Board of Advanced Studies and Research and Institutional and Ethics Research Forum of RMU. It will also impart them expertise to explore evidences in research through well organized literature search and also how to critically appraise them.

LEARNING OUTCOMES OF R-Y2 RESEARCH COURSE

After completion of R-Y2 course the trainees should be efficiently able to:

1. Identify and define the basic concepts of Epidemiological measures and biostatistics.
2. Formulate and pretest to finalize all the data collection tools for the research projects
3. Identify and execute proficiently all procedures required for data analysis and interpretation.
4. Analyze and interpret the data collected for a research project and draw conclusions related to the objectives of study.
5. Write a clear and concise research report (paper for a peer reviewed journal/dissertation) and a summary of the major findings and recommendations for each of the different parties interested in the results.

6. Present the major findings and the recommendations of a study to policy-makers managers and other stakeholders to finalize the recommendations.
7. Prepare a plan of action for the dissemination, communication and utilization of the findings and (if required) make recommendations for additional future research.
8. Critically appraise a research paper of any national or international journal.
9. Present research papers published in various national and international journals at journal club.
10. Prepare final draft of the research proposal of the Dissertation project, requisite to the post graduation degree of trainee, under the guidance of the nominated supervisor.
11. Fill in an application Performa for submission of Dissertation's research proposal to BASR or IREF.
12. Present and defend a research proposal to BASR or IREF.

RESEARCH COURSE OF SECOND TRAINING YEAR

Following academic and scholarly activities will be carried out during year 2 i.e. R-Y2 of Research course catering the post graduate trainees

A. TEACHING SESSIONS:

i. Basic and advanced Biostatistics and Epidemiological concepts will be taught to the trainees through following methods in various sessions. Each session will comprise of all or either one or two or all four of the following techniques;

1. Didactic lectures through power-point presentations.
2. On spot individual exercises.
3. Take home individual assignment
4. Take home group assignment.

ii. The facilitators of these sessions will be staff members of Office of Research Innovation and commercialization (ORIC) of RMC including Director, Deputy Directors, Research Associates, Statistician and Publication In charge. While visitor lecturers including renowned national and international public health consultants, researchers, epidemiologists and biostatisticians will also be invited, according to their availability, for some modules of these courses.

Format of teaching sessions:

i. During year 2 i.e. R-Y2, 16 teaching sessions in total will be conducted, with an average of three sessions per month.

ii. Each session will comprise of a didactic lecture delivered initially, to attain the mentioned learning outcomes. Each didactic lecture will be of 30 minutes duration using the power-point medium that will be followed by a 30 minutes on spot individual exercises of trainees during the same session.

iii. Since most of the curriculum will comprise of quantitative calculations so trainees will be encouraged to work individually on exercises assigned both manually as well on Statistical Package of Social Sciences, instead of group exercises. These exercises will require calculations and numerical solving too.

iv. By the end of each session, a take home individual task/assignment will be given to trainees, that too preferably individually rather than in groups, that will be duly evaluated and marked each month.

Course content of teaching sessions:

i. The course materials will be based on an updated modified version of course titled as "Designing Health Services Research (Advanced)" that was developed in collaboration of Rawalpindi Medical College & Nuffield Institute for Health, University of Leeds, UK based adapted from "Designing and Conducting Health Systems Research Projects" by CM. Varkevisser KIT Publishers, Amsterdam (International Development Research Centre) in association with WHO Regional Office for Africa.

ii. The trainees will be provided hard copies as well as soft copies of the course content in a folder at the initiation of the course.

iii. In addition to it they will be provided various soft copies of various data sets for practicing data analysis in addition to links of updated and good resource materials regarding research by the course facilitators.

Curriculum of teaching sessions:

The details of the 16 teaching sessions of the trainees during year two R-Y2 along with the tentative time frame work, teaching strategies, content of curriculum and objectives/Learning outcomes of each sessions are displayed in table 2.

TABLE 2. TEACHING SESSIONS OF RESEARCH CURRICULUM OF YEAR 2 OF TRAINEES OF POST GRADUATE TRAINEES/MD SCHOLARS OF RMU

SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 1 WEEK 1 Month 1	Lecture through power point presentation followed by individual exercises and Take home individual assignments	Introduction to Biostatistics Description of Variables Numerical methods of Data summarization (Manual as well as through Statistical Package of Social Sciences)	Describe the purpose, scope and importance of Biostatics in Health systems research Identify basic four steps of Biostatistics. Describe data in terms of frequency distributions, percentages, and proportions. Explain the difference between mean, median and mode. Calculate the frequencies, percentages, proportions, ratios, rates, means, medians, and modes for the major variables of a study manually as well as through Statistical Package of Social Sciences (SPSS).
SESSION 2 WEEK 2 Month 1	Lecture through power point presentation	Graphical presentation of data	Identify various types of graphs Identify the graphical presentations appropriate for each type of variables

	followed by individual exercises &Take home individual assignments.		Describe data in terms of figures Use of Microsoft Excel and SPSS in formulation of graphs.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 3 WEEK 3 Month 1	Lecture through power point presentation followed by Individual exercise & Take home	Cross-tabulation of quantitative data	Describe the difference between descriptive and analytical cross-tabulations. Construct all important cross-tabulations which will help meet the research objectives manually as well as through SPSS. Interpret the cross-tabulations in relation to study objectives and study questions.

	assignment		
SESSION 4 WEEK 1 Month 2	Lecture through power point presentation followed by Individual exercise & Take home assignment	Measures of Association based on risk	Define incidence, risk, relative risk and odds ratio. Calculate relative risk for appropriate study designs (cross-sectional comparative studies, cohort studies, case-control studies and experimental studies) Calculate measures of association manually and also through SPSS and med-calculator.
SESSION 5 WEEK 2 Month 2	Lecture through power point presentation followed by Individual exercise & Take home assignment	Confounding and methods to control confounding	Identify what is confounding and what are confounder variables Explain different ways of dealing with confounding at the design and analysis stage of a study. Evaluate whether an association between two variables may be influenced by another confounding variable/risk factor. Calculate association in a way that takes into consideration the effect of potential

			confounding by another variable/risk factor.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 6 WEEK 3 Month 2	Lecture through power point presentation followed by Individual exercise & Take home individual assignments	Basic statistical concepts; Measure of dispersion and confidence Intervals	Explain what is meant by a range, a percentile, a standard deviation, a normal distribution, a standard error and a 95% confidence interval. Calculate ranges, standard deviations, standard errors and 95% confidence intervals for data, manually as well as through SPSS.
SESSION 7 WEEK 1 Month 3	Lecture through power point presentation	Hypothesis testing for a research	State the concept of hypothesis testing. Define and describe the types difference between one sided and two sided hypothesis. Formulate Null hypothesis and Alternate hypothesis in an appropriate format.

			Identify importance of hypothesis testing and to identify type I & type II errors.
SESSION 8 WEEK 2 Month 3	Lecture through power point presentation followed by a Take home individual assignment.	Tests of Significance	Explain what a significance test is and what its purpose is. Explain what is probability value or p-value Identifying various tests of significances Identifying appropriate test of significance for a specific research design.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 9 WEEK 1 Month 4	Lecture through power point presentation followed by an individual exercise & a Take home	Determining difference between two groups-categorical data Paired & unpaired observations	Decide when to apply the chi-square test. Calculate chi-square values. Use the chi-square tables to assess whether calculated chi-square values are significant. Decide when to apply the McNemars test and calculate its values. Make a decision concerning whether these

	individual assignment.		tests can be used on give data and, if so, what test should be used on which data. Perform these tests on data manually as well as through SPSS.
SESSION 10 WEEK 2 Month 4	Lecture through power point presentation followed by an individual exercise & Take home individual assignment.	Determining difference between two groups- numerical data Paired & unpaired observations	Decide when to apply the independent and dependent t-test. Calculate paired and unpaired t- values. Use the t tables to assess whether calculated t values are significant. Decide when to apply the independent and dependent t test and calculate its values. Make a decision concerning whether these tests can be used on give data and, if so, what test should be used on which data. Perform these tests on data manually as well as through SPSS.

SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 11 WEEK 1 Month 5	Lecture through power point presentation followed by an individual exercise & Take home individual assignment.	Determining difference between more than two groups- numerical data ANOVA (Analysis of Variance)	Decide when to apply the ANOVA test. Calculate F- values. Use the F tables to assess whether calculated t values are significant. Make a decision concerning whether this tests can be used on give data and, if so, what test should be used on which data. Perform ANOVA tests on data through SPSS.
SESSION 12 WEEK 2 Month 5	Lecture through power point presentation followed by an individual exercise	Determining Correlation between variables	Decide when to apply the Pearson's and Spearman's correlation tests. Calculate Pearson's correlation coefficient and Spearman's Pearson's correlation coefficient. Use the p-values to assess whether calculated coefficients are significant. Perform correlation tests on data through SPSS.

SESSION 13 WEEK 3 Month 5	Lecture through power point presentation followed by an individual exercise	Regression Analysis	Explain what is a regression analysis Differentiate between simple linear and multiple logistic regression analysis. Decide when to apply the regression analysis and how to interpret. Make a decision concerning whether these tests can be used on give data and, if so, what test should be used on which data. Perform these tests on data through SPSS.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 14 WEEK 1 Month 6	Lecture through power point presentation and individual exercises	Diagnostic Accuracy of a test	• Identify what is a diagnostic accuracy of a test compared to gold standard tests. Identify what are true positives, true negatives, false positive and false negatives in a diagnostic testing. Calculate Sensitivity, specificity, Positive and negative predictive values of a diagnostic test

			using standard formulae.
SESSION 15 WEEK 2 Month 6	Lecture through power point presentation and individual exercises	Writing a research paper	List the main components of a research paper. Make an outline of a research paper. Write drafts of report in stages. Check the final draft for completeness, possible overlaps for clarity and smoothness of style. Draft recommendations for action based on research findings.
SESSION 16 WEEK 3 Month 6	Lecture and individual exercises	Writing a dissertation	List the main components of a dissertation Explain how a research paper differs from a dissertation Make an outline of a dissertation.

Minimal Attendance of teaching sessions:

The attendance of the trainees in the Research training sessions must be 80% or above during year 2 and it will be duly recorded in each session and will be monitored all the year round.

Assessment of Trainees for teaching sessions:

i. *For didactic lectures*, the learning and knowledge of the trainees will be assessed during the end of year examination.

ii. One examination paper of Research of R-Y2 will be taken that will comprise of 75 marks in total and will consist of two sections. Section one will be of 50 marks in total and will comprise of 25 MCQ's (multiple choice questions) while section two will comprise of 5 Numerical Problems/Conceptual questions.

iii. Total duration of the paper will be 120 minutes.

iv. The papers will be checked by the research associates and Bio-statisticians of ORIC.

***Assessment of individual exercise*s:**

i. The quality, correctness and completeness of the individual exercises will be evaluated during the teaching sessions, when they will be presented by the end of each session by trainees.

ii. The mode of presentations will be oral, electronic or written accordingly and if needed using media of charts, flip charts & white boards.

iii. Most of the individual exercises will be observed and evaluated by the facilitators directly on computers since it mostly will involve skills of data analysis through Statistical Package of Social Sciences.

iv. There will be no scores or marks specified for the individual exercises but the feedback of evaluation by the facilitators will be on spot.

Assessment of individual; take home tasks/assignments:

i. The take home assignments of the trainees will be checked once these will be submitted after completion to the facilitators after period specified for each task.

ii. Most of the take home assignments will be related to numerical problem solving, calculations or tasks of analysis in SPSS.

iii. Assignments should be submitted in electronic version and no manually written assignment will be accepted.

iv. Each assignment will be checked for plagiarism through turn-it-in soft ware. Any assignment that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission.

v. They will be assessed and checked within one week of the session and will be scored by the facilitators.

vi. A total of 50 marks in total will be assigned for evaluation of all of these take home tasks/assignments.

B. PRESENTATION IN JOURNAL CLUB SESSIONS

i. During year 2 of training, the trainees should actively participate in the journal club sessions of the department regular basis.

ii. One journal club meeting must be organized in the department within every two months of a year and apart from mandatory more than 80% yearly attendance, the trainees must present two research paper in year 2 of training individually.

iii. The purpose of presentation of the second year trainees in journal club is teach them how to form a bridge between research and practice, how to confidently appraise recent research and then how to practically apply best research findings into their clinical setting as their first steps evidenced-based medicine.

Format of Journal Club Meetings:

i. In a journal club meeting, two research papers, published in an indexed national or international journal, selected by the Dean of the department must be presented by second year trainee during R-Y2 training year, in two different meetings.

ii. Trainee will be given the selected paper one and a half month prior to the meeting by the Dean of the department.

iii. After thoroughly going through the research a paper, trainee should do extensive literature search on the topic also and must be familiar with all the recent and current research done on the similar topic by other researchers.

iv. An approximately 30 minutes long oral presentation will be made by the trainee, in monthly journal club session on the selected research paper. The research paper will be presented through power-point and the critical appraisal of the paper will follow it.

v. The topic will also be discussed in comparison to other evidences available according to the latest research.

vi. The other second year trainees should actively participate in question & answer session of the journal club meeting that will be carried out following the presentation of the critical appraisal of the research paper. It will be compulsion for each R-Y2 trainee to ask at least one question or make at least one comment relevant to the topic and/or the research paper, during the journal club meeting.

Minimal Attendance of Journal Club meetings by R-Y2 trainee:

The R-Y2 trainees should attend at least 5 out of 6 journal club meetings during their second year of training. Out of these 6 journal clubs, he/she must make presentation in any two sessions as a compulsion.

Assessment of presentation of the trainee at Journal Club:

i. During the presentation, the head of department and two other senior faculty members will evaluate, trainee's ability to make effective presentation of the research paper and also his/her skills to critically appraise a research paper.

ii. The scoring will not be done for the first paper presentation by the trainee, since that will be the first ever presentation by the trainee. During the first presentation the evaluators will generally qualitatively evaluate the skills of presenter without any quantitative assessment. They will inform the presenter by the end of first paper presentation, his/her mistakes, weaknesses and scope for improvement. The strengths and competences, on the other hand, will also be appreciated for encouragement.

iii. A structured checklist for scoring the skills and abilities of trainee will be used by the above mentioned senior faculty members. The average of the three total scores will be calculated, out of total attainable score of 25 that will then be used in overall assessment of the trainee.

iv. The evaluation will include aspects like the presenter's aptitude to identify the strengths and weaknesses of a research article, apart from assessment of the usefulness and validity of research findings. He/she should be able to determine the appropriateness of the study methodology and design for the research question, apart from suitability of the statistical methods used, their appropriate presentation, interpretation and discussion. He/she should also be able to identify and justify relevance of the research to one's own practice.

C. FORMULATION OF RESEARCH PROPOSAL/S OF DISSERTATION/RESEARCH PAPERS AS REQUISITE TO POST GRADUATE DEGREE/MD DEGREE

i. At the beginning of year 2, the trainee will start sorting out various research questions for his/her research project as dissertation requisite for the post graduation degree.

ii. Trainee must submit and seek approval of the research proposal/s from the concerned institutions till end of year 2 i.e. R-Y2.

iii. Since post graduate trainees seeking Fellowship from the College of Physicians and surgeons of Pakistan (CPSP) have either of the two following options, as per guidelines of CPSP:

OPTION A: Submission of one dissertation in specialty field as requisite to FCPS degree OR

OPTION B: Publication of two original research articles in any CPSP recognized journals, being first author, as requisite to FCPS degree

They will have to submit one research proposal for the dissertation till end of second year of training, if following option A and two research proposals of the original articles, if following option B accordingly.

iv. The MD scholars will also have to submit one research dissertation, in specialty field, to Rawalpindi Medical University, so they will also submit one research proposal for the dissertation till end of second year of training.

v. Whatever is the post graduation academic scenario; the trainee must decide the research question/s under the guidance of the supervisor till third month of R-Y2 and hence decide the final title of the research project/s.

vi. During these first three months of R-Y2, the trainee under guidance of the supervisor and ORIC will do extensive review of the literature, relevant to topic. He/she will do online as well physical search of printed, Journal articles, reports, books, conference papers, dissertations, Research and program reports- published/ unpublished. He/she will also access the libraries of Rawalpindi medical University, repositories of various institutions.

vii. The trainee will also consult the research Associates and Deputy Directors at the ORIC for the feasibility of the research question and any modification. The trainees will be encouraged to preferably select research questions that will be better answered through cross sectional comparative, analytic and experimental study designs instead of simple descriptive cross sectional or case series design. Descriptive cross sectional, exploratory or case series design will be allowed only in special cases when the research question will deal with an exceedingly significant and priority issue, not addressed previously ever though published work either locally/nationally or internationally.

viii. Once the research question and topic is finalized with mutual understanding of the supervisor, trainee will submit the selected topic to the Head of Department and Dean of specialty.

ix. The Dean of the specialty will give approval of the topic after scrutiny and will confirm that there is no duplication of the topic in the department, after consultation with HOD's.

x. Then the Dean will finalize the list of the topics of research proposals of all trainees during fourth month of R-Y2 and will submit the list to BASR.

xi. BASR will give the final approval of all topics within same month.

xii. For the post graduate trainees following aforementioned option B (Publication of two original research articles in any CPSP recognized journals, being first author, as requisite to FCPS degree) must submit their topics (already approved from BASR) to

CPSP for its approval. Once the topics are approved by CPSP, they will initiate research proposal development for these research projects that they will publish as original articles.

xiii. Once the trainee gets the approval of the topic/s from all concerned authorities, the formal write up of proposal/s must be initiated within fifth month of R-Y2 in consultation with supervisor and the research associates of ORIC for guidance in methodology.

xiv. The research proposal/s will be brief outline of trainees' future research project/s (approx of 1000-1500 words) and must comprise of the following topics:

1. Title of research project.
2. Introduction and rationale (with Vancouver in text citations)
3. Research aim, purpose and objectives
4. Hypothesis, if required according to the study design.
5. Operational Definitions
6. Research Methodology:

a) Setting
b) Study Population
c) Study Duration
d) Study Design
e) Sampling: *Sample size with statistical justifications, sampling technique, inclusion criteria & exclusion criteria.*
f) Data Collection technique/s
g) Data Collection tool/s
h) Data Collection procedure

i) Plan for Data entry & Analysis

7. Ethical Considerations
8. Work plan/Gantt chart
9. Budget with justifications
10. Reference list according to the Vancouver referencing style
11. Annexure *(including data collection tool or performa, consent form, official letters, scales, scoring systems and/or any other relevant material)*

xv. The research proposal should be completed in eighth month of R-Y2 and should also be reviewed and finalized by the Supervisor of the trainees.

xvi. The finalized research proposal will be reviewed by publication in charge of ORIC for plagiarism through turn-it-in soft ware. Any proposal that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission. Only when the eligible scores will be reached, then the proposal will be further processed.

xvii. The statistician at data analysis centre of ORIC will facilitate the trainees in sample size calculation through sample size calculators according their study designs.

xviii. The trainees should formulate all the data collection tools under guidance of supervisor and research associates of ORIC and should also pretest to finalize all the data collection tools for their research projects.

xix. These research proposals along with the tools will be submitted to all concerned authorities for appraisal.

xx. The supervisors and research associates of ORIC will also ensure that the duration of research project should be adequate and realistic so that trainees will be able to complete their project/s during third year of training leaving enough time for its write up during year 4 of training. For the post graduate trainees following option of Publication of two original research articles as requisite to FCPS degree, the study duration will be even briefer.

D. PRESENTATION OF RESEARCH PROPOSAL/S TO INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREF) OF RMU

i. The R-Y2 trainees will already be aware of the standard operational procedures and protocols of the Institutional Research Ethics Committee of RMU as they had, as a mandatory activity, participated and observed the proceedings of the meeting during R-Y1. However, he/she will be informed about any modifications or updates regarding the standard procedures of application to IREF if will have occurred during last one year.

ii. Trainees will be individually provided an updated step wise guidance by the research associates of ORIC, regarding how an applicant should access the RMU website and download the application Performa and then how to electronically fill it in for final submission. They will also be provided updated format of presentation for their Research Proposal presentations at IREF meetings.

iii. The trainees must submit ten sets of hard copies of all the documentation including the research proposal with all annexes, plagiarism detection report and application performa to ORIC, at least ten days prior to the monthly meeting. ORIC will provide them date and month of the IREF meeting for presentation and the trainee must present in the meeting along with his/her supervisor.

iv. The trainee must make a five to ten minutes' presentation through power-point at Institutional Research Ethics Forum during 9-10 months of R-Y2. By the end of presentation, he/she will respond to all the queries of the forum and the supervisor will facilitate in defense of the proposal.

v. The IREF will appraise and scrutinize every aspect of the proposal/s and if found acceptable then will provide on spot verbal approval of the project followed by written approval letter within next two weeks to the trainees.

vi. If members of IREF will find any modifications required in the proposal/s they will recommend them to trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal/s within next one week's period.

vii. The written approval letter of IREF will be issued within next two weeks of meeting, to the trainee.

viii. In case the trainee will be working on option B of CPSP i.e. publication of two research papers, instead of writing dissertation, then he/she will present both research proposals to IREF for the two topics already approved by CPSP.

E. ASSURANCE OF FEASIBILITY & AVAILIBILITY OF RESOURCES FOR RESEARCH PROJECTS

i. The trainee will ensure that for his/her research project/s ample resources in terms of monetary, human or physical will be available to complete the project. He will also provide documented proof and justification to avoid any unforeseen problems that may lead to incompletion of research project/s.

ii. No individual funding will be provided to the trainees for their research projects requisite to their post graduation degrees by Rawalpindi Medical University. The trainee may be bearing all the expenses on individual basis or may be applying to any of national or international funding agencies for research project/s.

iii. In case the trainee will be applying for any external source of funding from any national or international funding agency, the funding application and approval process must be completed by the end of year 2 of training.

iv. The trainee may also be pursuing the degree, through any scholarship that also will include the research project expenses.

v. In either of the above mentioned circumstances, the trainee must provide and submit the budget details and documented evidences of the funding or availability of monetary resources to the supervisor and Dean who will ensure the feasibility of the resources available to the trainees.

vi. Moreover, if any tools, kits, equipment or physical materials will be required for research project, the trainee will provide documented evidence of its availability.

vii. If the data collection will require hiring of additional human resources, then the trainee will provide documented evidence like consent of staff members contributing to his/her research or details of training expenses or honorarium details if any to the supervisor.

viii. The supervisor will also consult the Dean and HOD's in ensuring the feasibility and availability of resources of a trainee during second year of training.

F. SUBMISSION OF RESEARCH PROPOSAL/S TO CPSP/BASR OF RMU

i. Post graduate trainees applying for their CPSP fellowship using aforementioned option A (Submission of one dissertation in specialty field as requisite to FCPS degree) after receiving appraisal of IREF of RMU, must submit their proposal to CPSP during last quarter of second year of training. The approval process from CPSP takes approximately 3 months on an average but in case any corrections are suggested the resubmission and acceptance procedure may take 6 months on an average. These trainees will initiate data collection as soon as they receive the acceptance by CPSP authorities.

ii. However, the post graduate trainees who will opt to publish two original research articles in any CPSP recognized journals, as requisite to FCPS degree, will not require any submission of their proposals to CPSP. The will directly initiate the data collection as soon as they will receive the IREF acceptance letter. Hence their data collection phase of both research projects will begin in last quarter of R-Y2.

iii. The MD scholars of RMU will submit their research proposals to the Board of Advanced Studies and Research (BASR) of RMU for appraisal. BASR will issue an acceptance letter of the research proposal endorsed by the Vice chancellor of RMU copied to the concerned stake holders and authorities including office of Dean and ORIC. If members of BASR will find any modifications required in the proposal they will recommend them to trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal to BASR within next one-week period. The written approval letter of BASR will then

be issued within next two weeks to the trainee. The trainees will thus receive formal permission to initiate data collection phase through this acceptance of BASR.

iv. All trainees who will require data collection from any RMU or its teaching hospitals that are Benazir Bhutto Hospital, District Headquarters Hospital and Holy Family Hospital, will not require any permission from the administration of these hospitals. The appraisal letters of IREF and BASR will be considered as acceptance by all authorities of the RMU.

v. If any trainee will need to collect data from any institution other than RMU or its teaching hospital, they must seek that institution's approval too according to their standard protocols parallel to the period when they will have submitted proposals to CPSP/BASR to save their time.

vi. All the post graduate trainees will follow the guidelines regarding the format and content of the research proposals provided by the authorities to whom they will be presenting their research proposals that are Board of Advanced Studies and Research (BASR) for MD scholars or College of Physicians and surgeons of Pakistan (CPSP).

G. MONITORING OF RESEARCH COURSE OF YEAR 2

i. An alert and continuous monitoring of all the scholarly activities of each trainee will be carried out by all the concerned faculty i.e. research units of specialties, supervisor, Head of Department and the deputy Directors and research fellows at the Office of Research Innovation & Commercialization of RMU.

ii. The structured Research component of Log books and Research portfolio of the trainees specific to research component of the training of year 2; R-Y2 will also be regularly observed, monitored and endorsed by all the concerned faculty members, supervisor and facilitators.

iii. The Log books section R-Y2 specific to research curriculum of training year 2 will include the record of attendance of all the teaching sessions of the trainee that will be monthly updated and endorsed by the department of Medical Education (DME) of RMU.

iv. It will also comprise of all the submission record and scores attained for the individual and group assignments of the trainees, endorsed by the supervisor and the research associates and Deputy Directors of ORIC.

v. The log books will also include the attendance and presentation scores of the trainees in the Journal club sessions of the department. It will also include observation notes catering to qualitative evaluation for active participation by the trainee during each journal club session. This information will be endorsed by the supervisor of the trainee and HOD.

vi. The record of the trainees regarding timely completion and quality of each activity related to completion of research proposals and its presentation in the monthly meeting of the Institutional Research Ethics Forum (IREF) of RMU will also be part of the Log Book that will be endorsed by the supervisor, research associates of ORIC and conveners of the IREF and BASR.

vii. The result of the annual research paper of R-Y2 will also be entered in the Log books by Research Associates and will be endorsed by the Deputy Directors of ORIC.

viii. The research portfolio of the trainee R-Y2 will again include qualitative and quantitative self assessment of the trainee in narrative form. It will include the individual assessment of the objectives and aims defined by the trainee during the second year of training and extent of their successful attainment. The trainee will also mention individual achievements or knowledge and skills acquired in any aspect of research that was either formally part of the research curriculum or even not. It will also include reporting of any research courses, online or physically attended by the trainee, contribution in any research paper or publication, any participation and/or presentation in any research conference, competition etc. during year R-Y2.

H. OVERALL ASSESSMENT OF PERFORMACE OF TRAINEES FOR YEAR 2

i. The overall assessment of performance of trainee for R-Y2 will rely on marks attained out of total 100 obtainable marks. These total 100 marks will include 50 marks for the Annual Research Paper of R2 (where the 75 marks of paper will be converted to 50 marks), while 25 marks will be included from the home tasks assignments (by conversion of 50 marks of the home task assignments into 25 marks) and actual 25 marks of presentation of journal club will be included in assessment (without any conversion), to get an aggregate of 100 total marks.

ii. Out of the total attainable 100 total marks, 40% will be passing marks of this Research course and in case of failure in it, second attempt will be allowed to the trainees and if any one fails in second attempt too then he/she should appear next year with next batch's first attempt.

I. EVALUATION/ FEEDBACK OF RESEARCH COURSE OF YEAR 2

Like evaluation of year one of research course R-Y1, the second year of training R-Y2 will also be evaluated not only by the trainees themselves but also by the Deputy Directors, supervisors and senior faculty through end of sessions forms and then collectively through end of course feedback forms.

i. ***The feedback of trainees*** will include structured evaluation of each teaching session of R-Y2 through structured and anonymous feedback forms/questionnaire that will be regularly distributed amongst the trainees. The forms will include questions phrased as Likert scales (1-5 categories) inquiring their responses regarding various aspects of teaching sessions. Category 1 will represent the poorest quality increasing till category 5 representing excellence and the trainees will choose either of 5 based on their honest and unbiased personal choice. The open ended questions in form will indicate qualitative evaluation of the trainees. There will also an overall feedback questionnaire for entire second year of training course administered to trainees.

ii. ***The feedback of trainers*** will be obtained through structured and anonymous feedback forms/questionnaire, including closed and partially closed questions that will be regularly provided by them. They will provide their inputs and opinions regarding effectiveness of the R-Y2 course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.

iii. ***Three focus group discussions;*** one of the R-Y2 trainees, second of the facilitators and third of the supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement.

iv. ***A final evaluation report of the Research Course R-Y2*** will be formulated and compiled by the ORIC of RMU. The report will be presented all concerned stake holders.

J. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 2

i. The evaluation of research course of R-Y2 will follow exactly the same pattern of R-Y1, but all the feedback material will pertain to R-Y2 course (including feedback forms of R-Y2, randomly selected log books, research portfolios, individual & group assessment record and randomly selected annual research course examination papers).

ii. The evaluation team that will observe all these R-Y2 course evidences will be same team that will evaluate R-Y1 course. The team of R-Y2 will include the Head of departments, Deans, selected representatives of BASR, IREF, Director of ORIC, Director DME, Director of Quality enhancement cell (QEC) and Vice chancellor of RMU, individually.

iii. The random visit for physical observation of the materials and also of all the academic activities through uninformed visits will also follow same protocol as mentioned in quality assurance procedure of R-Y1.

iv. ORIC will be responsible for submission of the evaluation content of R-Y2 to all including a copy to the Quality Enhancement Cell (QEC) of RMU for internal evaluation.

v. The QEC will organize an external evaluation too through involvement of a third party that may include members of Quality assurance department of Higher Education Department based on their availability.

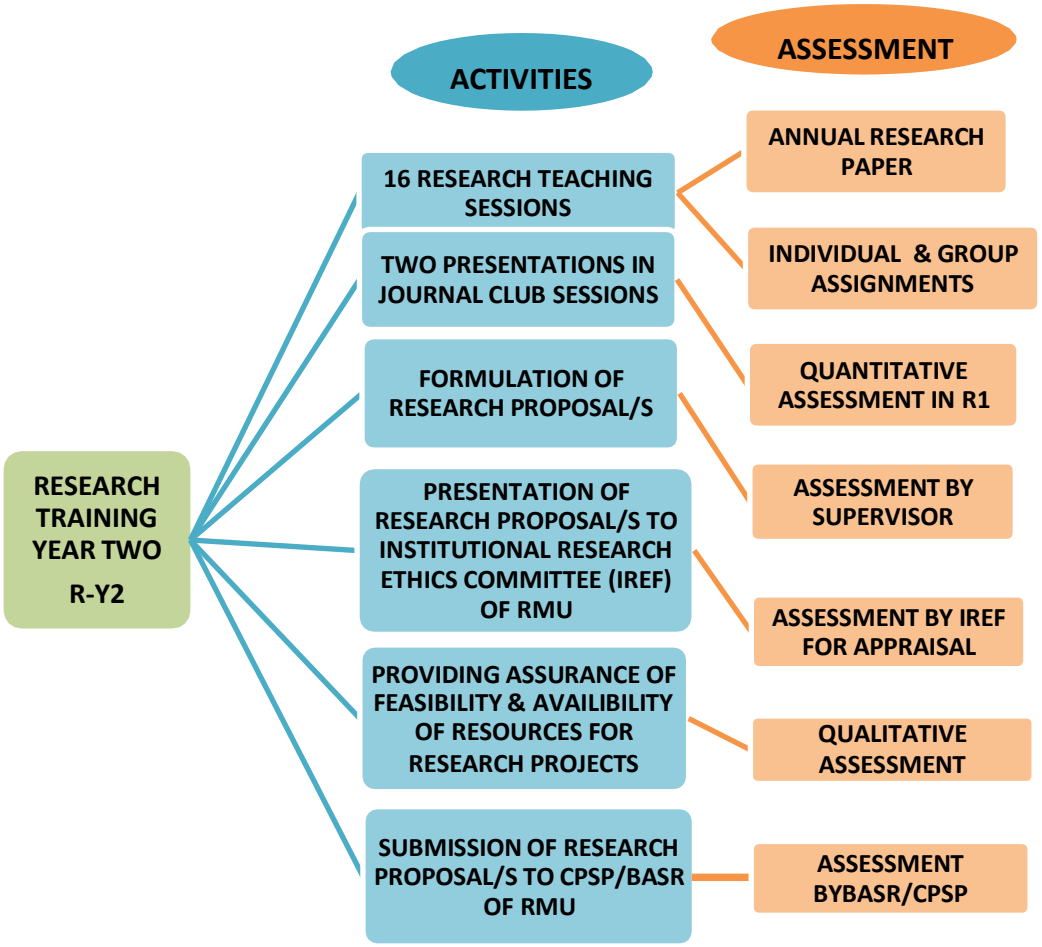
vi. An annual meeting of the quality assessment and enhancement, by end of year 2, will also be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, DME, QEC & IREF, who will be then collectively, review all the evaluation material of R-Y2. The evaluation team will also share their experiences of their evaluation visits and observations to validate the existing materials.

vii. The quality of R-Y2 course will be determined with recommendations for further enhancement and modifications.

Successful completion of above mentioned requirements of research course will be mandatory requirement for advancement to the next Post Graduate Year level i.e. year 3 training year or R-Y3.

An over view of activities related to research training in third year, R-Y3 is also displayed in figure 3.

Figure 3. A FLOW CHART OF RESEARCH ACTIVITIES OF R-Y2 POST GRADUATE/MD TRAINEE OF RMU AND THEIR ASSESSMENTS



RESEARCH COURSE OF THIRD POST GRAUDATION TRAINING YEAR
R-Y3
PURPOSE OF R-Y3 RESEARCH COURSE:

Utilizing all the knowledge and skills in research, accrued during first two years, the post graduate trainees of RMU, will be dexterous enough to actually execute a research project and implement efficiently and proficiently all the activities of the research project that they will have planned during period of R-Y1 to R-Y2. During the third year of training post graduate trainees will collect all the information and data and to explore answer to their research questions formulated for their individual research project/dissertation, prerequisite to their degrees. This course will provide them an opportunity to revitalize and update their concepts, knowledge and skills in research methodologies.

LEARNING OUTCOMES OF R-Y3 RESEARCH COURSE

After completion of R-Y3 course the trainees should be efficiently able to:

1. Revise and rejuvenate all the basic concepts of Epidemiological measures and biostatistics.
2. Collate the information gathered through an extensive literature review relevant to study topics finalized and formulate an extensive write up of literature for research project.
3. Collect and store high quality information for their research project in an honest and unambiguous way.
4. Utilize skills to enter, analyze and interpret the data collected for a research project
5. Write a clear and concise research report (research paper for a peer reviewed journal/dissertation) and a summary of the major findings and recommendations for each of the different parties interested in the results.

RESEARCH COURSE OF THIRD TRAINING YEAR

During the third year of training, revision and refreshing up of previously secured knowledge and concepts related to research will enhance the productivity and efficiency of the post graduate trainees.

A. ELECTIVE REFRESHER SHORT COURSES/WORKSHOPS:

The elective refresher short courses of one day to three days duration will be held to rejuvenate concepts Basic and advanced Biostatistics and Epidemiological concepts that will be taught to the trainees during initial first two years of training. The short courses will comprise of one to three days workshops. These workshops will provide the trainees hands on training of all the components of research methodologies, basic and advanced biostatistics and epidemiological calculations. Each workshop will comprise of following teaching methodologies

- Power-point presentations of basic theoretical concepts during workshops.
- On spot individual/group exercises.

These short courses will be conducted by the staff members of Office of Research Innovation and commercialization (ORIC) of RMC including the Statistician, Deputy Directors and Director while they will be facilitated by the Research Associates. Visitor lecturers; including renowned national and international public health consultants, researchers, epidemiologists and biostatisticians will also be invited, according to their availability, for some workshops.

Format of short courses:

i. A total of 10 short courses will be offered and the post graduate trainee must attend a minimum of 5 of these short courses during R-Y3, according to their needs, choice and preferences.

ii. Each workshop will comprise of 8-12 modules in total.

iii. For each module, power-point presentations will be delivered initially, to restore the memories of the trainees regarding the previous knowledge attained by them in R-Y1 and R-Y2. These presentations will be on an average 15-20 minutes of duration for each module and will teach the basic and advanced concepts.

iv. Following the presentations, on an average 30-60 minutes of individual and group exercises will be supervised by the facilitators to provide the trainees hands on experience. Depending on the type and content of courses, trainees will mostly work through computer soft-wares. These exercises will require calculations and numerical solving too.

v. By the end of each day of workshop, brief take home individual or group task/assignments will be given to trainees that will be duly evaluated by facilitators within three days of the short course and will provide their feed back to each trainee individually.

Content of short courses:

i. The course materials for these workshops will be formulated by the Deputy Directors and Director of ORIC, specific to the needs and requirement of the post graduate trainees, using various national and international resource materials.

ii. The trainees will be provided hard copies as well as soft copies of the course content in a folder at the initiation of the course. This take away resource material will also include handouts of presentations of all the modules taught during the workshops.

Following ten short courses will be offered to the post graduate trainees during year three; R-Y3 along with the tentative time frame work and title of workshops in table 3. However the details of modules, duration and objectives/Learning outcomes of each workshop are not specified right now as these will be formulated based on the needs and requirements of the trainees and also the will depend on the visitor facilitators choice, that will be decided and confirmed at least one month prior to conducting each workshop.

TABLE 3. TEN ELECTIVE SHORT COURSES TO BE OFFERED DURING TRAINING YEAR 3.

TIME FRAME WORK DURING THIRD YEAR R-Y3	***TOPICS OF SHORT REFRESHER COURSES***
MONTH 1	End note referencing manager
MONTH 2	Mendeley referencing manager
MONTH 3	Effective write up of Literature review
MONTH 4	Data entry in Statistical Package of Social Sciences
MONTH 5	Graphical presentation of data in Microsoft Excel
MONTH 6	Univariate, Bivariate and Multivariate analysis in Statistical Package of Social Sciences
MONTH7	Effectively writing up of a dissertation.
MONTH 8	Research article write up
MONTH9	Critical appraisal of research
MONTH 10	How to Present Research through power-point or posters

Assessment of Trainees for short courses:

No formal assessment through any examination paper will be carried out during year three since they will be already involved in data collection and entry of their research projects. So they will not be strained with any formal examinations.

***Assessment of individual and group exercise*s**:

i. The quality, correctness and completeness of the individual as well as group exercises will be assessed during the workshops by the facilitators.

ii. The exercises will be presented during each module of workshops by trainees either individually or in groups accordingly.

iii. The mode of presentations will be oral using media of charts, flip charts & white boards or through power-point presentations depending on the nature of the tasks.

iv. There will be no scores or marks specified for the individual or group exercises but the feedback of evaluation by the facilitators will be on spot by end of presentations.

Assessment of individual or group; take home tasks/assignments*:*

i. The correctness, quality and completeness of the individual or group exercises that will be given during the short courses/workshops will also be determined.

ii. These will be submitted after completion to the facilitators within three days of the workshop. No Assignments will be acceptable after three days.

iii. The assignments will be assessed and checked by facilitator within one week of submission along with extensive feedback of these assignments.

iv. No formal quantitative assessment or scoring of any of these take home tasks/assignments of R-Y3 will be done.

B. PRESENTATION IN JOURNAL CLUB

i. During third year of training, the trainees should continue to actively participate in the journal club sessions of the department on regular basis.

ii. The R-Y3 trainees must present at least one research paper in journal club. The format of presentation and procedure for year 3 trainee will exactly be same as it will be for R-Y1 and R-Y2 trainees as mentioned before.

iii. After oral presentation in monthly journal club session on the selected research paper and the critical appraisal of the paper R-Y3 trainee should actively participate in question & answer session of the journal club too. It will be compulsion for each R-Y3 trainee to ask at least one question or make at least one comment relevant to the topic and/or the research paper, during the journal club meeting.

Minimal Attendance of Journal Club meetings for R-Y3 trainee:

The R-Y3 trainees must attend at least 5 out of 6 journal club meetings during their third year of training and should make at least one presentation as a compulsion.

Assessment of presentation of the trainee at Journal Club:

i. During the presentation of R-Y3 trainee in journal club, even though the head of department and two other senior faculty members will evaluate trainee's ability to make effective presentation of the research paper and also his/her skills to critically appraise a research paper, but no formal scoring will be done

ii. The assessment will be qualitative rather than a quantitative assessment. Even though not scored in numbers, but by the end of paper presentation, evaluators will inform the strengths, mistakes, weaknesses and scope for improvement to each trainee.

iii. The evaluators will assess that how far the presenter was successful to identify the strengths and weaknesses of a research article, to determine the appropriateness of the study methodology and design for the research question and to assess suitability of the statistical methods used. The appropriateness of presentation, interpretation and discussion will also be considered.

C. DATA COLLECTION, ENTRY AND ANALYSIS OF RESEARCH PROJECT/S OF DISSERTATION/RESEARCH PAPERS

i. By the beginning of year 3, the trainees will have received the approval from the IREF, BASR and respective examination authorities for their research proposals of dissertations or research papers. Moreover, till then all the data collection tools for their research projects will also have been ready after pretesting.

ii. During first quarter of year 3, it will be mandatory for the trainees to initiate the data collection phase of their project/s. If the trainee will be collecting the data individually for his/her research project, it will be started under continuous guidance of their supervisors and continuous facilitation by the research centers of specialties, the data analysis center and Research Associates of ORIC of RMU.

iii. In case the data collection will require more human resources, other than trainee himself/herself, either as honorary or hired data collection staff, they should be properly trained for data collection by the trainee. The supervisor will also ensure that the additional data collection staff will be adequate in number within data within the time framework and should also make sure that they will be proficient enough to collect high quality and authentic data.

iv. The data storage will also be finalized by trainee under the guidance of Supervisor and research center of specialty.

v. The trainee will initiate data collection phase and will seek assistance of statisticians at Data analysis centre of ORIC for compilation of data sheets in SPSS/or any other statistical software for data coding and entry. The trainees will be encouraged by statisticians to collect the data and enter it simultaneously after cleaning into the soft ware to save time.

vi. By the end of R-Y3, the data collection and entry of data must be completed.

vii. In case the trainee will be working on option B of CPSP i.e. publication of two research papers, keeping in consideration, the lengthy period required for submission and then acceptance of papers by journals, he/she should be vigilant in data collection and must do it at faster pace as compared to those writing dissertation. So such trainees should complete data collection of both papers within first half of year 3 of training simultaneously. Otherwise they can also collect data for first paper within first three months of year 3 of training and then will initiate data collection of second paper from sixth to ninth month of year 3 of training. Whatever is the option followed by the trainee, the data collection phase should not extend beyond ninth month of R-Y3, in order to complete both papers for submission till end of R-Y3.

viii. The trainees and MD scholars writing dissertation must also complete data collection and analysis till last month of R-Y3.

D. COMPLETION AND SUBMISSION OF TWO RESEARCH PAPERS AS REQUISITE TO CPSP FELLOWSHIP DEGREE

This section D implies only for the trainees who will be following option B of CPSP i.e. publication of two research papers, as requisite to fellowship of CPSP, instead of submitting a dissertation.

i. The trainees opting for publication of two research papers should complete and submit manuscripts of both research papers by the end of third year of training. Keeping in consideration, the lengthy period required for submission and then acceptance of

papers by journals (that varies from journal to journal and may range from 3 months to even one year) he/she should be vigilant in data collection and paper completion at faster pace as compared to those writing dissertation.

ii. These trainees will be provided the following options and they will choose either of it based on their will and their supervisor's advise:

OPTION 1: The trainees should complete data collection of both papers within first 6 months of year 3 of training simultaneously. Then after analyzing data and completing write up of original article in next 5-6 months must submit both papers during last month of R-Y3 to journals of choice.

OPTION 2: The trainees should complete data collection of first paper within first three months of year 3 of training and then submit first paper after completion of manuscript till sixth month of R-Y3 to journal of choice. Then the trainee will initiate data collection of second paper till ninth month of year 3 of training and then submit second manuscript after completion till last month of R-Y3 to journal of choice.

iii. Whatever is the option followed by the trainee, both of his/her paper should be submitted to journals of choice before initiation of year 4 of trainee, keeping adequate time secured in advance, in case any paper will not be accepted and will have to be sent to another journal accordingly.

iv. During the data collection and entry phase, trainees will receive continuous assistance from the Research Associates and Data analysis unit of ORIC of RMU.

v. When the data entry will be completed in the statistical software, the trainee will be provided full assistance in data analysis, interpretation and write up of results by the statisticians of ORIC.

vi. The supervisors and publication in charge of ORIC will also guide the trainee to write the section "Discussion" based on the comparison of the findings of their study with the previously available research nationally as well as internationally.

vii. They should also be able to identify strengths and weaknesses of their studies and should make recommendations with statement of final conclusion.

viii. The trainees will identify the target journals for publication and after formatting their write up according to the specific format required by both journals.

ix. The research papers will be reviewed by publication in charge of ORIC for plagiarism through turn-it-in soft ware. Any article that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission. Only when the eligible scores will be reached, then the trainee will be allowed to proceed further and to submit their research in the form of original articles under continuous assistance of Publication unit of ORIC.

x. The trainee should also submit copies of submitted papers to the Dean, Director of ORIC and Chairperson of BASR that will be kept with them as confidential documents.

xi. In case the research paper/s is/are sent back with recommended corrections or modifications, the supervisor and associated staff at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time.

xii. In case any of the paper is refused publication by a journal even then the supervisor and publication unit at ORIC will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time and not delaying it all.

Since the trainees who will be submitting dissertation in specialty field as requisite to FCPS degree or as a requisite to their MD degree will not comply with this section D, they will continue with data collection and entry and will also initiate write up of literature review for their dissertations during this last half of R-Y3.

E. MONITORING OF RESEARCH ACTIVITIES OF YEAR 3

i. Continuous monitoring of all the research activities of each trainee will be carried out by research centers of specialties, supervisors, Head of Departments and the research fellows & Deputy Directors at the Office of Research Innovation & Commercialization of RMU.

ii. The structured Log books specific to research component of the training of year 3; R-Y3 and Research portfolio of the trainees will also be regularly observed, monitored and endorsed by all the concerned faculty, supervisor and facilitators.

iii. The section of research training in Structured Log books of R-Y3 will be specific to short refresher courses of research conducted during training year 3. It will also include the record of attendance of all the short course/workshops attended by the trainee endorsed by the facilitators of each course and Office of Research Innovation & Commercialization (ORIC) in addition to the Department of Medical Education of RMU.

iv. It will also comprise of all the submission record of the individual and group assignments of the trainees, endorsed by the facilitators of ORIC along with their comments.

v. The log books will also include the attendance and presentation details of the trainees in the Journal club sessions of the department. The observation notes catering to qualitative evaluation for active participation by the trainee during each journal club session will also be inclusive. This information will be endorsed by the supervisor of the trainee and HOD.

vi. The record of the trainees regarding timely completion and quality of each research activity related to completion of data collection and entry phase will also be part of the Log Book that will be endorsed by the supervisor, research associates and relevant facilitators of ORIC.

vii. The research portfolio of the trainee R-Y3 will again include qualitative and quantitative self assessment of the trainee in narrative form. It will include the individual assessment of the objectives and aims defined by the trainee during the third year of training and extent of their successful attainment. The trainee will also mention individual achievements or knowledge and skills acquired in any aspect of research that was either formally part of the research curriculum or even not. It will also include reporting of any

research courses, online or physically attended by the trainee, contribution in any research paper or publication, any participation and/or presentation in any research conference, competition etc. during year R-Y3.

F. OVERALL ASSESSMENT OF PERFORMACE OF TRAINEES DURING R-Y3

i. The overall assessment of performance of trainee will be more qualitative in R-Y3, so it will not rely on any scores or marks attained by trainees hence there will not be any examination paper of research or scoring for the home tasks assignments or presentation of journal club.

ii. The Heads of department and the director of ORIC will observe the log books for assessments of facilitators of short courses, their comments regarding the home tasks/assignments, comments of evaluators of presentation at journal club and the remarks of supervisor regarding his/her opinion regarding the trainee's overall performance during third year of training.

iii. The Heads of department and the director of ORIC will also observe the research portfolio of the trainees. Based on their observations, they will evaluate the completeness and quality of performance of each trainee.

iv. In case of any deficiencies or weaknesses they will personally call the trainee and supervisor and will guide them how to correct or improve accordingly.

G. EVALUATION/ FEEDBACK OF RESEARCH COURSE OF YEAR 3

The research course and activities of third year of training will be evaluated by the trainees, facilitators of ORIC and supervisors.

i. ***The feedback of trainees*** will include structured evaluation of short courses/workshops of R-Y3 through structured and anonymous feedback forms/questionnaire that will be administered by the end of each short course/workshop. The forms will include questions phrased as Likert scales (1-5 categories) inquiring their responses regarding various aspects of workshops. Category 1 will represent the poorest quality while category 5 will represent excellence and the trainees will choose either of 5

based on their honest and unbiased personal choice. The open ended questions in form will indicate qualitative evaluation. There will also an overall feedback questionnaire for entire third year of research training.

ii. ***The feedback of trainers*** will be obtained through structured and anonymous feedback forms/questionnaire to provide their inputs and opinions regarding effectiveness of the R-Y3 short course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.

iii. ***Three focus group discussions;*** one of the R-Y3 trainees, second of the facilitators and third of the supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement.

iv. ***A final evaluation report of the Research Course R-Y3*** will be formulated and compiled by the ORIC of RMU. The report will be presented to all concerned stake holders.

H. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 3

i. The quality assessment of research course of R-Y3 will involve meticulous review of materials of R-Y3 course (including randomly selected data sheets and completed data collection tools, feedback forms of R-Y3 short course/workshops, log books, research portfolios, individual & group assessment records).

ii. The quality evaluation team of R-Y3 will include the Head of departments, Deans, selected representatives of BASR, IREF, Director of ORIC, Director DME (Department of Medical Education), Director of Quality enhancement cell (QEC) and Vice chancellor of RMU. The random visits for physical observation of the materials and also of all the short courses proceedings through uninformed visits will also follow same protocol as mentioned in quality assurance procedure of R-Y1 and R-Y2.

iii. The research papers submitted by post graduate trainees following option of publication of two original articles to CPSP accredited journals will be observed as confidential evidences by Director of ORIC, Dean and chairperson of BASR for quality assessment. No other person will have access to these manuscripts in order to avoid any risk of potential plagiarism.

iv. ORIC will submit evaluation content of R-Y3 to all stake holders including a copy to the Quality Enhancement Cell (QEC) of RMU for internal evaluation.

v. The QEC will organize an external evaluation too through involvement of a third party that may include members of Quality assurance department of Higher Education Department based on their availability.

vi. Since the R-Y3 will primarily comprise of the data collection phase of research projects of trainees, therefore, Quality Enhancement Cell (QEC) in liaison with the research centers of the specialty, will ensure the originality, transparency and unambiguity of data, during entire data collection.

vii. An annual meeting of Quality assurance, by end of year 3, will be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, DME, QEC & IREF, who will be then collectively, review all the evaluation material of R-Y3. The meeting will be chaired by the Vice Chancellor of RMU. The evaluation team will also share their experiences of their evaluation visits and observations to validate the existing materials.

viii. The quality of R-Y3 course will be stringently determined with recommendations for further quality enhancement.

Successful completion of above mentioned requirements of research course, also outlined in Figure 4 ((A) and 4 (B), will be mandatory requirement for advancement to the next Post Graduate Year level i.e. last, final or fourth year or R-Y4.

Figure 4 (A) . A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS

OF R-Y3 POST GRADUATE/MD TRAINEE OF RMU WHO WILL OPT FOR DISSERTATION WRITING

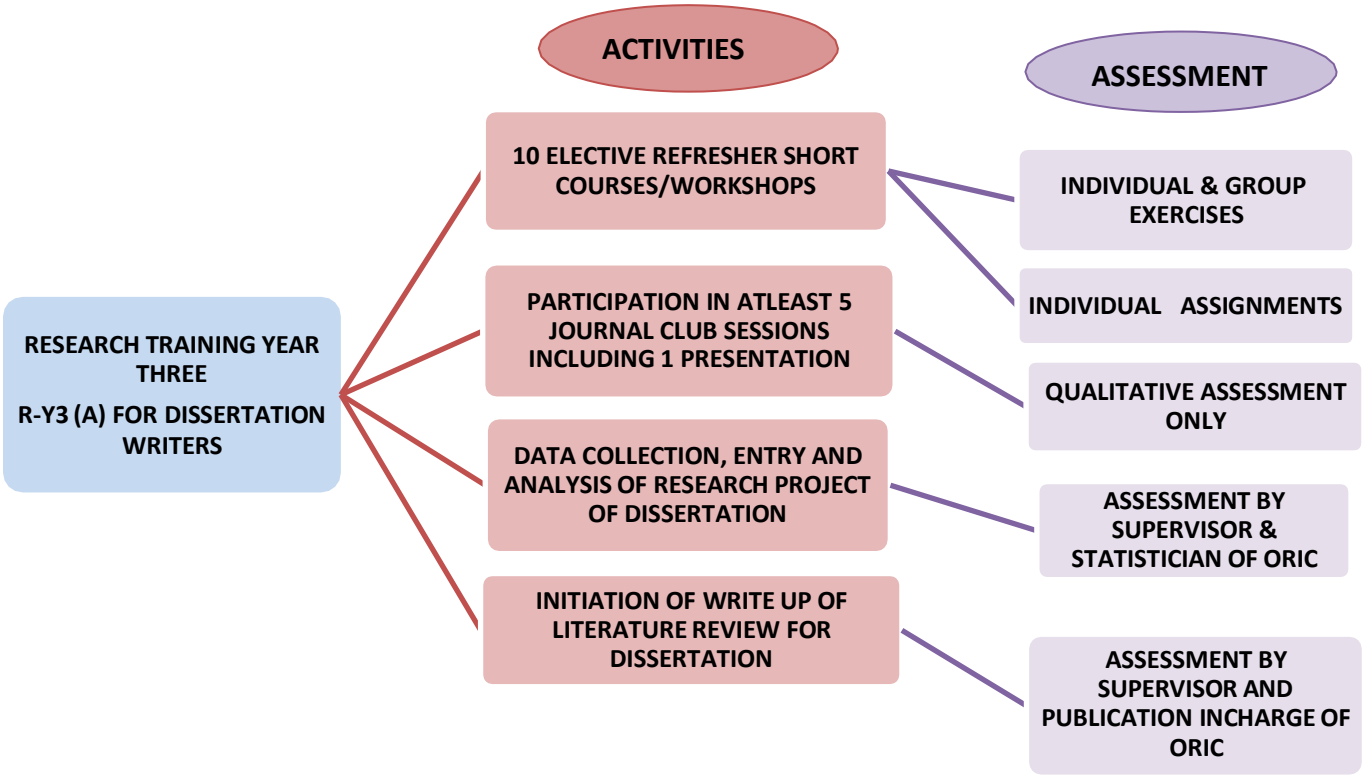
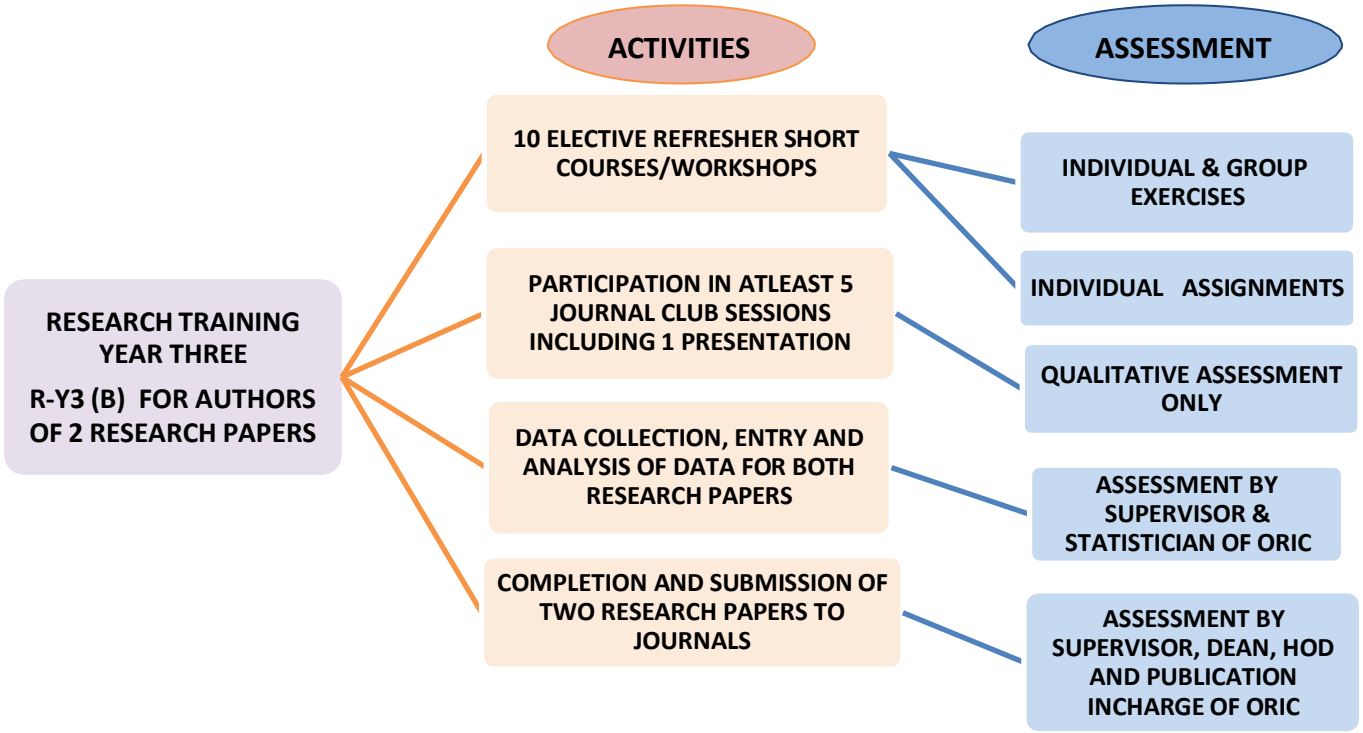


Figure 4 (B) . A FLOW CHART OF RESEARCH ACTIVITIES AND RELEVANT ASSESSMENTS OF R-Y3 POST GRADUATE TRAINEES OF RMU OPTING FOR PUBLICATION OF TWO RESEARCH PAPERS AS REQUISITE TO CPSP FELLOWSHIP DEGREE



RESEARCH COURSE OF FOURTH POST GRAUDATION TRAINING YEAR
R-Y4
PURPOSE OF R-Y4 RESEARCH COURSE:

During the fourth year of training the post graduate trainees will receive extensive practical hands on experience of conducting individual research project and then transformation of this project's report into a dissertation or original articles, in perspective of the knowledge and skills they will acquire during year initial three years of postgraduate training. This course will make them proficient to conduct extensive literature search and using available information delve into existent findings and evidences of research, critically appraise them and then explore how to transform them into clinical practice. The fourth year of training will be purely practical where no formal didactic lectures or sessions will be held.

LEARNING OUTCOMES OF R-Y4 RESEARCH COURSE

After completion of R-Y4 course the trainees should be efficiently able to:

1. Identify and execute proficiently all procedures required for data analysis and interpretation.
2. Analyze and interpret the data collected for a research project and draw conclusions related to the objectives of study.
3. Write a clear and concise research report (paper for a peer reviewed journal/dissertation) and a summary of the major findings and recommendations for each of the different parties interested in the results.
4. Present the major findings and the recommendations of a study to policy-makers, managers and other stakeholders to finalize the recommendations.
5. Prepare a plan of action for the dissemination, communication and utilization of the findings and (if required) make recommendations for additional future research.

6. Critically appraise a research paper of any national or international journal.
7. Present research papers published in various national and international journals at journal club.
8. Prepare and complete final research Dissertation/ original articles, requisite to the post-graduation degree of trainee, under the guidance of the nominated supervisor.
9. Present and defend a research final research Dissertation/ original article project to concerned authorities.

RESEARCH COURSE OF FOURTH TRAINING YEAR

The fourth year of post graduate of training will be purely practical where no lectures, courses or workshops will be held and the trainee will be directly involved under the supervisor's and staff members (of ORIC) guidance in actual implementation of research. The following activities related to research will be carried out by the trainee during the last and final year of research course.

A. COMPLETION OF RESEARCH PROJECT AND ITS WRITE UP AS A DISSERTATION

This section A implies only for the trainees who will be either MD scholars or those post graduate trainees following option A of CPSP i.e. writing dissertation, as requisite to fellowship of CPSP.

i. The trainees writing dissertations should have completed their data collection and entry by the end of third year of training and will have also initiated write up literature view for the dissertation.

ii. As soon as the year four of training commences, these trainees should complete the introduction and literature review sections of their dissertations along with proper referencing during first three months of R-Y4. They will be continuously guided in this task by their supervisors, research associates and the publication in charge at the ORIC.

iii. The trainees, In the meanwhile, will also seek continuous assistance of statisticians of Data analysis unit of ORIC for data analysis in statistical software. Trainees will be guided how to interpret the results, how to determine the statistical significances and how to write these results in textual, tabulated and graphical forms. They will have to complete their data analysis and write up of results till fourth month of year 4.

iv. The supervisor and publication in charge at ORIC will also guide the trainee to write the section of "discussion" for their dissertations based on the comparison of the findings of their study with the previously available research nationally as well as internationally.

v. The trainees will also identify strengths and weaknesses of their study and should make recommendations with statement of final conclusion.

vi. According to the required referencing systems the reference lists and in text citation will also be completed correctly.

vii. After writing the abstract and cover pages and annexure of the dissertation, the trainee will submit his/her dissertation's final draft to publication in charge ORIC for plagiarism detection through turn-it-in soft ware. Any dissertation that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing till the eligible scores will be reached.

viii. Then the trainee should submit final draft of dissertation to the supervisor and head of department till end of fifth month of year for final modifications. Since the supervisor will be incessantly involved in every aspect of the project since the beginning and will be persistently guiding the procedure, so he/she should not take more than 10 days to give final review to dissertation of the trainee with written feedback that will be entered in a structured performa with recommendations for improvement or corrections. The Head of Department will also provide his feedback within 10-15 days.

ix. Based on the feedback of the reviews, the trainee will make final editing and will get the dissertation printed and submitted to the degree awarding authority accordingly (BASR for MD trainees and CPSP for post graduate trainees of fellowship) for review for acceptance before third week of sixth month of year 4.

x. The trainee will also submit a copy of dissertation to head of department, the Dean, Director of ORIC and Chair person of BASR that will be dealt as a confidential document in order to avoid potential risk of plagiarism.

xi. While the dissertations will be under review by the degree awarding authority for acceptance, the trainees will be continuously guided by the supervisor and the research associates at ORIC regarding defense of their dissertation. They will be guided how to make effective presentations according to the format provided by the examination authorities and also how to successfully and confidently respond to the queries of examiners.

xii. In case the dissertation is sent back with recommended corrections or modifications, the supervisor and research associates at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within at least 10 days' time and not more than it.

B. RESUBMISSION OF RESEARCH PAPER/S IN CASE MODIFICATIONS ADVICED OR REJECTED FOR PUBLICATION BY A JOURNAL

This section B implies only for the post graduate trainees who will be opt for two research paper submission as requisite to fellowship of CPSP and provided one or both of their research paper/s is/are sent back for modifications or rejected publication.

i. In case the research paper/s is/are sent back with recommended corrections or modifications, the supervisor, publication in charge and concerned facilitators at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time.

ii. In case any of the paper is refused publication by a journal even then the supervisor and publication unit at ORIC will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time without any delay.

C. SUBMISSION OF ACCEPTANCE LETTERS OF APPROVED RESEARCH PAPER/PAERS AND SUBMISSION OF HARD AND SOFT COPIES OF PUBLISHED RESEARCH PAPER/S TO CPSP

This section C implies only for the post graduate trainees who will be opt for two research paper submission as requisite to fellowship of CPSP and provided their research paper/s is/are approved by journals and are published.

i. In case the research paper/s is/are approved by the target journals, the trainee will submit the letter of acceptance/s to CPSP in addition to copies to supervisor, HOD, Dean and Publication in charge of ORIC.

ii. When the original article will be published in journal/s, then the trainee will submit hard and soft copies of the original journal with his/her published articles to CPSP in addition to copies to supervisor, HOD, Dean and Publication in charge of ORIC and BASR.

D. PARTICIPATION IN JOURNAL CLUB SESSIONS

i. Since the journal club is one of the best sources to provide awareness of best current clinical research, its implementation and utilization so its importance cannot be overlooked. In spite of a demanding and eventful fourth year of training, the participation of trainee in the journal club will still be mandatory.

ii. The participation of trainees in journal club during R-Y4 will complement their knowledge and skills that will be beneficent in write up as well as defense of dissertation but also enhance their evidence based clinical skills.

iii. However, to decrease the trainees' workload during final year of training, only participation in journal club will be mandatory and he/she will be exempted from making a presentation during R-Y4.

iv. The R-Y4 trainee will still be expected to actively participate in discussion and also in question & answer session of the journal club meeting. It will be compulsion for each R-Y4 trainee to ask at least one question or make at least one comment relevant to the topic and/or the research paper, during the journal club meeting.

Minimal Attendance of Journal Club meetings by R-Y4 trainee:

The R-Y4 trainees should attend at least 5 out of 6 journal club meetings during their last year of training.

Assessment of Trainees for Journal Club sessions:

There will be no formal quantitative or qualitative assessment of the trainee and they will also not make any formal presentation in the journal club during R-Y4.

E. MONITORING OF RESEARCH ACTIVITIES OF YEAR 4

i. During the last year of training of post graduate trainees, they will be scrutinized for each and every activity of dissertation completion by research centers of specialties, supervisors, Head of Departments and the research associates and Deputy Directors at the Office of Research Innovation & Commercialization of RMU.

ii. The structured component of research in Log books of fourth training year will pertain to various components of their research projects including timing and completeness of data analysis, result write up, introduction, literature review's write up, methodology, discussion, recommendations, conclusions and cover pages.

iii. The log books will also include the attendance details of the trainees in the Journal club sessions of the department during R-Y4. This information will be endorsed by the supervisor of the trainee and the HOD.

iv. The Log Books of the trainees in addition to the Research portfolio during fourth year will be endorsed by the supervisor and Deputy Directors of ORIC. The research portfolio of the R-Y4 will again include self assessment regarding research activities of the

trainee in narrative form. In addition to individual assessment of the objectives and aims formulated for fourth year of training and their successful attainment, it will also include participation in any research course/s, conference/s and/or competition/s etc. during year R-Y4.

F. OVERALL ASSESSMENT OF PERFORMACE OF TRAINEES DURING R4

i. The overall assessment of performance of trainee will not rely on any scores or marks attained by trainees since there will not be any examination Paper or scoring for the home tasks assignments or presentation of journal club.

ii. The Heads of department and the director of ORIC will observe research portfolio of trainees in addition to the log books for attendance record and the remarks of supervisor regarding his/her opinion regarding the trainee's overall performance during fourth year of training. Based on their observations, they will evaluate the completeness and quality of performance of each activity of trainee during fourth year.

iii. In case of any deficiencies or weaknesses, the trainee and supervisor will be called by the Heads of department and the director of ORIC who will direct them on how to improve accordingly.

G. EVALUATION/ FEEDBACK OF RESEARCH COURSE OF YEAR 4

The research course and activities of third year of training will be evaluated by the trainees, facilitators ORIC and supervisors.

i. ***The end of year R-Y4 and end of four years' research training feedback of trainees*** will include structured evaluation through feedback questionnaire not only four fourth year but also for entire four year of research training. It will be anonymous and apart from questions phrased in Likert scale, open ended questions will also be included for the opinions of trainees.

ii. ***The end of year R4 and end of of four years' research training feedback of trainers*** will also reflect the anonymous feedback for the opinions of all supervisors and facilitators regarding benefits, drawbacks or weaknesses of R-Y4 course as well as of entire four year's research training course.

iii. ***Three focus group discussions;*** one of the R-Y4 trainees, second of the concerned facilitators and third of the supervisors will also be organized by the ORIC to evaluate the entire four year's research course, its benefits and weaknesses and scope for improvement.

iv. ***A final evaluation report of the Research Course R-Y4 and entire 4 years' research training Course*** will be formulated and compiled by the ORIC of RMU. The report will be presented to all concerned stake holders.

H. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 4

i. The quality assessment of research course of R-Y4 as well as the entire four years' research course will be carried out through review of materials and observations of proceedings by the evaluation team of RMU.

ii. The research dissertations submitted by post graduate trainees will be observed as confidential evidences by Director of ORIC, Dean and chairperson of BASR for quality assessment. No other person will have access to these manuscripts in order to avoid any risk of potential plagiarism.

iii. ORIC will submit evaluation content of R-Y4 to all stake holders including a copy to the Quality Enhancement Cell (QEC) of RMU for internal as well as external evaluation.

iv. An annual meeting of the trainers by end of year 4, will be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, QEC, DME & IREF, to review and discuss all the evaluation materials of R-Y4, its quality and any recommendations for quality enhancement, under the chairman ship of Vice chancellor of RMU.

The activities of trainees of RMU are displayed in figure 5(A) and 5 (B), according to their concerned options. Successful completion of above mentioned requirements of research course will be mandatory requirement for completion of Post Graduate training final year as well as for MD scholar's training at RMU.

Figure 5 (A) . A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS

OF R-Y4 POST GRADUATE/MD TRAINEE OF RMU WHO WILL OPT FOR DISSERTATION WRITING

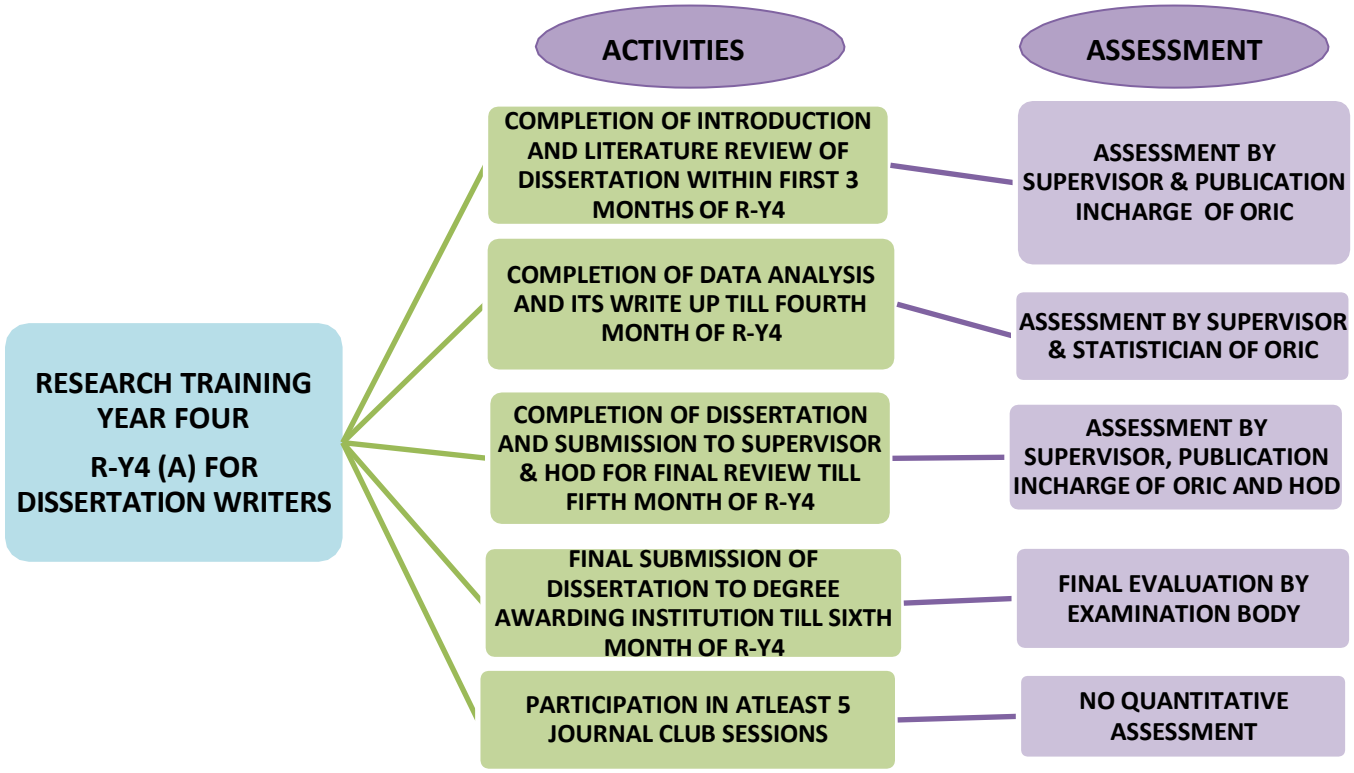
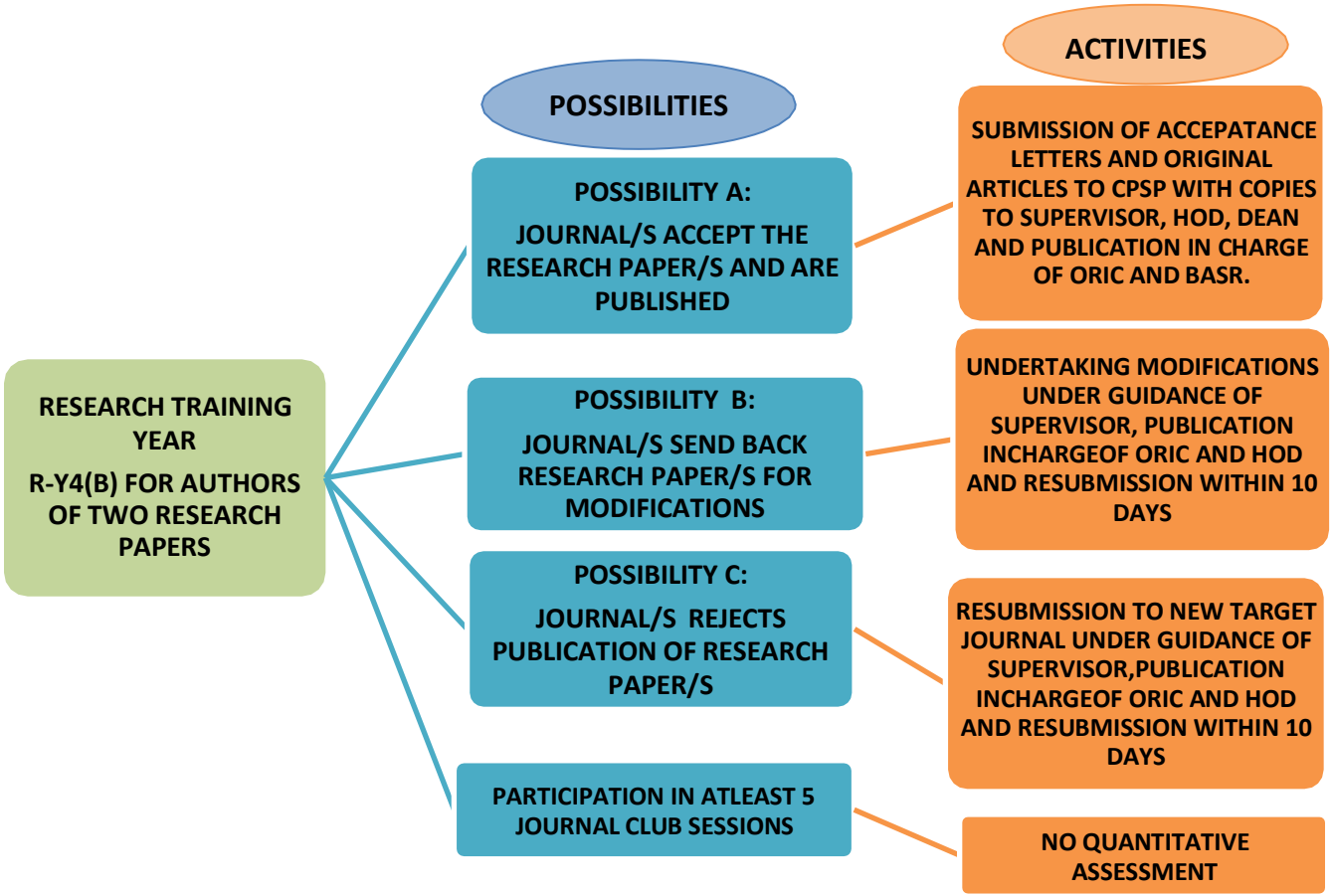


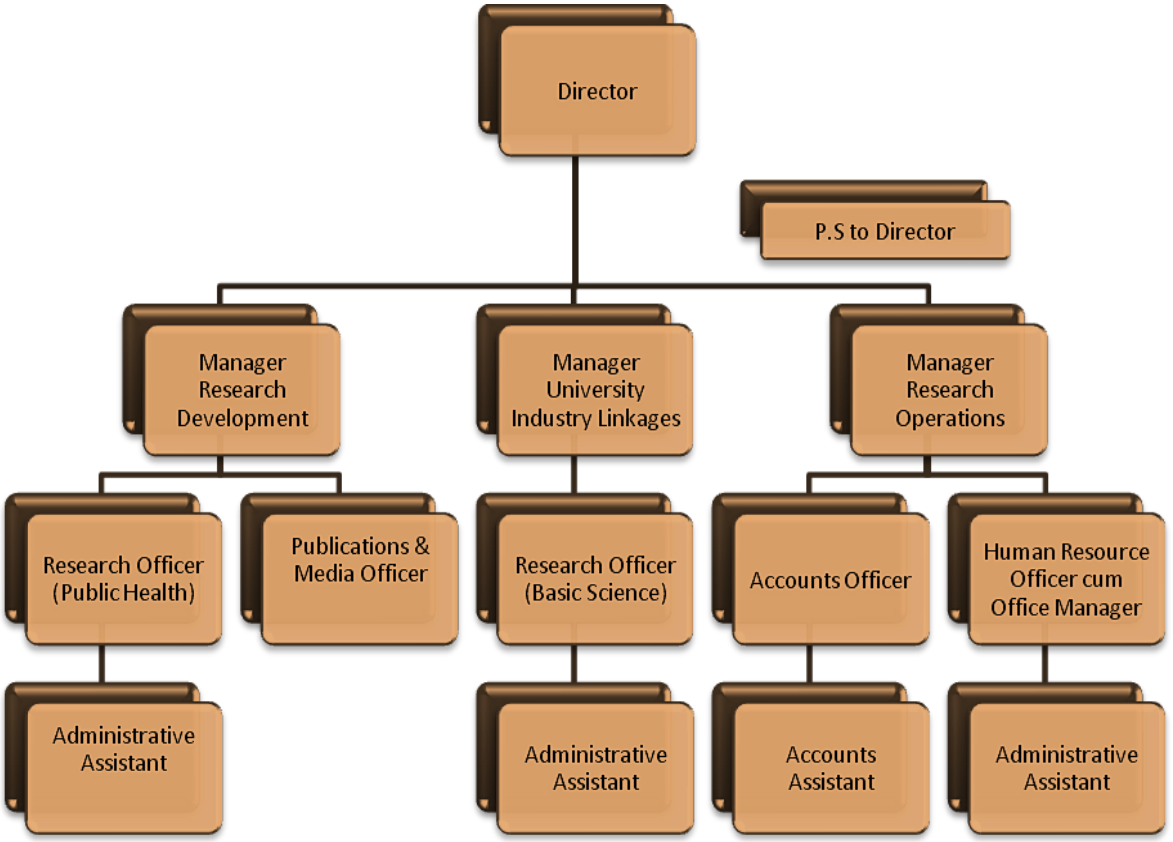
Figure 6 (B). A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS

OF R-Y4 POST GRADUATE OF RMU WHO WILL OPT FOR 2 RESEARCH PAPERS AS REQUISITE TO CPSP FELLOWSHIP DEGREE



ANNEXURE 1

THE ORGANIZAITONAL CHART OF ORIC OF RMU



Note: Managers of ORIC are also referred to as Deputy Directors in RMU

ANNEXURE 2

TERMS OF REFERENCES OF STAFF MEMBERS OF RMU WITH REFERENCE TO THE RESEARCH TRAINING PROGRAM OF POST GRADUATE TRAINEES OF RMU

A. THE VICE CHANCELLOR:

1. The vice chancellor of RMU will be final authority to approve nominations of external supervisors of MD scholars, in consultation with the Dean of specialty.
2. Regarding nominations of the internal supervisors of MD trainees and also of Post graduate trainees of fellowship of CPSP, after completion of first year of training, i.e. R-Y1, no substitution in nomination will be allowed. But in case of any serious incompatibility between the trainee and the supervisor, the issue will be brought to the Vice chancellor, directly by the Dean, as a special case. And only the vice chancellor will make the final decision accordingly, as the final authority.
3. The vice chancellor will also be the head of the quality evaluation team of research training courses that will also include the Head of departments, Deans, selected representatives of BASR, IREF, Director of ORIC and Director of Quality enhancement cell (QEC). The selection of above mentioned team members will be made by the Vice chancellor of RMU.
4. The Vice chancellor will have the authority through the research training course, to make surprise visits, evaluations, rounds and checking (without any prior information to the trainees and trainers) at any random occasion, being member of quality evaluation team individually or in team.
5. An annual meeting of the trainers will also be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, QEC & IREF and this meeting will be chaired by the Vice chancellor.

6. In perspective of the quality assessed through extensive procedure all the year round and also during the Annual meeting of quality assessment and enhancement, the Vice Chancellor and the Board of Advanced study and Research will finalize any modifications or enhancement in the next Research course.
7. When the MD scholars of RMU will submit their research proposals to the Board of Advanced Studies and Research (BASR) of RMU for appraisal, BASR will issue an acceptance letter of the research proposal that will be endorsed by the Vice chancellor of RMU.

B. MEMBERS OF BOARD OF ADVANCED STUDIES AND RESEARCH:

1. The Board of Advanced studies and Research of RMU will finalize, approve and issue final approval list of the supervisors of the trainees of RMU.
2. The Board of Advanced Studies and Research (BASR) of RMU will receive the submitted research proposals of MD scholars of RMU for appraisal. BASR will issue an acceptance letter of the research proposal endorsed by the Vice chancellor of RMU copied to the concerned stake holders and authorities including office of Dean and ORIC. If members of BASR will find any modifications required in the proposal they will recommend them to trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal to BASR within next one-week period. The written approval letter of BASR will then be issued within next two weeks to the trainee. The trainees will thus receive formal permission to initiate data collection phase through this acceptance of BASR.
3. The quality evaluation team of research training course will include selected representatives of BASR who will be nominated and selected by BASR and Vice chancellor of RMU. The members may pay random visits for physical observation of the proceedings and materials of all the research related activities of the trainees and supervisors for quality assessment and assurance.
4. The copies of research papers or dissertations submitted by post graduate trainees following option of publication of two original articles to CPSP accredited journals will also be submitted to the chairperson of BASR for quality assessment to be observed as confidential evidences

5. Representative members of BASR will attend the annual meeting of Quality assurance, by end of each research training year and will also share their experiences of their evaluation visits and observations to validate the existing materials.
6. The quality of Research Training course will be stringently determined by BASR in their meetings and the members will provide recommendations for further quality enhancement and will have the authority for policy formulation or modification regarding the research training
   course.

C. MEMBERS OF INSTITUTIONAL RESEARCH AND ETHICS FORUM OF (IREF) RMU:

1. Institutional Research Ethics Forum will organize monthly meetings for approval of research proposals of the trainees of RMU in which the trainee must present along with his/her supervisor for presentation and defence of proposals of dissertations/research papers.
2. The members will be provided hard copies of the research proposals prior to the meetings that they will review before coming to the meeting.
3. Members will listen and visualize five to ten minutes' presentation through power-point by the trainees and by the end of presentation will make relevant queries to the trainees.
4. The IREF will appraise and scrutinize every aspect of the proposal/s and if found acceptable then will provide on spot verbal approval of the project followed by written approval letter within next two weeks to the trainees.
5. If members of IREF will find any modifications required in the proposal/s they will recommend them to trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal/s within next one week's period.
6. The written approval letter of IREF will be issued within next two weeks of meeting, to the trainee.

7. In case the trainee will be working on option B of CPSP i.e. publication of two research papers, instead of writing dissertation, then he/she will present both research proposals to IREF for the two topics already approved by CPSP.
8. The quality evaluation team of research training course will include selected representatives of IREF who will be nominated and selected by chairperson of IREF and Vice chancellor of RMU. The members may pay random visits for physical observation of the proceedings and materials of all the research related activities of the trainees and supervisors for quality assessment and assurance.
9. Representative members of IREF will attend the annual meeting of Quality assurance, by end of each research training year and will also share their experiences of their evaluation visits and observations to validate the existing materials.
10. The quality of Research Training course will be stringently determined by IREF in their meetings and the members will provide recommendations for further quality enhancement to BASR, if any, regarding research training course.

D. THE DEAN OF THE SPECIALITY:

1. The journal club meetings will be chaired by the Dean of specialty.
2. In a journal club meeting, one or two research paper/s published in an indexed national or international journal will be selected by the Dean and will be notified to the departments at least one and a half month prior to the meeting.
3. The Dean of the specialty will decide the nomination of the supervisor for the post graduate trainee as well as the internal supervisors of MD scholars within first six months of the first year of training R-Y1.
4. For the selection of supervisors, the Dean will chair meeting for selection of supervisors that will be held in the middle of the first research training year, preferably in June.
5. The list of all the first year trainees and the available supervisors in each department will be presented to the Dean, by respective heads of each department in meeting.

6. The Dean will consider the recommendations and proposals of most suitable supervisors for each trainee after eloquent discussions and justifications with the Head of Departments.
7. The Dean will then call each trainee individually to inform him/her the suggested Supervisor for him/her and will also give right and time for objection or reservation in nomination, if any. The Dean will seek the trainee's final consent and then after asking the trainee to leave the meeting room, will call the supervisor for final consent.
8. If the supervisor will also be willing to happily supervise the trainee, then the Dean will finally approve the nomination.
9. A tentative list will be issued by the office of the Dean, within three days of the meeting, copied to the HOD's and the trainees and supervisors.
10. Both the trainees and the supervisors will be given two weeks to challenge the nominations and will also be given right to personally approach the Dean for any request for change. In case of any objection, the Dean will make changes in consultation with the HOD's, after final consent and satisfaction of both trainee and supervisor
11. The final revised list of nominations will be then issued by the office of Dean and will be sent to the Board of Advanced studies and Research of RMU (BASR).
12. During the last few months of the first year of training, the trainees and supervisors will be advised by the Dean, to get familiar with each other and try to identify their abilities to efficiently and successfully work together as a team.
13. In case of any issues, either of both will have right to request any change in nomination to the Dean, till last week of first year of training. The Dean will then consider the case and will seek modification in nomination from the BASR.
14. After completion of first year of training, no substitution in nomination will be allowed. In case of any serious incompatibility between the trainee and the supervisor, the Dean will have authority to bring it to the notice of the Vice chancellor as a special case.
15. As regards the MD scholars, the external supervisors will also be nominated and those nominations will be made by Vice chancellor of RMU in consultation with the Dean of specialty. After finalization of nominations a letter of agreement of supervision will be

submitted by the trainee to the office of Dean, including consent and endorsement of both trainee and the internal and/or external supervisor.

16. Regarding the project of undertaking clinical audits on various aspects of the department during first year of research training, on one topic assigned to each group by the Dean in consultation with Heads of Departments.
17. The clinical audits completed in groups will be published as Annual Audit Reports of the departments by the Dean
18. The Dean will make the decision regarding the presentation of clinical audit weekly Clinico-pathological conferences (CPC) of the University.
19. Once the research question and topic is finalized with mutual understanding of the supervisor, the Dean will also be handed over the selected topic by the trainee. The Dean of the specialty will give approval of the topic after scrutiny and will confirm after consultation with HODs that there is no duplication of the topic in the department.
20. The Dean will finalize the list of the topics of research proposals of all trainees during fourth month of R-Y2 and then will submit the list to BASR.
21. Dean will also ensure the feasibility and availability of resources during second year of research training of the trainees of RMU, before initiation of the research project.
22. The office of Dean will receive a copy of approval of the acceptance letter of BASR once the MD scholars of RMU will get their research proposals approved by to the Board of Advanced Studies and Research (BASR) of RMU.
23. The Dean will receive the copies of final manuscript by post graduate trainees following option of publication of two original articles to CPSP accredited journals that will be observed as confidential evidences by Dean for quality assessment. It will be kept strictly confidential by the office of the Dean in order to avoid any risk of potential plagiarism

24. The Dean will also receive the copies of final dissertation manuscript by post graduate trainees and MD trainees that will be observed as confidential evidences by Dean for quality assessment. It will be kept strictly confidential by the office of the Dean in order to avoid any risk of potential plagiarism.
25. The office of Dean must also receive the letter of acceptance/s by the trainees, in case the research paper/s is/are approved by the target journals. When the original article will be published in journal/s, then the trainee will submit hard and soft copies of the original journal with his/her published articles to Dean of speciality for evidence.
26. The Dean of specialty will be member of the quality evaluation team of research course and he/she will have right to make any surprise visit during the four years training research course, at any random occasion, either individually or in teams, without any prior information to the trainees and trainers.
27. The Dean will also attend the annual meeting that will be organized by the Quality Enhancement Cell of RMU. During the meeting, the Dean will share his/her experience of evaluation visits and observations to validate the existing materials.

E. THE HEAD OF THE DEPARTMENT:

1. The Head of the Department (HOD) will oversee all the research activities of the trainees, in close consultation with the Dean and the supervisors at the departmental level.
2. The HOD will attend all the journal club sessions of department.
3. During the first six months of research training year 1 i.e. R-Y1, the HOD will be responsible for consideration of the nominations of the internal supervisor of each trainee. The HOD will decide these nominations based on his/her own personal observation of the level of performance, talent personality and temperament of both the trainees and the supervisors. Based on his/her personal observation of the compatibility of both eligible trainees and the supervisors, Head of department will recommend or propose most suitable supervisors for each trainee after eloquent discussions and justifications to the Dean during a nomination meeting that will be especially held for this purpose.

4. The nominations will be finalized in a special meeting by all heads of the departments and the Dean. The list of all the first year trainees and the available supervisors in each department will be presented by respective heads of each department in meeting.
5. In case of any objection to nominations of supervisors, the Dean will make changes after direct consultation with the HOD's, apart from final consent and satisfaction of both trainee and supervisor.
6. After finalization of nominations a copy of letter of agreement of supervision will be received by the office of HOD, submitted by the trainee.
7. The weekly meetings of the supervisor and the trainee will be monitored by the HOD through observation of the documented record of meeting in log books, by the end of every month.
8. During ninth month of training year 1; R-Y1 the head of department will supervise the project of clinical audit of the trainees. In this regard HOD will firstly form groups of trainees, either two or three trainees in one group (along with each supervisor of each trainee), depending on the total number of trainees available in that respective first year.
9. The HOD in consultation with the Dean of specialty will assign topics of audits to each group.
10. The clinical audits completed in groups will be published as Annual Audit Reports of the departments under supervision of HOD's.
11. The presentation of clinical audit in weekly Clinico-pathological conferences (CPC) of the University, will also be supervised by HOD's.
12. The contribution of the trainees in execution and publication of clinical audit will also be qualitatively assessed by the head of departments.
13. Once the trainee finalizes research question and topic in mutual understanding with supervisor, the HOD will also be handed over the selected topic by the trainee who in consultation with the Dean of the specialty will confirm for non duplication of the topic in the department.
14. HOD will also ensure the feasibility and availability of resources during second year of research training of the trainees of RMU, before initiation of the research project.

15. The trainee should submit final draft of dissertation to the head of department till end of fifth month of year for final modifications and the Head of Department will also provide his /her feedback within 10-15 days.
16. The HOD will receive a copy of final dissertation by the trainee during fourth year of research training that will be kept by him/her as a confidential document in order to avoid any potential risk of plagiarism.
17. In case the research paper/s of the trainees is/are approved by the target journals, the office of HOD trainee will also receive a copy of the letter of acceptance/s and when the original article will be published in journal/s, even then the trainee will submit hard and soft copies of the original journal with his/her published articles to HOD.
18. All the Head of Departments along with other staff members of Office of Research Innovation & Commercialization of RMU will keep vigilant and continuous monitoring of all the research activities of each trainee.
19. The HOD will monthly check and endorse the sections of research in Structured Log books of trainees and also section of Research in portfolio record of the trainees specific to research component of the training.
20. The HOD will also endorse the attendance of the trainees in the Journal club sessions of the department in the log books along with his/her quantitative and/or qualitative assessment of the trainees' active participation and/or presentation during the journal club session. HOD will also endorse the information whether any question or comment was raised by the trainee during each journal club session or not. The Heads of department will observe the log books for assessments of facilitators of short courses during third year of research training and their comments regarding the home tasks/assignments apart from the remarks of supervisor regarding his/her opinion regarding the trainee's overall performance during third year of training.
21. In case of any deficiencies or weaknesses, HOD will personally call the trainee and supervisor and will guide them how to correct or improve accordingly.
22. The research course of the trainees will also be evaluated by the HOD's through end of sessions forms and then collectively through end of course feedback forms.

23. The HODs will also be members of the quality evaluation team of research training course and will vigilantly and equitably observe and evaluate all the documented records and materials during the course and finally by the end of each course year for quality assessment.
24. They will also make surprise visits at any random occasion, without any prior information to the trainees and trainers, individually or in team.
25. HODs will also attend the annual meeting quality assessment and enhancement where they along with other participants will actively review and discuss all the evaluation material. And will also share their experiences of evaluation visits and observations to validate the existing materials.

F. THE DIRECTOR OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):

1. The Director ORIC (Office of Research Commercialization and Innovation) of RMU will conduct an orientation session or an introductory session of one-hour duration along with Deputy Directors of ORIC at the commencement of first research training year of all post graduate trainees of RMU. During the session, the Director will make trainees acquainted to the complete research course of four years' post graduate training, its schedule of all scholarly and academic activities and the assessment procedures. He/she will also introduce the model of research at RMU, organizational structure of ORIC and all requisites of training along with introduction to the staff members of ORIC who will be involved in their training.
2. The director ORIC will take few research training sessions of first two training years (R-Y1 & R-Y2) that will comprise of didactic lecture followed by taking exercises and then also be responsible for giving and checking the home task assignments (if any) related to session.
3. During the third year of training the Director ORIC will conduct few of short refresher courses/workshops along with other staff members of Office of Research Innovation and commercialization. For the specific course, Director will have to carry out a 20-25 minutes' power-point presentation to restore the memories of the trainees regarding the previous knowledge attained by them in R-

Y1 and R-Y2. The director ORIC will also facilitate the individual or groups exercises of trainees in the training session following the presentation and also check the take home assignments.

4. Director at the Office of Research Innovation & Commercialization of RMU will keep vigilant and continuous monitoring of all the academic activities of each trainee related to Research courses.
5. Director of ORIC will check the research portfolio of the trainee and will endorse it.
6. Based on his/her observations, the completeness and quality of performance of each trainee will be evaluated and in case of any deficiencies or weaknesses he/she will personally call the trainee and supervisor and will guide them how to correct or improve accordingly.
7. Director ORIC will supervise the formulation of evaluation report of the research training course and after its endorsement will send it to all concerned departments and stake holders. The director ORIC will also be responsible for submission of the evaluation content to the Quality Enhancement Cell (QEC) of RMU for internal evaluation and external evaluation.
8. The Director will also be member of the quality evaluation team of research training course and will also evaluate all the documented records and materials during the course and finally by the end of each course year for quality assessment.
9. Like all other members of Quality evaluation team, the director will also have the right to make a surprise visit at random individually or in team. The evaluation will include not only physical observation of the materials but the evaluators may also make a visit to observe any proceedings or activities of the research course e.g. a lecture, a group exercise, a journal club session and/or an IREF meeting.
10. The Director will attend the annual meeting quality assessment and enhancement where he/she will actively review and discuss all available material of training course will also share his/her experience of evaluation visits and observations to validate the existing materials.

11. The trainees who will opt for publication of research papers to journals will submit copy of submitted papers to Director of ORIC who will check and keep them secured in records as confidential documents.
12. The Director will receive a copy of dissertation of the trainee for record as a confidential document in order to avoid potential risk of plagiarism.

G. THE DEPUTY DIRECTORS OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):

1. The Deputy Directors ORIC (Office of Research Commercialization and Innovation) of RMU, along with Deputy Director and other staff members of ORIC will conduct an orientation/introductory session of one-hour duration at the initiation of first research training year of all post graduate trainees of RMU. The Deputy Directors will provide introduction to trainees regarding the research course of four years' post graduate training, its schedule of all scholarly and academic activities and the assessment procedures. They will also inform the trainees organizational structure of ORIC and all requisites of training along with introduction to the staff members of ORIC who will be involved in their training.
2. The Deputy directors ORIC will take research training sessions of first two training years (R-Y1 & R-Y2) that will comprise of didactic lecture followed by taking exercises and then also be responsible for giving and checking the home task assignments (if any) related to session.
3. The submitted record and scores of trainees attained for the individual and group assignments during first two training years will be endorsed by the Deputy Directors of ORIC.
4. During the third year of training the Deputy Directors ORIC will conduct a few of short refresher courses/workshops. For the specific course, they will have to carry out a 20-25 minutes' power-point presentation to restore the memories of the trainees regarding the

previous knowledge attained by them in R-Y1 and R-Y2. In addition, they will also facilitate the individual or groups exercises of trainees in the training session following the presentation and will also check the take home assignments.

5. The submitted record and scores of trainees attained for the individual and group assignments of the short training courses of third year of training will also be endorsed by the Deputy Directors of ORIC.
6. The Deputy Directors will check and mark the written papers of end of year examination or Annual Research Paper of first two training year R-Y1 & R-Y2. They will also endorse the scores of the Annual papers in the log book of the trainees.
7. The research course will be evaluated by the deputy directors of ORIC too through end of sessions forms and then collectively through end of course feedback forms.
8. During these first three months of R-Y2, the Deputy Directors at the ORIC will provide consultation to the trainees regarding feasibility of their research questions and will be advised if any modification required.
9. The deputy directors will be continuously involved in an alert and continuous monitoring of all the scholarly activities of each trainee.
10. The structured Research component of Log books and Research portfolio of the trainees specific to research component of all the training years R-Y1 to R-Y4 will also be regularly observed, monitored and endorsed by the Deputy Directors of ORIC. Based on his/her observations, the completeness and quality of performance of each trainee will be evaluated and in case of any deficiencies or weaknesses he/she will personally call the trainee and supervisor and will guide them how to correct or improve accordingly.
11. The Deputy Director will also monitor the submission of the evaluation content to all including a copy to the Quality Enhancement Cell (QEC) of RMU for internal evaluation.

H. THE RESEARCH ASSOCIATES OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):

1. The Research Associates of ORIC (Office of Research Commercialization and Innovation) of RMU, along with Deputy Director and other staff members of ORIC will facilitate the orientation/introductory session of one-hour duration at the initiation of first research training year of all post graduate trainees of RMU.
2. The Research Associates will take few research training sessions of first two training years (R-Y1 & R-Y2) that will comprise of didactic lecture followed by taking exercises and then also be responsible for giving and checking the home task assignments (if any) related to session.
3. The Research Associates will also be will be present and will be actively involved in facilitation of all the training sessions that will be taken by Director, Deputy Directors or guest facilitators. They will actively facilitate the individual and group works of the trainees during the sessions.
4. The Research Associates will be responsible for record keeping of the post graduate trainees regarding the training sessions and the records and scores of trainees for the individual and group assignments during all four training years that will also be endorsed by the Deputy Directors of ORIC. They will not only collate the record at the ORIC in computerized versions as well as in the form of hard copies. The Research Associates will also fill in the record in research sections of the log books relevant to the training sessions and other relevant activities that will be supervised by them.
5. During the third year of training, the Research Associates will also be present in the short refresher courses/workshops for facilitating the Director, Deputy Directors or guest facilitators. They will actively facilitate the individual and group works of the trainees during the workshops.
6. The Research Associates along with the Deputy Directors will check and mark the written papers of end of year examination or Annual Research Paper of first two training year R-Y1 & R-Y2. They will enter the the scores of the Annual papers in the log book of the trainees and will also keep its record at the ORIC in computerized versions as well as in the form of hard copies.

7. During the first three months of R-Y2, the Research Associates at the ORIC will provide consultation to the trainees regarding feasibility of their research questions and will advise trainees if any modification required.
8. Once the trainee gets the approval of the topic/s from all concerned authorities during R-Y2 and will initiate the formal write up of proposal/s, the research associates of ORIC will guide them regarding the research methodologies.
9. The research associates of ORIC will also ensure that the duration of research project should be adequate and realistic so that trainees will be able to complete their project/s timely during training leaving enough time for its write up.
10. The research associates of ORIC will also guide the trainees regarding the research formulation of data collection tools, their pre-testing and execution of data collection phase
11. Trainees will be individually provided an updated step wise guidance by the research associates of ORIC, regarding submission of their synopsis to IREF for appraisal. They will be supervised by Research Associates regarding how to access the RMU website, to download the application Performa and then how to electronically fill it in for final submission. They will also be provided updated format of presentation by the Research Associates for their Research Proposal presentations at IREF meetings.
12. The record of the trainees regarding timely completion and quality of each activity related to completion of research proposals and its presentation in the monthly meeting of the Institutional Research Ethics Forum (IREF) of RMU will also be part of the Log Book that will be entered by the research associates of ORIC and conveners of the IREF and BASR.
13. As soon as the year four of training commences, these trainees should complete the introduction and literature review sections of their dissertations along with proper referencing during first three months of R-Y4 and the Research Associates will also guide them along with the supervisors and the publication in charge at the ORIC.
14. While the dissertations will be under review by the degree awarding authority for acceptance, the trainees will be continuously guided by the supervisor and the research associates at ORIC regarding defence of their dissertation. They will be guided how to

make effective presentations according to the format provided by the examination authorities and also how to successfully and confidently respond to the queries of examiners.

15. In case the dissertation is sent back with recommended corrections or modifications, research associates at ORIC will guide the trainee along with supervisor on urgent basis to get it rectified and resubmitted within at least 10 days' time.

I. THE PUBLICATION IN CHARGE OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):

1. The Publication in charge will be actively involved in the Research training course and for the academic sessions relevant to literature search, review and write up, he/she will take didactic lectures, followed by facilitating individual and group exercises and checking of relevant home tasks and assignments.
2. The post graduate trainees and MD scholars submit a copy of their finalized research proposal/s for the dissertation/research papers to the publication in charge of ORIC who will review for plagiarism through turn-it-in soft ware. Any proposal that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission. Only when the eligible scores will be reached, then the publication in charge will approve and the proposal will be further processed.
3. The publication in charge of ORIC will also guide the trainees to write the literature review sections and the section of "Discussion" based on the comparison of the findings of their study with the previously available research nationally as well as internationally.
4. The final research papers/dissertations of trainees will also be reviewed by publication in charge of ORIC for plagiarism through turn-it-in soft ware. Any article that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission. Only when the eligible scores will be reached, then the trainee will be allowed to proceed further and to submit their research in the form of original articles under continuous assistance of Publication unit of ORIC.

5. In case the research paper/s of trainees is/are sent back with recommended corrections or modifications publication in charge along with the supervisor and concerned facilitators at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time.
6. In case any of the paper of trainee is refused publication by a journal then the publication unit at ORIC along with the supervisor and concerned facilitators at ORIC will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time and not delaying it all.

J. THE STATISTICIANS AT DATA ANALYSIS UNIT OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):

1. The statisticians at the Data Analysis Unit of ORIC at data analysis centre of ORIC will also be actively involved in the Research training course specifically those of Basic and advanced Biostatistics and Epidemiological concepts. The statisticians will take didactic lectures, followed by facilitating individual and group exercises and checking of relevant home tasks and assignments.
2. The statisticians will facilitate the trainees in sample size calculation through sample size calculators according their study designs.
3. Trainees will also be assisted by the statisticians in planning the Data analysis for the research projects and also data coding, cleaning and sorting accordingly.
4. The statisticians will facilitate the trainees in formulation of the data entry sheets in SPSS or other data analysis softwares and will be continuously assisted in the process till data entry is completed.
5. The trainees will perform the data analysis of their research projects for research papers or dissertations, under continuous guidance and supervision of the statisticians who will also guide them how to interpret analyzed files and to write up results in textual forms, tabulated versions or figures/graphs.

6. In case the research paper/s or dissertation/s of trainees is/are sent back with recommended corrections or modifications in results section then the statisticians along with the supervisor, publication in charge and concerned facilitators at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time.

K. DEPARTMENT OF MEDICAL EDUCATION:

1. The quality evaluation team of research training course will include Director of Department of Medical Education who may pay random visits for physical observation of the proceedings and materials of all the research related activities of the trainees and supervisors for quality assessment and assurance.
2. The Director DME will also attend the annual meeting of Quality assurance, by end of each research training year and will also share his/her experiences of evaluation visits and observations to validate the existing materials.
3. The demonstrator at the DME will keep record of attendances of all the post graduate trainees and MD scholars for all the academic sessions attended by them regarding the research training course along with the record of all assessments, scores, marks of annual papers. They will monitor the log books and research portfolio for the completeness and regularity too. The record will not only be kept and maintained at DME as hard copies as well as computerized version, but they will also regularly share records with ORIC and Quality enhancement cells of RMU.

L. THE SUPERVISOR OF THE TRAINEE FOR THE DISSERTATION PROJECT

1. The supervisor of the trainee must be nominated within first six months of the research training. The Dean of the specialty will decide the nomination of the supervisor for the post graduate trainee as well as MD scholars. In this regards a meeting will be held that will be attended by all heads of the departments and the Dean. The list of all the first year trainees and the available supervisors in each department will be presented by respective heads of each department in meeting. All of the eligible trainees and supervisors will also

be around for brief interviews during the meeting. The supervisor for the trainee will be nominated based the level of performance, talent personality and temperament of both the trainees and the supervisors by the HOD. If the supervisor will also be willing to happily supervise the trainee, then the Dean will finally approve the nomination, apart from other requirements.

2. After finalization of nominations a letter of agreement of supervision will be submitted by the trainee to the office of Dean, including consent and endorsement of both trainee and the internal and/or external supervisor, with copies to HOD, ORIC and BASR.
3. The supervisor will be bound to meet with the trainee, on weekly basis exclusively for research activity and will document the activity performed during the meeting in the log book along with endorsement.
4. During ninth month of training year 1; R-Y1 the supervisor/s will supervise trainees together in groups and will undertake clinical audit on various aspects of the department as a project assignment, on one topic assigned to each group by the Dean and Heads of Departments. The contribution of the post graduate trainees'/ MD trainees in audits will be qualitatively assessed by the supervisors and the head of departments.
5. The supervisor will keep vigilant and continuous monitoring of all the research related academic activities of each trainee.
6. The supervisors will provide their feedback through structured and anonymous feedback forms/questionnaire, including closed and partially closed questions that will be regularly provided by them. They will provide their inputs and opinions regarding effectiveness of the course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.
7. One Focus group discussion of supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement, each year.
8. The supervisor will keep a close and continuous check on the Log books, Research portfolio of the trainee and will endorse it regularly. Based on his/her observations, the supervisor will evaluate the performance of the trainee and will discuss it in monthly meeting with the Head of Department or Dean of the specialty if required.

9. The supervisor will not only guide and facilitate the trainee in preparation of presentation of Journal Club but will also ensure that trainees should actively participate in question & answer session of the journal club meeting and will also ensure the attendance of the trainees in Journal club as per set requirements.
10. During these first three months of R-Y2, supervisor will guide and supervise the trainee to do extensive review of the literature, relevant to topic and finalize the research question/s and research topic/s with mutual understanding and will submit the selected topic to the Head of Department and Dean of specialty.
11. The supervisor will facilitate the trainee at every step, the formal write up of research proposal/s in consultation with the research associates of ORIC for guidance in methodology. The research proposal should be completed in eighth month of R-Y2 and should also be reviewed and finalized by the Supervisor of the trainees.
12. The trainees should formulate all the data collection tools under guidance of supervisor and should also pretest to finalize all the data collection tools for their research projects.
13. The supervisors will also ensure that the duration of research project should be adequate and realistic so that trainees will be able to complete their project/s during third year of training leaving enough time for its write up during year 4 of training. The supervisor will also consult the Dean and HOD's in ensuring the feasibility and availability of resources of a trainee during second year of training.
14. The supervisor will help the trainee to make a five to ten minutes' presentation through power-point at Institutional Research Ethics Forum during 9-10 months of R-Y2. By the end of presentation, the supervisor will facilitate in defence of the proposal.
15. During first quarter of year 3, it will be mandatory for the trainees to initiate the data collection phase of their project/s under continuous guidance of their supervisors. In case the data collection will require more human resources, other than trainee himself/herself, the supervisor will ensure that the additional data collection staff will be adequate in number within data within the time framework and should also make sure that they will be proficient enough to collect high quality and authentic data.
16. The data storage will also be finalized by trainee under the guidance of Supervisor and research centre of specialty.

17. Whether the trainee is opting for dissertation writing or research paper publication, the supervisor will ensure that every step and procedure is being followed effectively and timely meeting all set requirements as per standard operational procedures.
18. The supervisor will actively assist the trainee in write up of dissertation/ research papers.
19. The trainee should submit final draft of dissertation to the supervisor till end of fifth month of year 4 for final modifications. Since the supervisor will be incessantly involved in every aspect of the project since the beginning and will be persistently guiding the procedure, so he/she should not take more than 10 days to give final review to dissertation of the trainee with written feedback that will be entered in a structured performa with recommendations for improvement or corrections.
20. In case the dissertation or research paper/s is/are sent back with recommended corrections or modifications, the supervisor will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time. In case any of the paper is refused publication by a journal even then the supervisor will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time and not delaying it all.
21. In case the research paper/s is/are sent back with recommended corrections or modifications, the supervisor will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time. In case any of the paper is refused publication by a journal even then the supervisor and publication unit at ORIC will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time and not delaying it all.
22. While the dissertations will be under review by the degree awarding authority for acceptance, the trainees will be continuously guided by the supervisor regarding defense of their dissertation. They will be guided how to make effective presentations according to the format provided by the examination authorities and also how to successfully and confidently respond to the queries of examiners.

MANDATORY WORKSHOPS

WORKSHOPS (3 hours each for 2-5 days)

S.NO	NAME OF THE WORKSHOP	LEARNING OBJECTIVES	TOPICS TO BE COVERED
1.	**Biostatistics & Research Methodology (4 days)**	• To understand the basics of Bio-Statistics • To critique why research is important? • To discuss the importance of Selecting a Field for Research • To prepare oneself for Participation in National and International Research • To prepare oneself for Participation in Pharmaceutical Company Research • To interpret the importance of research ideas & Criteria for a good research topic • To discuss Ethics in Health Research • To learn to write a Scientific Paper • To learn to make a Scientific Presentation • To learn to make a purposeful literature search	1. Introduction to Bio-Statistics 2. Introduction to Bio- Medical Research Why research is important? 3. What research to do? i. Selecting a Field for Research ii. Drivers for Health Research iii. Participation in National and International Research iv. Participation in Pharmaceutical Company Research v. Where do research ideas come from vi. Criteria for a good research topic Ethics in Health Research 4. Writing a Scientific Paper 5. Making a Scientific Presentation & Searching the Literature

2.	**Introduction to computer/Information Technology & Software (5 days)**	By the end of this workshop student should be able to: • Appropriately start up and shut down your computer. • Navigate the operating system and start applications. • Perform basic functions of file management. • Perform basic functions in a word processor and spreadsheet. • Manage print settings and print documents. • Receive and send email. • Use a web browser to navigate the Internet. • work with windows, toolbars, and command menus • perform basic word processing and graphic tasks • make a Power Point presentation • explore Web browsing basics • back up files • save, copy, and organize your work • to enter data accurately in software of Statistical Package for Social Sciences	1. Hardware and Software • Understand the main components of a computer, including input and output devices. • Understand the function of communication devices such as smartphones and tablets. • Understand the role of Operating Systems, programs and apps. 2. Windows • Turning on the computer and logging on. • The Windows screen. • Running programs from the Start Menu. • Minimizing, maximizing, moving, resizing and closing windows. • Logging off and shutting down your computer. 3. Working with Programs • Running multiple programs. • Desktop icons and creating a desktop shortcut. • Managing programs from the taskbar. • Closing programs. 4. File Management • Managing Windows Explorer. • Creating, moving, renaming and deleting folders and files. • Understandings file extensions. • Viewing storage devices and network connections. • Managing USB flash drives. 5. Word Processing • Creating documents in Microsoft Word. • Typing text, numbers and dates into a document. • Easy formatting. • Checking the spelling in your document. • Making and saving changes to your document. •

			6. Power Point Making Power Point presentation 7.Spreadsheets • Understanding spreadsheet functionality. • Creating spreadsheets in Microsoft Excel. • Typing text numbers and dates into a worksheet. • Easy formulas. • Easy formatting. • Charting your data. • Making and saving changes to your workbook. • Printing a worksheet. 8.Printing • Print preview. • Print settings. • Managing the print queue. 9.Using Email • The Outlook mail screen elements. • Composing and sending an email message. • Managing the Inbox. 10.Accessing the Internet • Going to a specific website and bookmarking. • Understanding how to search/Google effectively. • Copy and paste Internet content into your documents and emails. • Stopping and refreshing pages. • Demystifying the Cloud. • Understanding social media platforms such as Facebook and Twitter. • Computer security best practices. 11.Statistical Package for Social Sciences • general understanding for data entry

3.	**communication skills (3 days)**	• To learn to use Non-medicinal Interventions in Communication Skills of Clinical Practice • To discuss the importance of counseling • To role play as a counselor • To learn to manage a conflict resolution • To learn to break a bad news • To discuss the importance of Medical Ethics, Professionalism and Doctor-Patient Relationship Hippocratic Oath • To learn to take an informed consent • To illustrate the importance of confidentiality • To summarize Ethical Dilemmas in a Doctor's Life	1. Use of Non-medicinal Interventions in Clinical Practice Communication Skills 2. Counseling 3. Informational Skills 4. Crisis Intervention/Disaster 5. Management Conflict Resolution 6. Breaking Bad News 7. Medical Ethics, Professionalism and Doctor-Patient Relationship Hippocratic Oath 8. Four Pillars of Medical Ethics (Autonomy, Beneficence, Non-malficence and Justice) 9. Informed Consent and Confidentiality 10. Ethical Dilemmas in a Doctor's Life
4.	**Clinical Audit (2 days) (Workshop is specific for MD Internal Medicine only)**	**Road Map for workshop:** 1. Step 1:Topic selection 2. Step 2: Setting of criteria and standards 3. Step 3: First data collection 4. Step 4: Evaluation and comparison with criteria and standards 5. Step 5: Implementation of change 6. Step 6: Second data collection – evaluation of change **The following are factors that may affect your choice of audit topic:** • Strong impact on health	1. To understand clinical audit process. To help clinicians decide exactly why they are doing a particular audit and what they want to achieve through carrying out the audit. 2. To determine, how clinical audit relates to other activities related to accountability for the quality and safety of patient care. 3. To select the right subject for audit. 4. To use evidence of good practice in designing clinical audits. 5. To help clinicians formulate measures of quality based on evidence of good practice, as the basis for data collection and also to develop data collection protocols and tools and advise on data

		• Convincing evidence available about appropriate care • Common condition which can be clearly defined • Good reasons of believing that current performance can be improved • Readily accessible data which can be collected within a reasonable length of time • Consensus on the audit topic among the practice members	collection for clinical audits. 6. To help in understanding how to handle data protection issues related to clinical audit. 7. To understand use of statistics for analyzing and presenting findings of data collection and thus help clinicians to analyze causes of problems that are affecting the quality of care. This helps in applying principles and strategies for taking action to achieve changes in clinical practice. 8. To help clinicians manage review of clinical audit findings with their colleagues. 9. To be able to prepare clinical audit reports. 10. To recognize and handle ethics issues related to clinical audit.
5.	**Advanced Cardiac Life Support** **(4 days)** **(Workshop is specific for MD Internal Medicine only)**	Upon successful completion of the workshop, the student will be able to: • Recognize and initiate early management of pre-arrest conditions that may result in cardiac arrest or complicate resuscitation outcome • Demonstrate proficiency in providing BLS care, including prioritizing chest compressions and integrating automated external defibrillator (AED) use • Recognize and manage respiratory arrest • Recognize and manage cardiac arrest until termination of resuscitation or transfer of care, including immediate post-cardiac arrest care	The workshop is designed to give students the opportunity to practice and demonstrate proficiency in the following skills used in resuscitation: 1. Systematic approach 2. High-quality BLS 3. Airway management 4. Rhythm recognition 5. Defibrillation 6. Intravenous (IV)/intraosseous (IO) access (information only) 7. Use of medications 8. Cardioversion 9. Transcutaneous pacing 10. Team dynamics 11. Reading and interpreting electrocardiograms (ECGs) - Be able to identify—on a monitor and paper tracing—rhythms associated with bradycardia, tachycardia with adequate perfusion, tachycardia with poor perfusion, and pulseless

		• Recognize and initiate early management of ACS, including appropriate disposition • Recognize and initiate early management of stroke, including appropriate disposition • Demonstrate effective communication as a member or leader of a resuscitation team and recognize the impact of team dynamics on overall team performance	arrest. These rhythms include but are not limited to: o Normal sinus rhythm o Sinus bradycardia o Type I second-degree AV block o Type II second-degree AV block o Third-degree AV block o Sinus tachycardia o Supraventricular tachycardias o Ventricular tachycardia o Asystole o Ventricular fibrillation o Organized rhythm without a pulse 12. Basic understanding of the essential drugs used in: o Cardiac arrest o Bradycardia o Tachycardia with adequate perfusion o Tachycardia with poor perfusion o Immediate post–cardiac arrest care

SECTION –VI

THE ASSESSMENT STRATEGIES FOR MD EMERGENCY MEDICINE RESIDENCY PROGRAM

The vision:

To improve health care and population health by assessing and advancing the quality of resident physician's education through accreditation.

The Mission:

We imagine a world characterized by:

- A structured approach to evaluating the competency of all residents and fellows
- Motivated physician role Models leading all program of the university.
- High quality, supervised, humanistic clinical educational experience, with customized formative feedback.
- Clinical learning environments characterized by excellence in clinical care, safety of patients, doctors and paramedics and professionalism.
- Residents and fellows achieving specific proficiency prior to graduation.
- Residents and fellows are prepared to be Virtuous Physicians who place the needs and well-being of patients first

The values:

- Honesty and Integrity
- Excellence and Innovation
- Accountability and Transparency
- Fairness and Equity
- Stewardship and Service

- Engagement of Stakeholders
- Leadership and Collaboration

Back Ground/ Rationale:

- Need for Modernization of the Post Graduate Medical Training in the country.
- Need for structuration of all the components of Post Graduate Medical training in Pakistan.
- Need for better Monitoring of the System for better out comes.

Aims:

- To fulfill the need of Modernization of the Assessment strategies.
- To structure the Assessment strategies.
- To shift the paradigm from an Examination Oriented System towards a Training Oriented System.

The Characteristics of the document on Assessment Strategies:

Following aspects are tried to be accomplished while synthesis of this document on assessment strategies for MD Emergency Medicine University Residency Program:

- Should be Technically Sound
- Should be acceptable by all the stakeholders
- Should bed feasible for implementation
- Should be concise
- Should be according to the need of our educational system
- Should be reproducible / can be nationalized
- Should be sustainable
- Should be able to assesses all required competencies accurately

The purpose of the Assessment system:

The purpose of the assessment system is to:

- enhance learning by providing formative assessment, enabling trainees to receive immediate feedback, measure their own performance and identify areas for development;

- drive learning and enhance the training process by making it clear what is required of trainees and motivating them to ensure they receive suitable training and experience;

- provide robust, summative evidence that trainees are meeting the curriculum standards during the training programme;

- ensure trainees are acquiring competencies within the domains of Good Medical Practice*;*
- assess trainees' actual performance in the workplace;

- ensure that trainees possess the essential underlying knowledge required for their specialty;

- inform the Annual Review of Competence Progression (ARCP), identifying any requirements for targeted or additional training where necessary and facilitating decisions regarding progression through the training programme;

- Identify trainees who should be advised to consider changes of career direction.

The integrated assessment system

The integrated assessment system comprises a mixture of workplace-based assessments and knowledge-based assessments. Individual assessment methods are described in more detail below. The assessments will be supported by structured feedback for trainees within the training programme of General Internal Medicine. Assessment tools will be both formative and summative and will be selected on the basis of their fitness for purpose. Workplace-based assessments will take place throughout the training programme to allow trainees to continually gather evidence of learning and to provide formative feedback. They are not individually summative but overall outcomes from a number of such assessments provide evidence for summative decision making. The number and range of these will ensure a reliable assessment of the training relevant to their stage of training and achieve coverage of the curriculum.

Assessment methods

The following methods are used in the integrated assessment system:

A-Examinations

- Intermediate Examination (at the end of second calendar year)
- Final Examination (at the end of fifth calendar year)

B-Workplace-based assessments

- mini-Clinical Evaluation Exercise (mini-CEX)
- Direct Observation of Procedural Skills (DOPS)
- Multi-Source Feedback (MSF)
- Case-Based Discussions (CbD)
- Patient Survey (PS)
- Acute Care Assessment Tool (ACAT)
- Audit Assessment (AA)
- Teaching Observation (TO)
- Many others as described earlier in the section of modern assessment tools

Few definitions before we proceed further made to be clear:

1. **What Is Competency?**

The ability to do something successfully or efficiently**.**

2. **What Is Competence?**

Competency is described what an individual is enable to do while performance should describe what an individual actually does in clinical practice. The terms "performance" and "competency" are often used interchangeably.

3. **What is performance based assessment of curriculum?**

Performance based assessment measures students' ability to apply the skills & knowledge learned from a unit of study.

4. **What is work place based assessment of curriculum**?

The apprenticeship model of medical training has existed for thousands of years: the apprentice learns from watching the master and the master in turn observe the apprentice's performance & helps them improve. Performance assessment not therefore a new concept higher

work in modern healthcare environment with its discourse of accountability, performance assessment increasing role In ensuring that professionals develop and maintain the knowledge and skills required for practice. However now it will be done in a structured manner.

5. **What is a Formative Assessment?**
   - Such an Assessment which creates learning itself, from one's deficiencies.
   - It is non-threatening for the students because it does not decide pass or fail.
   - Provision of Feed back to the students is essential component of Formative Assessment
6. **What is a Summative Assessment?**
   - Criteria Based High Stake Examinations
   - Provision of Feedback to the students is not essential for Summative Examinations
7. **What is continuous Internal Assessment?**

A collection of Formative Assessments is called Continuous Internal Assessment

What is the basis of curriculum and Assessment of MD Emergency Medicine of Rawalpindi Medical University Rawalpindi?

The curriculum of MD Emergency Medicine of Rawalpindi Medical University Rawalpindi is derived from **Accreditation Council for Graduate Medical Education** which is competency / performance based system depends upon six following competencies.

1. **Medical Knowledge**
2. **Patient Care**
3. **Interpersonal & Communication Skills**
4. **Professionalism**
5. **Practice Based Learning**
6. **System Based Learning**

Rawalpindi Medical University Rawalpindi has incorporated one additional component in this basic structure of six core competencies

7. **Research**

Model of examination for MD Emergency Medicine Residency program

Distribution of weightage (if we consider total marks as 100) among various desired competencies of RMU Emergency Medicine MD curriculum:

1. Medical knowledge	40% both
2. Patient care	
3. Interpersonal & communication skills	40% both
4. Professionalism	
5. Practice based learning	10% both
6. System based learning	
7. Research	10%

CONTINUOUS INTERNAL ASSESSMENT:

Competencies included CIA	Phases of CIA	Time Line for end of various phases of CIA	Weightage of CIA	Tools for Assessment of CIA
1. **Medical knowledge** 2. **Patient care (40% both)** 3. **Interpersonal & communication skills** 4. **Professionalism (40% both)** 5. **Practice based learning** 6. **System based learning (10% both)** 7. **Research 10%)**	Phase -1 ➢ CIA Year 1 ➢ CIA Year 2	till end of Year 2	Equal to or more than 75% of the total marks of all formative assessments/ 360^{o} Evaluations	• Multi source feedback/360 degree evaluation • MCQs for knowledge • Mini-CEX • Case based discussion • CPC presentations • OSCE • Charts stimulated recall • Teaching rounds • Directly observed procedures • Research activities
	Phase -2 ➢ CIA Year 3 ➢ CIA Year 4 ➢ CIA Year 5 for five year training program	till end of Year 4 Or Year 5 for 5 year training program	Equal to or more than 75% of the total marks of all formative assessments/ 360^{o} Evaluations	

COMPETENCIES REQUIRED FOR MD EMERGENCY MEDICINE

Sr. No	Competency to be assessed	Teaching & learning strategies	Type of Assessment for the competency to be assessed	% weightage of the competency	Tools of Assessment
1.	Medical knowledge	Case based discussion & problem based learning, large group interactive session, self-directed learning, teaching rounds, and literature search.	Formative Assessment leading to continue internal assessment and also summative assessment in high stake exams	40% for both Medical Knowledge and Patient Care both	MCQs, SEQs, Directly observe procedure, mini clinical examinations, charts, OSCE, teaching ward rounds, case discussion, seminars, topic presentation
2.	Patient care	Case based discussion, teaching rounds, morbidity & mortality meetings, 360^0 feedback evaluation, DOPS, long case/ short case discussions Filter clinic, emergency indoor workshops, hands on trainings.	Formative assessment leading to continue internal assessment and also summative assessment in high stake exams		Teaching rounds, case base discussion, presentations, CPC participations, clinical management, problem base learning, peer assisted learning, dealing with paramedics & patient attendants
3.	Professionalism	Teaching rounds, known conferences, workshops, hands on training, CPC, morbidity & mortality meetings, journal club	Formative assessment leading to continue internal assessment	40% for both professionalism & interpersonal communication skills both	Working in Filter clinic, wards, emergency DOPs, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination
4.	Interpersonal & communication skills	Teaching rounds, hands on training, workshops related to research methodology, SPSS, data entry, LGIS, session with supervisor & mentors, session	Formative assessment leading to continuous internal assessment		Multi source & 360 degree evaluation.

		with research units, SDL,			
5.	Practice based learning	Case based discussion, teaching rounds, known conferences, morbidity & mortality meetings, Filter clinic, emergency indoor workshops, hands on trainings.	Formative assessment leading to continuous internal assessment Multi source & 360 degree evaluation (Logbook & portfolio)	10% both Practice Based Learning & System Based Learning both	Working in Filter clinic, wards, emergency DOPs, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination
6.	System based learning	Working in wards, Filter clinic, Emergency	Formative assessment leading to continuous internal assessment Multi source & 360 degree evaluation (Logbook & portfolio)		Working in Filter clinic, wards, emergency DOPs, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination

SUMMARY OF ALL ASSESSMENTS IN FIVE YEAR TRAINING PROGRAM OF MD EMERGENCY MEDICINE:

S.NO.	**Year of Examinationon**	**Name of Examination & type of Assessment**	**Competencies to be Assessed with weightage**	**Eligibility criteria**	**Pass Marks required**	**Total No. of Examinations**
1	During training of Year -1	End of Rotation Formative Assessment /Evaluations (Formative Assessment)	1. Medical knowledge 2. Patient care (40% both) 3. Interpersonal & communication skills 4. Professionalism (40% both) 5. Practice based learning 6. System based learning (10% both) 7. Research (10%)	75% or above of CIA the total marks will be considered as eligible	Not applicable as it is a Formative Assessment	04 evaluations in one year (total evaluations in four years =16 & in five years

2	At the End of Year 1	In Training -Assessment year1 (Summative Assessment)		1. Submission of certificates of completion of the Following Mandatory workshops: Communication skills 3 days Computer & IT skills 3 days Synopsis writing 3 days Basic Life Support 2 days 2. Submission of certificate of approval of Research Topic/Affidavit that if certificate of approval of Research Topic will not be provided within 30 days of submission of Application for in training examination no.1, the candidate will not be allowed to take examination. 3. Publication of one article in Resident Research Journal (for five year training program only) 4. OR Statistical report of one disease (for five year training program only) 5. Completed and Duly signed Log Book for year one 6. Completed and duly signed Portfolio for year one 7. Submission of certificate of Continuous Internal Assessment for year one: Equal to or More than 75% (a cumulative score of the year one) 8. Certificate of completion of First year Training duly signed by the Supervisor 9. Submission of evidence of payment of examination Fee for year-1 examination 10. Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. for year one of training	Details Described at the end 50% pass marks	02 Examination in four years training program & 03 Examinations in Five years training program

3	During training of Year -2	End of Rotation Formative Assessment /Evaluations (Formative		75% or above of CIA the total marks will be considered as eligible	Not applicable as it is a Formative Assessment	04 evaluations in one year (total evaluations in four years =16 &
4	At the end of Year-2	Mid Training Assessment Equivalent to Intermediate Module Examination (Summative Assessment)		1. Submission of Pass Result of Examination of Year-1 2. Submission of certificates of completion of the Following Mandatory workshops: Research methodology & Biostatistics---3 days Professionalism----2 days, SPSS (Statistical Package for Social Sciences) 2 days 3. Submission of certificate of approval of Research Protocol/Synopsis or undertaking /Affidavit that if approved synopsis will not be provided within 30 days of submission of Application for Intermediate Module Examination, the candidate will not be allowed to take examination. 4. Publication of one article in Resident Research Journal (for five year training program only) 5. OR Statistical report of one disease (for five year training program only) 6. Completed and Duly signed Log Book for year one and two 7. Completed and duly signed Portfolio for year one and two Submission of certificate of Continuous Internal Assessment for year one: Equal to or More than 75% (a cumulative score of the year one and two both) 9. Certificate of completion of second year of Training duly signed by the Supervisor	Details Described at the end 60% pass marks	01

				10. Submission of evidence of payment of examination Fee for intermediate Module Examination: Examination Fee once deposited cannot be refunded/carried over the next examination under any circumstances 11. Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. for year two of training		
5	During training of Year -3	End of Rotation Formative Assessment /Evaluations (formative Assessment)		75% or above of CIA the total marks will be considered as eligible	Not applicable as it is a Formative Assessment	04 evaluations in one year (total evaluations in four years =16 & in five years =20

6	At the end of Year - 3	In Training -Assessment year 3 (Summative Assessment)		1. Submission of Pass result Mid Training Examination 2. Submission of certificates of completion of the Following Mandatory workshops :Reference Manager (Endnote)--- 1 day Mandalay_1 day 3. Submission of certificate of verification of Data Collection or undertaking /Affidavit that if the certificate of verification of Data Collection will not be provided within 30 days of submission of Application for in training examination no.2, the candidate will not be allowed to take examination. 4. Publication of one article in Resident Research Journal (for five year training program only) 5. OR Statistical report of one disease (for five year training program only) 7. Completed and Duly signed Log Book for year three 8. Completed and duly signed Portfolio for year three 9. Submission of certificate of Continuous Internal Assessment for year three: Equal to or More than 75% (a cumulative score of the year three) 10. Certificate of completion of third year of Training duly signed by the Supervisor 11. Submission of evidence of payment of examination Fee for in training examination no.2: Examination Fee once deposited cannot be refunded/carried over the next examination under any circumstances 12. Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc.	Details Described at the end 50% Pass marks	02 Examination in four years training program & 03 Examinations in Five years training program

7	During training of Year -4	End of Rotation Formative Assessment /Evaluations (Formative Assessment)		75% or above of CIA the total marks will be considered as eligible	Not applicable as it is a Formative Assessment	04 evaluations in one year (total evaluations in four years =16 & in five years =20)
8	At the end of year-4	Final Assessment for four year program (Summative Assessment)		1. Submission of Pass result of In Examination year-3 2. Submission of certificates of completion of the workshops: 3. Can attend any required workshop optionally if He or She wants and can submit the certificate 4. Submission of certificate of approval of Thesis or undertaking /Affidavit that if approved synopsis within 30 days of submission of Application for Final Examination, the candidate will not be allowed to take examination. 5. Publication of one article in Resident Research Journal (for five year training program only) OR Statistical report of one disease (for five year training program only) 6. Completed and Duly signed Log Book for year three and four 7. Completed and duly signed Portfolio for year three and four	Details Described at the end 60% Pass marks	01

				6. Submission of certificate of Continuous Internal Assessment for year three and four: Equal to or More than 75% (a cumulative score of the year three and four) 7. Certificate of completion of Fourth year of Training duly signed by the Supervisor 8. Submission of evidence of payment of examination Fee for Final Examination: Examination Fee once deposited cannot be refunded/carried over the next examination under any circumstances 9. Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. For year four only		
Grand total of All Assessments for Four Year Training Program Grand total of All Assessments for Five Year Training Program One Additional Assessment at the End of Year 4 with same pattern as end of year 1 & 3 Assessments						

Details about Content, number of questions (MCQs &SEQs) and Marks of various High Stake/ Summative Examinations

<table>
<tr><th>Name of examination</th><th>Content</th><th>Eligibility criteria</th><th>Questions MCQs/SEQs/OSCE</th></tr>
<tr>
<td>In Training - Assessment year-1 (at the end of year 1)</td>
<td>1. Fundamental Principles Of Emergency Medicine
2. Core clinical competencies (history taking/examination etc.)
3. Core Professional Competences
4. Adult Major/Acute presentations-SYMPTOMS, SIGNS & SITUATIONS – ANALYSIS AND INTERPRETATIONS
(Pain, Abnormal Vital Signs ,Bleeding
Abnormal Physical and Mental Status Findings, Abnormal Blood and Urine Test Results, Exposure to External Factors)
5. Interpretation of findings
6. Interpretation of investigations
7. Differential diagnosis
8. Fluid & Electrolyte & shock Management</td>
<td>i. Completion of 1 year training
ii. Workshops completion
• Communication skills 3days
• Computer &IT skills 3days
• Synopsis writing 3days
• BLS 1 days
iii. Research
• Allotment of Thesis topic by supervisor
• Publication of one article in Resident Research Journal OR Statistical report of one disease
iv. CIS- Minimum 75% marks- Certification by DME and Supervisor/s
Special note:
Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC</td>
<td>A. Written Assessment for year -1 total marks 100 (100clinical / Applied Basic Sciences MCQs)
(Pass percentage: 50%)

B - Table of Specification for written Assessment
<table>
<tr><th>Sr.no
Discipline</th></tr>
<tr><td>1. Fundamental Principles OfEmergency Medicine
2. Core clinical competencies (history taking/examinationetc.)
3. Adult Major / Acute presentations Symptoms, Signs & Situations – Analysis
4. Interpretation of findings
5. Interpretations ofinvestigations
6. Differential Diagnosis
7. BLS
8. Fluid, electrolytes & shockmanagement
9. Core Professional Competences</td></tr>
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<table>
<tr>
<td>Mid Training Assessment Examination equivalent to Intermediate Modular Exam (at the end of year 2)</td>
<td>1. TRIAGE & RESUSCITATION
2. Disaster management
3. Principles and practice of anaesthesia in EM
4. Principle and practice of Intensive care medicine
5. Paediatric major presentations
6. Paediatric Acute Presentations
7. Adult Major presentations
8. Specific aspects of emergency medicine</td>
<td>Completion of 2 year training
Passed Year One examination iii-Rotations completion
Essential Training (to be completed in first 24 months)
• Emergency Medicine
• 6 Months - Trauma (Gen. Surgery, Orthopaedics, Neurosurgery, Plastics, Paeds Surgery)
• 6 Months - Acute Medicine(G.Medicine, Gstroentrology, Nephrology)
• 4 Months - Paeds EM
Ancillary Training
• 4 Months - Intensive Care Medicine(ICU,CCU)
• 4 Months - Anesthesiology
Workshops completion
• ATLS
• ACLS
• PEADRIATIC LIFE SUPPORT
Research:
Formulation of research synopsis with approval of ERB & BASR by the end of 2nd year
Certificate will be issued by UTMC
CIS- Minimum 75% marks minimum 75% marks-Certification by DME and Supervisor/s
Special note:
Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC</td>
<td>A – Mid Training Assessment(total marks = 300) B - Written Assessment (150 marks)
Two papers of case based 75 MCQs total marks 150
(Pass percentage = 60%)

C- Table of Specification for paper I & II
PAPER-I
<table>
<tr><td>1. Triage & Resuscitation
2. Disaster management
3. Fundamental Principles OfEmergency Medicine
4. Adult Major presentations Symptoms, Signs & Situations –Analysis
5. Interpretation of findings
6. Interpretation of investigations
7. Differential Diagnosis
PAPER –II
1. Principles and practice ofanaesthesia in EM
2. Principle and practice ofIntensive care medicine
3. Paediatric major/ Acutepresentations
4. Specific aspects of emergency medicine
5. Core professional competences
6. .BLS/ACLS/ATLS/PLS</td></tr>
<tr><td>On passing the theory (60% pass percentage), trainee will be eligible to appear in practical exam.</td></tr>
</table>
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<table>
<tr>
<td>In Training - Assessment year-3 (at the end of year 3)</td>
<td>1. Adult major presentations
2. Adult Acute presentations
3. Paediatric major presentations
4. Paediatric Acute presentations</td>
<td>i. Completion of 3rd year training
ii. Passed Intermediate examination
iii. Workshops completion
• REFERENCE MANAGER (ENDNOTE)--- 1 DAY
• DISASTER MANAGEMENT—1 day
• TIME AND WORKLOAD MANAGEMENT---1 day
iv. Research
• data collection
v. Publication of one article in resident research journal or statistical report of 11 disease(optional)
vi. CIS MINIMUM75 % marks minimum 75% marks certification by DME and Supervisors/s
Special note:
Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC</td>
<td>A- Written Assessment (100 marks)
➢ 100 MCQs total marks 100
(100 clinical MCQs)
(Pass percentage = 50%) B- Table of Specification
<table>
<tr><th>Sr.no</th><th>Discipline</th><th>MCQs</th></tr>
<tr><td>1.</td><td>Adult Acute presentations Symptoms, Signs & Situations –Analysis & management</td><td>25 MCQs</td></tr>
<tr><td>2.</td><td>Paediatric Acute presentations Symptoms, Signs & Situations –Analysis</td><td>25 MCQs</td></tr>
<tr><td>3.</td><td>Triage & Resuscitation</td><td>10 MCQs</td></tr>
<tr><td>4.</td><td>Disaster management</td><td>5 MCQs</td></tr>
<tr><td>5.</td><td>Principles and practice of anaesthesia in EM</td><td>10 MCQs</td></tr>
<tr><td>6.</td><td>Principle and practice of Intensive care medicine</td><td>10 MCQs</td></tr>
<tr><td>7.</td><td>Core Professional Competences</td><td>5 MCQs</td></tr>
<tr><td>8.</td><td>BLS/ACLS/ATLS/PLS</td><td>10 MCQs</td></tr>
</table>
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<table>
<tr>
<td>In Training - Assessment year-4 (at the end of year 4)</td>
<td>1. Adult major presentations
2. Adult Acute presentations
3. Paediatric major presentations
4. Paediatric Acute presentations
5. Major Trauma
6. OBS/ GYNAE</td>
<td>iCompletion of 4th year training
ii.Passed 3rd year examination
iii.Workshops completion
• Basic Surgical Skills -1 Day
•
iv.Research
•data analysis & interpretation
•start writing thesis
v.Publication of one article in resident research journal or statistical report of 1 disease(optional)
vi. CIS MINIMUM75 % marks minimum 75% marks certification by DME and Supervisors/s
Special note:
Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTM</td>
<td>A- Written Assessment (100 marks)
➢ 100 MCQs total marks 100 (100 clinical MCQs)
(Pass percentage = 50%)

B- Table of Specification
<table>
<tr><th>Sr.no</th><th>Discipline</th><th>MCQs</th></tr>
<tr><td>1.</td><td>Adult Acute presentations</td><td>15 MCQs</td></tr>
<tr><td>2.</td><td>Core professional competencies</td><td>15 MCQs</td></tr>
<tr><td>3.</td><td>Major Trauma/ATLS</td><td>20 MCQs</td></tr>
<tr><td>4.</td><td>Paediatric Acute Presentations</td><td>10 MCQs</td></tr>
<tr><td>5.</td><td>Triage & Resuscitation</td><td>10 MCQs</td></tr>
<tr><td>6.</td><td>Emergencies in OBS/ GYNAE</td><td>10 MCQs</td></tr>
<tr><td>7.</td><td>Principles and practice of anaesthesia in EM</td><td>5 MCQs</td></tr>
<tr><td>8.</td><td>Principle and practice of Intensive care medicine</td><td>5 MCQs</td></tr>
<tr><td>9.</td><td>Core Professional Competences</td><td>5 MCQs</td></tr>
<tr><td>10.</td><td>BLS/ACLS</td><td>5 MCQs</td></tr>
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<table>
<tr>
<td>Final Assessment (at the end of year 5)</td>
<td>Whole of syllabus of Emergency Medicine(PGY1-4) Along with
1. Point-of-care ultrasound
2. Basic principles of radiology
3. Urological emergencies
4. Ophthalmology,
5. Otorhinolaryngology
6. Specific aspects of emergency medicine</td>
<td>i- Completion of 5th year training ii- Passed 4th year examination iii- Research/Thesis
• Completion & submission of Thesis 6 months before completion of training
• Defense & Approval of Thesis in BASR
• Certificate will be issued by UTMC
iv- TRAINING REQUIREMENT (must be completed in 36 months i.e PGY 3-5)
Essential Training
• 6 Months - Peads EM
• 8 Months - Acute Medicine(G.Medicine, Gstroentrology, Nephrology)
• 8 Months - Trauma (Gen. Surgery, Orthopedics, Neurosurgery, Plastics, Paeds Surgery)
Ancillary Training
• 2 Months – Radiology
• 2 Months - Anesthesiology
• 2 Months - Intensive Care Medicine
• 1 Month - Ophthalmology
• 1 Month - Otorhinolaryngology
• 1 Month - Urology
• 1 Months - OB/GYN</td>
<td>(Total Marks = 800)
A. Written Assessment (200 marks)
PAPER-I- Case Based 100MCQs---(100 marks) (clinical MCQs of C3 level)
PAPER-II 10SEQs (100marks)
(Pass percentage = 60%)

B- Table of Specification for paper I & II
<table>
<tr><th>S.No</th><th>DISCIPLINE</th><th>MCQs</th><th>SEQ</th></tr>
<tr><td>1.</td><td>Point-Of-Care Ultrasound</td><td>5 MCQs</td><td rowspan="2">1 SEQ</td></tr>
<tr><td>2.</td><td>Basic principles & practice of Radiology</td><td>5 MCQs</td></tr>
<tr><td>3.</td><td>Urological emergencies</td><td>3 MCQs</td><td rowspan="4">2 SEQ</td></tr>
<tr><td>4.</td><td>Emergencies in opthalmology</td><td>3 MCQs</td></tr>
<tr><td>5.</td><td>Emergencies in Otorhinolaryngology</td><td>3 MCQs</td></tr>
<tr><td>6.</td><td>Emergencies in OBS/ GYNAE</td><td>3 MCQs</td></tr>
<tr><td>7.</td><td>Adult Major & Acute presentations</td><td>25 MCQs</td><td>2 SEQs</td></tr>
<tr><td>8.</td><td>Paediatric Major &Acute Presentations</td><td>25 MCQs</td><td>2 SEQs</td></tr>
<tr><td>9.</td><td>Triage & Resuscitation</td><td>10 MCQs</td><td rowspan="3">From number 9-15</td></tr>
<tr><td>10</td><td>Major Trauma/ATLS</td><td>8 MCQS</td></tr>
<tr><td>11</td><td>Principles and</td><td></td></tr>
</table>
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		• 2 week - Emergency Medical Services • 2 week - Toxicology including Forensic Medicine • Research- 1 Months - Research Project (Thesis) / Medical Education **V**.CIS Minimum 75% marks- Certification by DME and Supervisor/s **Special note:** Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC		practice of anaesthesia in EM	5 MCQS	three SEQs will be made
			12	Principle and practice of Intensive care medicine	5 MCQS	
			13	Core Professional Competences	3 MCQS	
			14	BLS/ACLS	5 MCQS	
			15	Specific Aspects Of Emergency Medicine	2 MCQs	

C- Clinical Assessment (500marks)

On passing the theory, trainee will be eligible to appear in practical exam. Pass marks 60%.

- Four short cases total 200 marks (each of 50marks)
- One long case100marks
- OSCE (15-20 stations) 200 marks

D- Defense of Thesis (100 marks)

- On passing the theory, trainee will be eligible to appear in defense of thesis.
  - Power Point presentation : 30 marks
  - Discussion session :70 marks

  (Pass percentage = 60%)

Format of defense of thesis

- Panel of 2 examiner's including one internal & one external/guest examiner
- Power point presentations of 30 min regarding his/her research project ,including major outcomes of discussion also
- This will be followed by interactive discussion session/Q&A sessions of 1 hour.

TABLE OF SPECIFICATION FOR EMERGENCY MEDICINE & ALLIED MID TRAINING ASSESSMENT

BLOOM'S TAXONOMY

Various Levels of Cognition, Psychomotor & Attitude Domains Are Provided Here For Better Understanding Regarding Table of Specification of OSCE

Cognitive	Affective	Psychomotor
Knowledge	Attitude	Skills
Recall Data	Receive (Awareness)	Imitation (Copy)
Understand	Respond (React)	Manipulation (Follow Instructions)
Apply (Use)	Value (Understand and Act)	Develop Precision
Analyse (Structure/Elements)	Organise Personal Value System	Articulation (Combine, Integrate Related Skills)
Sythesise (Create/Build)	Interalise Value System (Adopt Behaviour)	Naturalisation (Automate, Become Expert)
Evaluate (Assess, Judge in Relational Terms)		

MID TRAINING MODEL

Sr.no	Discipline	Paper	MCQs Total Marks 150	OSCE Total marks 150 Total number of stations – 15		Types of stations • 11-Interactive • 4-Non-interactive Time allocation for each station – 5 minutes Marks allocation for each station – 10 mark
				Station	**Domain**	
1.	Triage & Resuscitation	Paper –I	15 MCQs	1,2	**This discipline has two OSCE STATIONS** • Interpretation of ECG- static station • (scenario – Major trauma) Interactive Station	
2.	Disaster management		5 MCQs	3.	Scenario- disaster situation - interactive station	
3.	Fundamental Principles Of Emergency Medicine		5 MCQs	4.	(Case scenario- Gastroenterology/Infectious Diseases) Interactive Station	
4.	Adult Major presentations Symptoms, Signs & Situations –Analysis		15 MCQs	5.	(scenario - complex challenging situation) Interactive Station	
5.	Interpretation of findings		10 MCQs	6.	Short Case- surgical /medical emergency – interactive station	
6.	Interpretation of investigations		10 MCQs	7	(Medical Emergency – complex challenging situation) - Interactive Station	
7.	Differential Diagnosis		10 MCQs	8	Short Case- surgical /medical emergency – interactive station	
8.	Principles and practice of anaesthesia in EM	Paper –II	15 MCQs	9	Scenario- Surgical emergency – pre-operative assessment of pt. - interactive station	
	Principle and practice of Intensive care medicine		15 MCQs	10	Scenario- Complex medical emergency – Multi organ failure- Interactive Station	
9.	Paediatric major/ Acute presentations		15 MCQs	11	Scenario- Complex pediatric emergency - Interactive Station	
10.	Specific aspects of emergency medicine		10 MCQs	12	Scenario - Specific aspects of emergency medicine- interactive station	
11.	Core professional competences		10 MCQs	13	Counseling Station	
12.	BLS/ACLS/ATLS/PLS		15 MCQs	14-15	Hands on - ACLS– interactive station	
					Hand on – ATLS—PLS- interactive station	

SECTION-VII
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SECTION –XI
APPENDICE

Workplace Based Assessments- Appendix "A"

Summative Mini Clinical Evaluation Exercise (Mini-CEX)Assessment Form

Name of trainee				Year of training	
Assessor name				Reg'n no.	
Grade of Assessor				Date	
Case discussed (brief description)			Diagnosis		
Focus of assessment					
History	Examination		Diagnosis	Management	Communication
Please TICK to indicate the standard of the trainee's performance in each area	Not observed	Further core learning needed	Demonstrates good practice		Demonstrates excellent practice
			Must address learning points highlighted below	Should address learning points highlighted below	
Initial approach					
History and Information gathering					
Examination					
Investigation					
Clinical decision making and judgment					

Communication with patients, relatives, staff					
Overall plan					
Professionalism					
For Summative Mini-CEX				**Unsuccessful**	**Successful**
Things Learning done particularly well					
points					
Action points					
Assessor signature			Trainee signature		

Summative Case-Based Discussion (CbD) Form

Name of trainee				Year of training	
Assessor name				Reg'n no.	
Grade of Assessor				Date	
Case discussed (brief description)			Diagnosis		
Please TICK to indicate the standard of the trainee's performance in each area	Not observed	Further core learning needed	Demonstrates good practice: Must address learning points highlighted below	Demonstrates good practice: Should address learning points highlighted below	Demonstrates excellent practice
Record keeping					
Review of investigations					
Diagnosis					
Treatment					
Planning for subsequent care(inpatient or discharged)					
Clinical reasoning					
Patient safety issues					
Overall clinical care					
Summative CbD				**Satisfactory**	**Unsatisfactory**
Things done particularly well					

Learning points	
Action points	
Assessor signature	Trainee signature

Formative Mini-Clinical Evaluation Exercise (Mini-CEX)assessment tool

Name of trainee				Year of training	
Assessor name				Reg'n no.	
Grade of Assessor				Date	
Case discussed (brief description)				Diagnosis	
Focus of assessment					
History	Examination	Diagnosis		Management	Communication
Please TICK to indicate the standard of the trainee's performance in each area	Not observed	Further core learning needed	Demonstrates good practice: Must address learning points highlighted below	Demonstrates good practice: Should address learning points highlighted below	Demonstrates excellent practice
Initial approach					
History and Information gathering					
Examination					
Investigation					
Clinical decision making and judgment					
Communication with patients, relatives, staff					
Overall plan					
Professionalism					

Things done particularly well	
Learning points	
Action points	
Assessor signature	Trainee signature

Formative Case-based Discussion (CBD) Form

Name of trainee				Year of training	
Assessor name				Reg'n no.	
Grade of Assessor				Date	
Case discussed (brief description)			Diagnosis		
Please TICK to indicate the standard of the trainee's performance in each area	Not observed	Further core learning needed	Demonstrates good practice		Demonstrates excellent practice
			Must address learning points highlighted below	Should address learning points highlighted below	
Record keeping					
Diagnosis					
Treatment					
Planning for subsequent care(inpatient or discharged)					
Clinical reasoning					
Patient safety issues					
Overall clinical care					

Things done particularly well	
Learning points	
Action points	
Assessor signature	Trainee signature

Direct Observation of Procedures (DOPS) Form

Name of trainee					
Assessor name				Reg'n no.	
Grade of Assessor				Date	
Procedure observed (including indications)					
Please TICK to indicate the standard of the trainee's performance in each area	Not observed	Further core learning needed	Demonstrates good practice		Demonstrates excellent practice
			Must address learning points highlighted below	Should address learning points highlighted below	
Indication for procedure discussed with assessor					
Obtaining informed consent					
Appropriate preparation including monitoring, analgesia, sedation					
Technical skills and aseptic technique					
Situation awareness and clinical judgement					
Safety, including prevention and management of complications					
Care/ investigations immediately post procedure					

Professionalism, communications and consideration for patient, relatives and staff					
Documentation in the notes					
Completed task appropriately					
Things done particularly well					
Learning points					
Action points					
Assessor signature			Trainee signature		

Audit Assessment (AA) Tool

Name of trainee					
Assessor name				Reg'n no.	
Grade of Assessor				Date	
Basis for assessment e.g. presentation, report					
Title of audit					
Brief description					
Please TICK to indicate the standard of the trainee's performance in each area	Not discussed	Further core learning needed	Demonstrates good practice		Demonstrates excellent practice
			Must address learning points highlighted below	Should address learning points highlighted below	
Trainee has a good understanding of the audit cycle					
Audit was appropriately plannedwith clear objectives					
Appropriate preparation including monitoring, analgesia, sedation					
Technical skills and aseptic technique					
Situation awareness and clinical judgement					
Safety, including prevention and management of complications					

Care/ investigations immediately post procedure					
Professionalism, communications and consideration for patient, relatives and staff					
Documentation in the notes					
Completed task appropriately					
Things done particularly well					
Learning points					
Action points					
Assessor signature			Trainee signature		

Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Senior)PGT, MO, HO

Proforma

Reviewer		Evaluation for	
Name:		Name:	
Designation:		Designation:	

Performance ratings Assessment Date: _____

The following guidelines are to be used in selecting the appropriate rating:1=Never 2= Rarely 3= Occasionally

4= Frequently 5= Always 6= Not Applicable

1. Patients Care

   Implements the highest standards of practice in the effective and timely treatment of all patients regardless of gender, ethnicity, location, or socioeconomic status.

   1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

2. Medical Knowledge

   Keeps current with research and medical knowledge in order to provide evidence-based care.

   1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

3. Interpersonal and Communication Sills

   Works vigorously and efficiently with all involved parties as patient advocate and/or consultant.

   1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

4. Practice based Learning and Improvement

Assesses medical knowledge and new technology and implements best practices in clinical setting.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

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5. Professionalism

Displays personal characteristics consistent with high moral and ethical behavior.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

---

6. Systems Based Practice

Efficiently utilizes health-care resources and community systems of care in the treatment of patients.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

Reference: Competencies identified by ACGME & ABMS
ACGME Accreditation Council for graduate medical
educationABMS American Board of Medical Specialties

Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Colleague)PGT, MO,
HO Proforma

Reviewer

Name:

Designation:

Evaluation for

Name:

Designation:

Performance ratings

Assessment Date: _____

The following guidelines are to be used in selecting the appropriate rating:1=Never 2= Rarely 3= Occasionally
4= Frequently 5= Always 6= Not Applicable

1. He/she is often late to work?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

2. He/she meets his deadlines oftenly?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

3. He/she is willing to admit the mistakes?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

4. He/she communicates well with others?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

5. He/she adjusts quickly to changing Priorities?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

6. He/she is hardworking?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

7. He/she works well with the other colleague?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

8. He/she co-worker behave professionally?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

9. He/she co-worker treat you, respect fully?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

10. He/she co-worker handles criticism of his work well?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

11. He/she follow up the patient's condition quickly?

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

Reference: http://www.surveymonkey.com/r//360-Degree-Employee-Evaluation-Template

Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (Self-Assessment)PGT, MO, HO Proforma

Reviewer

Name:

Designation:

Evaluation for

Name:

Designation:

Performance ratings

Assessment Date: _____

The following guidelines are to be used in selecting the appropriate rating:

1=Poor 2= Less than Satisfactory 3= Satisfactory

4= Good 5= Very Good 6= Don't know

1. Clinical knowledge

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

2. Diagnosis

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

3. Clinical decision making

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

4. Treatment (including practical procedures)

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

5. Prescribing

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

6. Medical record keeping

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

7. Recognizing and working within limitations

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

8. Keeping knowledge and skills up to date

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

9. Reviewing and reflecting on own performance

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

10. Teaching (student, trainees, others)

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

11. Supervising colleagues

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

12. Commitment to care and wellbeing of patients

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

13. Communication with patients and relatives

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

14. Working effectively with colleagues

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

15. Effective time management

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

Reference: www.gmc-uk.org

Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Paramedical Staff)PGT, MO, HO Proforma

Reviewer

Name:

Designation:

Evaluation for

Name:

Designation:

Performance ratings

Assessment Date: _____

☐ کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگونہیں

1۔مریض کی تشخیص بالکل ٹھیک کرتا/ کرتی ہے۔

☐ کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگونہیں

2۔دستاویزات وقت پر تیار ہوتے ہےاوراُس پرعمل کرنے میں آسانی ہوتی ہے۔

☐ کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگونہیں

3۔ٹیم ورک کواہمیت دیتا/دیتی ہے۔

☐ کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگونہیں

4۔موقع ملنے پرعملہ اور طالب علم کوتعلیم دیتا/دیتی ہے۔

☐ کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگونہیں

5۔عملہ کی بات پرجلدی جواب دیتا/دیتی ہے۔

☐ کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگونہیں

Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Attendant)PGT, MO,
HO Proforma

Reviewer

Name:

Designation:

Evaluation for

Name:

Designation:

Performance ratings

Assessment Date: _____

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

1۔ ڈاکٹر نے مریض کی صورتحال تشخیص ور تفصیل سے بتائی ہے۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

2۔ ڈاکٹر نے اپنی پریشانی بتانے کے لئے مجھے حوصلہ دیا۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

3۔ ڈاکٹر نے عزت سے میرا علاج کیا۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

4۔ ڈاکٹر نے مجھے جو تفصیلات بتائیں وہ آسانی سے سمجھ آ گئی۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

5۔ ڈاکٹر نے میرے احساسات کا خیال رکھا۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Patient)PGT, MO,

HO Proforma

Reviewer

Name:

Designation:

Evaluation for

Name:

Designation:

Performance ratings

Assessment Date: _____

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

1۔ڈاکٹر نے آپ کا معائنہ عزت اور احترام سے کیا ہے۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

2۔ڈاکٹر نے آپ کی بیماری کے متعلق آپ کو روکے ٹوکے بغیر تسلی سے سنا۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

3۔ڈاکٹر نے آپ کی بات بہت توجہ سے سنی۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

4۔ڈاکٹر نے آپ کی زندگی کے متعلق تفصیل سے سوالات کیئے۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

5۔ڈاکٹر نے آپ کے حدشات کو اچھی طرح سمجھا ہے۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

6۔ڈاکٹر نے مجھے بیماری سے متعلق تفصیل اور وضاحت سے آگاہ کیا ہے۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

7۔ڈاکٹر نے مجھے بیماری سے متعلق صحیح فیصلہ کرنے میں مدد کی۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

8۔ڈاکٹر نے بیماری کے علاج کا لائحہ عمل بنانے میں مجھے شامل کیا۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

Resident Evaluation by Nurse/ Staff for core competencies **Appendix "B"**

Please take a few minutes to complete this evaluation form. All information is confidential and will be usedconstructively. You need not answer all the questions.

Name of Resident_____ Location

of care or interaction_____

(For example OPD/Ward/Emergency/Endoscopy Department)

Your position (for example: nurse, ward servant, endoscopy attendant)_____

S #	Professionalism	Poor	Fair	Good	V.Good	Excellent	Insufficient Contact
1	Resident is Honest and trustworthy						
2	Resident treats patients and families with courtesy, compassion and respect						
3	Resident treats me and other memberof the tream with courtesy and respect						
4	Resident shows regard for my opinions						
5	Resident maintains a professional manner and appearance						
Interpersonal and communication skills							
6	Resident communicates well with patients, families, and members of thehealthcare team						
7	Resident provides legible and timely documentation						
8	Resident respect differences in religion, culture, age, gender, sexual						

	orientation and disability						
System based practice							
9	Resident works effectively with nursesand other professionals to improve patient care						
Patient Care							
10	Resident respects patient preferences						
11	Resident take care of patient comfortand dignity during procedures						
Practice based learning and improvement							
12	Resident facilitates the learning of students and other professionals						
Comments							
13	Please describe any praises or concerns or information about specificincidents						
Thanks you for your time and thoughtful input. You play a vital role in the education and training of the EMERGENCYmedicine resident							

Poor: 0, Fair: 1, Good:2, V.Good: 3, Excellent: 4

Total Score_____/52

Evaluation of Patient Medical Record/ Chart Evaluation Proforma **Appendix "C"**

Name of Resident _____

Location of Care or Interaction_____-
(OPD/Ward/Emergency/Endoscopy Department)

S#		Poor	Fair	Good	V. Good	Excellent
1.	Basic Data on Front Page Recorded	O	O	O	O	O
2.	Presenting Complaints written in chronological order	O	O	O	O	O
3.	Presenting Complaints EvaluationDone	O	O	O	O	O
4.	Systemic review Documented	O	O	O	O	O
5.	All Components of History Documented	O	O	O	O	O
6.	Complete General Physical Examination done	O	O	O	O	O
7.	Examination of all systems documented	O	O	O	O	O
8.	Differential Diagnosis framed	O	O	O	O	O
9.	Relevant and required investigations	O	O	O	O	O

	documented					
10.	Management Plan framed	O	O	O	O	O
11.	Notes are properly written andeligible	O	O	O	O	O
12.	Progress notes written in organizedmanner	O	O	O	O	O
13.	Daily progress is written	O	O	O	O	O
14.	Chart is organized no loose paper	O	O	O	O	O
15.	Investigations properly pasted	O	O	O	O	O
16.	Abnormal findings in investigationsencircled.	O	O	O	O	O
17.	Procedures done on patient documented properly	O	O	O	O	O
18.	Medicine written in capital letter	O	O	O	O	O
19.	I/v fluids orders are proper with rateof infusion mentioned	O	O	O	O	O
20.	All columns of chart complete	O	O	O	O	O

***Poor**: 0, **Fair**: 1, **Good**: 2, **V.Good**: 3, **Excellent**: 4*

TOTAL SCORE _____**/80**

Appendix "D"

Workplace Based Assessments - Guidelines for Supervisors for Assessment of Generic & SpecialtySpecific Competency

The Candidates of all MD programs will be trained and assessed in the following five generic competencies and also specialty specificcompetencies.

A. Generic Competencies:

i. Patient Care.

a. Patient Care competency will include skills of history taking, examination, diagnosis, counseling Plan care through ward teachingdepartmental conferences, morbidity and mortality meetings core curriculum lectures and training in procedures and operations.

b. The candidate shall learn patient care through ward teaching departmental conferences, morbidity and mortality meetings, carecurriculum lectures and training in procedures and operations.

c. The Candidate will be assessed by the supervisor during presentation of cases on clinical ward rounds, scenario based discussions onpatients management multisource feedback evaluation, Direct observation of Procedures (DOPS) and operating room assessments

d. These methods of assessments will have equal weightage.

ii. Medical knowledge and Research

a. The candidate will learn basic factual knowledge of illnesses relevant to the specialty through lectures/discussions on topics selectedfrom the syllabus, small group tutorials and bed side rounds

b. The medical knowledge/skill will be assessed by the teacher during

c. The candidate will be trained in designing research project, data collection data analysis and presentation of results by the supervisor.

d. The acquisition of research skill will be assessed as per regulations governing thesis evaluation and its acceptance.

iii. Practice and System Based Learning

a. This competency will be learnt from journal clubs, review of literature policies and guidelines, audit projects medical error investigation, root cause analysis and awareness of health care facilities,.

b. The assessment methods will include case studies, personation in mobility and mortality review meetings and presentation of audit projects if any.

c. These methods of assessment shall have equal weight-age

iv. Communication Skills

a. These will be learn it from role models, supervisor and workshops.

b. They will be assessed by direct observation of the candidate whilst interacting with the patients, relatives, colleagues and withmultisource feedback evaluation.

v. Professionalism as per Hippocratic oath

a. This competency is learnt from supervisor acting as a role model ethical case conferences and lectures on ethical issues such asconfidentially informed consent end of life decisions, conflict of interest, harassment and use of human subjects in research.

b. The assessment of residents will be through multisource feedback evaluation according to preforms of evaluation and its scoringmethod.

B. Specialty Specific Competences.

i. The candidates will be trained in operative and procedural skills according to a quarterly based schedule.

ii. The level of procedural Competency will be according to a competency table to be developed by each specialty

iii. The following key will be used for assessing operative and procedural competencies:

a. **Level 1 Observer status** The candidate physically present and observing the supervisor and senior colleagues

b. **Level 2 Assistant status** The candidate assisting procedures and operations

c. **Level 3 Performed under supervision** The candidate operating or performing a procedure under direct supervision

d. **Level 4 Performed independently** The candidate operating or performing a procedure without any supervision

vi. Procedure Based Assessments (PBA)

a. Procedural competency will assess the skill of consent taking, preoperative preparation and planning, intraoperative general andspecific tasks and postoperative management

b. Procedure Based assessments will be carried out during teaching and training of each procedure.

c. The assessors may be supervisors, consultant colleagues and senior residents.

d. The standardized forms will be filled in by the assessor after direct observation.

e. The resident's evaluation will be graded as satisfactory, deficient requiring further training and not assessed at all.
f. Assessment report will be submitted
g. A satisfactory score will be required to be eligible for taking final examination.

Appendix "E"

Supervisor's Annual Review Report.

This report will consist of the following components: -

I. Verification and validation of Log Book of operations & procedures according to the expected number of operations and proceduresperformed (as per levels of competence) determined by relevant board of studies.
II. A 90% attendance in academic activities is expected. The academic activities will include: Lectures, Workshops other thanmandatory workshops, journal Clubs Morbidity & Mortality Review Meetings and Other presentations.
III. Assessment report of presentations and lectures
IV. Compliance Report to meet timeline for completion of research project.
V. Compliance report on personal Development Plan.
VI. Multisource Feedback Report, on relationship with colleagues, patients.
VII. Supervisor will produce an annual report based on assessments as per proforma in appendix-G and submit it to the ExaminationDepartment.
VIII. 75% score will be required to pass the Continuous Internal Assessment on annual review.

Supervisor's Evaluation of the Resident (Continuous Internal Assessment) **Appendix "F"**

Resident's Name: _____

Evaluator's Name(s): _____

Hospital Name: _____

Date of Evaluation: __

1	**Unsatisfactory**
2	**Below Average**
3	**Average**
4	**Good**
5	**Superior**

Please circle the appropriate number for each item using the scale above.

Patient Care	**Scale**				
1. Demonstrates sound clinical judgment	**1**	**2**	**3**	**4**	**5**
2. Presents patient information case concisely without significant omissions or digressions	**1**	**2**	**3**	**4**	**5**
3. Able to integrate the history and physical findings with the clinical data and identify all of the patient's major problems using a logical thought process	**1**	**2**	**3**	**4**	**5**

4. Develops a logical sequence in planning for diagnostic tests and procedures and Formulates an appropriate treatment plan to deal with the patient's major problems	**1**	**2**	**3**	**4**	**5**
5. Able to perform commonly used office procedures	**1**	**2**	**3**	**4**	**5**
6. Follows age appropriate preventative medicine guidelines in patient care	**1**	**2**	**3**	**4**	**5**
Medical Knowledge	**Scale**				
1. Uses current terminology	**1**	**2**	**3**	**4**	**5**
2. Understands the meaning of the patient's abnormal findings	**1**	**2**	**3**	**4**	**5**
3. Utilizes the appropriate techniques of physical examination	**1**	**2**	**3**	**4**	**5**
4. Develops a pertinent and appropriate differential diagnosis for each patient	**1**	**2**	**3**	**4**	**5**
5. Demonstrates a solid base of knowledge of ambulatory medicine	**1**	**2**	**3**	**4**	**5**
6. Can discuss and apply the applicable basic and clinically supportive sciences	**1**	**2**	**3**	**4**	**5**
Professionalism	**Scale**				
1. Demonstrates consideration for the patient' s comfort and modesty	**1**	**2**	**3**	**4**	**5**
2. Arrives to clinic on time and follows clinic policies and procedures	**1**	**2**	**3**	**4**	**5**
3. Works effectively with clinic staff and other health professionals	**1**	**2**	**3**	**4**	**5**
4. Able to gain the patient's cooperation and respect	**1**	**2**	**3**	**4**	**5**
5. Demonstrates compassion and empathy for the patient	**1**	**2**	**3**	**4**	**5**

6. Demonstrates sensitivity to patient's culture, age, gender, and disabilities	1	2	3	4	5
7. Discusses end-of-life issues (DPOA, advanced directives, etc.) when appropriate	1	2	3	4	5
Interpersonal and Communication Skills	**Scale**				
1. Demonstrates appropriate patient/physician relationship	1	2	3	4	5
2. Uses appropriate and understandable layman's terminology in discussions with patients	1	2	3	4	5
3. Patient care documentation is complete, legible, and submitted in timely manner	1	2	3	4	5
4. Recognizes need for behavioral health services and understands resources available	1	2	3	4	5
Systems-based Practice	**Scale**				
1. Spends appropriate time with patient for the complexity of the problem	1	2	3	4	5
2. Able to discuss the costs, risks and benefits of clinical data and therapy	1	2	3	4	5
3. Recognizes the personal, financial, and health system resources required to carry out the prescribed care plan	1	2	3	4	5
4. Demonstrates effective coordination of care with other health professionals	1	2	3	4	5
5. Recognizes the patient's barriers to compliance with treatment plan such as age, gender, ethnicity, socioeconomic status, intelligence, dementia, etc.	1	2	3	4	5
6. Demonstrates knowledge of risk management issues associated with patient's case	1	2	3	4	5
7. Works effectively with other residents in clinic as if a member of a group practice	1	2	3	4	5
Osteopathic Concepts	**Scale**				

1. Demonstrates ability to utilize and document structural examination findings	**1**	**2**	**3**	**4**	**5**
2. Integrates findings of osteopathic examination in the diagnosis and treatment plan	**1**	**2**	**3**	**4**	**5**
3. Successfully uses osteopathic manipulation for treatment where appropriate	**1**	**2**	**3**	**4**	**5**
4. Practices Patient Centered Care with a "whole person" approach to medicine.	**1**	**2**	**3**	**4**	**5**
Practice-Based Learning and Improvement	**Scale**				
1. Locates, appraises, and assimilates evidence from scientific studies	**1**	**2**	**3**	**4**	**5**
2. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies to assess diagnostic and therapeutic effectiveness of treatment plan	**1**	**2**	**3**	**4**	**5**
3. Uses information technology to access information to support diagnosis and treatment	**1**	**2**	**3**	**4**	**5**
Comments					

Resident's Signature_____ **Date** _____

Supervisor's Signature_____ **Date**_____

FACULTY EVALUATION OF RESIDENT (EMERGENCY MEDICINE) **Appendix "G"**

Abbreviations for six Core Competencies

- PC = Patient Care
- MK = Medical Knowledge
- ICS = Interpersonal / Communication Skills
- PBL = Practice-Based Learning and Improvement
- P = Professionalism
- SBP = Systems-Based Practice

Interpersonal and Communication Skills

Note content is appropriate and complete (ICS) (Question 1 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

Interpersonal skills with patients, families and staff is appropriate and skilled (ICS) (Question 2 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Averae	Above Average	Advanced	Outstandig	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Presents cases in clear, concise manner (ICS) (Question 3 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Medical Knowledge

Demonstrates understanding of clinical problems and their pathophysiology (MK) (Question 4 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Develops appropriate differential diagnosis (MK) (Question 5 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Evaluates scientific basis of diagnostic tests used (MK) (Question 6 of 24)

No Interacti	Unsatisfactory	Failing	Less than	Below Avera	Average	Above Averag	Advanced	Outstanding	Superior

on			Marginal	ge		e			
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Reads service specific literature (MK) (Question 7 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Patient Care

Obtains accurate clinical history (PC) (Question 8 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Demonstrates appropriate physical exam (PC) (Question 9 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Identifies and reviews relevant existing patient data (PC) (Question 10 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Prioritizes problems and treatment plans appropriately (PC) (Question 11 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Effectively uses consultation services (PC) (Question 12 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Practice-Based learning and improvement.

Identifies areas for improvement and applies it to practice PBL (Question 13 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Applies lesions learned from medical errors into practice PBL (question 14 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Shows Interest in learning from complex care issues PBL (Question 15 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Professionalism

Displays a professional attitude and demeanor (P) (Question 16 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Attends rounds on time. Handles criticism of self in pro-active way (P) (Question 17 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Cross-covers colleagues when necessary (P) (Question 18 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

System-Based Practices

Understands the different types of medical practice and delivery systems, and alternative methods of controlling health care costs and allocating resources (SBP) (Question 19 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Effectively Utilizes ancillary services SBP (Questions 20 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Uses Patient care venues appropriately SBP (Questions 21 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Advocates for quality patient care and assists patients in dealing with system complexities SBP (Questions 22 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Overall / Summary

Did resident meet course objectives? (Questions 23 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

Comments (Please provide Strengths, Weaknesses and Areas for Improvement) (Question 24 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2☐	3 ☐	4☐	5☐	6 ☐	7 ☐	8 ☐	9 ☐

RESIDENT EVALUATION OF FACULTY TEACHING SKILLS **Appendix "H"**

Faculty Member_____ Department: _____

Period of Evaluation_____ Location_____

Direction: please take a moment to assess the clinical faculty members teaching skills using this scale

1= Poor **2=Fair** **3= Very Good** **4= Excellent**

A. Leadership

Discussed expectations, duties and assignments for eachteam member and reviewed learning objectives and evaluation process	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐
Treated each tea, member in a cutout and peaceful manner	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐
Was usually prompt for teaching assignments and was always Available and accessible as a supervisor	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐
Showed respect for the physician in other specialties / Subspecialties as well as for other health care professionals	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐

Comments

_____

_____

_____

B. Role of modeling

Demonstrated positive in interpersonal communication skills with patients, family members and staff	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐
Enthusiasm and interest in teaching residents	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐
Recognized own limitations and used these Situation as opportunities to demonstrate how he / she learn	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐
Used Medical / scientific literature to support clinical decisions	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐

Comments

_____

_____

_____

C. Patient Care /Teaching and & Feedback

Demonstrate how to handle “difficult” patients encounters	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐
Demonstrated how to perform special physical exam techniques and / or procedures and observed me during my initials attempt	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐
Asked thought provoking questions to help me develop mycritical thinking skills and clinical judgment	1 ☐	2 ☐	3 ☐	4 ☐	N/A ☐

Share his/her own thought process when discussing patient workups and patients care decisions with the team 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Highlighted important aspects of a patient case and often generalized to boarder medical concepts and principles 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Integrated social / ethical aspects of medical (cost containment, patents right , humanism) intodiscussion of patient care 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Provided guidance and specific "instructive feedback to help me correct mistakes and / or increase my knowledgebase 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Comments:

_____

_____

_____

D. Didactic (Classroom) Instructions

Was usually prompt for teaching sessions, kept interruptionsto minimum and kept discussion focused on case or topic 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Gave lecture presentations that were well organized and "Interactive" () i.e., and review pertinent topics 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

☐ ☐ ☐

Provided references or other materials that stimulated me to road, research and review pertinent topics 1 2 3 4 ☐ N/A ☐

Comments

_____

_____

E. Evaluation

Reviewed my overall clinical performance at the end of the rotation pointed out my strengths and areas for improvement 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Demonstrated "fairness" by adhering to established criteria, explaining reasons for the scores and following me to respond 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

Comments

_____

_____

_____

Overall, I would rate this faculty member's clinical teaching skills as

POOR ☐ FAIR ☐ VERY GOOD ☐ EXCELLENT ☐

Would you recommend that faculty member continue to teach in this programm? Yes ☐ NO ☐

COMMENTS, COMMENDATIONS OR CONCERNS

_____

_____

_____

RESIDENT EVALUATION OF FACULTY (FOR CORE COMPETENCIES) **Appendix "I"**

A. Interpersonal and Communication Skills

Interpersonal and Communication Skills (Question 1 of 22)

Asks question in a non-threatening manner

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Interpersonal and Communication Skills (Question 2 of 22)

Emphasizes problem-solving (thought processes leading to decisions)

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Interpersonal and Communication Skills (Question 4 of 22)

Effectively communicates knowledge

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

B. Medical Knowledge

Medical Knowledge (Question 5 of 22)

Knowledge of specialty

Cannot Evaluate	Unsatisfactory (Comment	Marginal (Comment	Satisfactory	Very Good	Excellent

	Required)	Required)			
0	1	2	3	4	5

Medical Knowledge (Question 6 of 22)

Applies knowledge of specialty to patient problems

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Patient Care (Question 7 of 22)

Applies comprehensive high quality care

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

C. Patient Care

Patient Care (Question 8 of 22)

Explains diagnostic decisions

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Patient Care (Question 9 of 22)

Clinical Judgment

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Patient Care (Question 10 of 22)

Clinical Skills

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

D. Practice-Based Learning and Improvement

Practice-Based Learning and Improvement (Question 11 of 22)

Encourages self-education

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Practice-Based Learning and Improvement (Question 12 of 22)

Encourages evidence-based approaches to care

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

E. Professionalism

Professionalism (Question 13 of 22)

Sensitive caring respectful attitude towards patients

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 14 of 22)

Uses time with patients and residents effectively

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 15 of 22)

Sufficient resident teaching on rounds/clinics

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 16 of 22)

Respects all members of the health care team

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 17 of 22)

Demonstrates Integrity

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 18 of 22)

Attains credibility and rapport with patients and their family

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent

0	1	2	3	4	5

F. Systems- Based Practice

Systems- Based Practice (Question 19 of 22)

Provides useful feedback including constructive criticism to team members

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

System Base Practice (Question 20 of 22)

Discusses availability cost and utility of system resources in providing medical care.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Overall/Summary (Question 21 of 22)

Overall contributions to your training

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Comments: (Question 22 of 22)

Faculty Evaluation of the Residency / Fellowship Program **Appendix "J**

Please use this scale to answer question1-10:

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. ***PATIENT/CASE VOLUME:*** There are a sufficient number and variety of patients/cases to facilitate high quality resident/fellow education.
2. ***CURRICULUM:*** The residency/fellowship program curriculum provides the appropriate education experiences for residents/fellows to analyze investigate and improve patient care practices.
3. ***PROGRAM DIRECTOR:*** The program director effectively communicates with program faculty members to understand their role in resident/fellow education and development.
4. ***ADMINISTRATIVE SUPPORT:*** There is adequate administrative support service to facilitate faculty participation in resident/fellow education.

5. **SUPERVISION:** The Program resident/fellow supervision policy has been clearly communicated to program faculty and is used by the program.
6. **TRANSITION OF CARE:** The program transition of care/hand-off policy and tools have been distributed to program faculty and they are used.
7. **EVALUATION:** Program faculty receives regular and timely feedback about their teaching and supervisors skills.
8. **FACULTY DEVELOPMENT:** There are beneficial resources available for program faculty to improve their teaching and supervision skills.
9. **SCHOLARLY ACTIVITY:** Program faculties have the adequate resources to participate in scholarly activates.
10. **FACULTY:** The program faculty provides the diversity of experience and expertise to accomplish the goals and objectives of the program.

RESIDENT EVALUATION OF RESIDENCY PROGRAM **Appendix "K**

A. Program Goals and Objectives (Question 1 of 35)

The goals and objectives for each rotation are clearly communicated to residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

B. Evaluation (Question 2 of 35)

The evaluation process of the residents is constructive (computerized faculty evaluations of residents, daily clinical feedback to residents, yearly PRITE, and Director's semi-annual resident meeting with resident).

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4 ☐	5

C. Research (Question 3 of 35)

Residents are provided ample opportunity to develop an interest an in research.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4 ☐	5

Research (Question 4 of 35)

Residents are encouraged to participate in research.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2 ☐	3 ☐	4	5 ☐

Research (Question 5 of 35)

Residents are provided the education to develop an understanding of research.

.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

D. Faculty (Question 6 of 35)

The size, diversification and availability of faculty is adequate for the training program.

.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4 ☐	5

Faculty (Question 7 of 35)

The Knowledge of the faculty is current and appropriate.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4	5 ☐

E. Facilities (Question 8 of 35)

The available resources necessary (library and computer) to obtain current medical information and scientific evidence are adequate and accessible.

.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2 ☐	3 ☐	4 ☐	5

Facilities (Question 9 of 35)

On-call rooms, when needed, are adequate to ensure rest, safety, convenience and privacy.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Facilities (Question 10 of 35)

The facilities are adequate with regard to support services (nurses, clinic aides) and space for teaching and patient care.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

F. Leadership and Logistics (Question 11 of 35)

The Program Director communicates effectively with residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Leadership and Logistics (Question 12 of 35)

The Associate Program Director communicates effectively with residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Leadership and Logistics (Question 13 of 35)

The Chief Residents communicates effectively with residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Leadership and Logistics (Question 14 of 35)

The Program Coordinator communicates effectively with residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4 ☐	5

Leadership and Logistics (Question 15 of 35)

The Program Director provides effective leadership of the residency.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4	5 ☐

Leadership and Logistics (Question 16 of 35)

There is adequate departmental support for residency education.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4	5 ☐

Leadership and Logistics (Question 17 of 35)

There is adequate departmental support for residency education.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4 ☐	5

Leadership and Logistics (Question 18 of 35)

The program is responsive regarding scheduling, course materials and other logistical concerns.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Leadership and Logistics (Question 19 of 35)

The evaluation system (E-Value) is easy to use.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4 ☐	5

G. Training (Question 20 of 35)

Faculty adequately supervises residents' care of patients.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4 ☐	5

Training (Question 21 of 35)

Training sites present a wide range of psychiatric clinical problems.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4	5 ☐

Training (Question 22 of 35)

Residents see an appropriate number of patients.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent

0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 23 of 35)

Residents are given sufficient responsibility for decision-making and direct patient care.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 24 of 35)

Rounds and staffing are conducted professionally.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 25 of 35)

Rounds and staffing are conducted efficiently.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 26 of 35)

Faculty teaches and supervises in ways that facilitate learning.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 27 of 35)

The program is responsive to safety concerns at training.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 28 of 35)

The program is responsive to feedback from residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4 ☐	5

Training (Question 29 of 35)

Residents experience an appropriate balance of educational and clinical responsibilities.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4	5 ☐

Training (Question 30 of 35)

The didactic sessions provide core knowledge of the field.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4	5 ☐

Training (Question 31 of 35)

The morale of the residents is good.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1	2 ☐	3 ☐	4 ☐	5

Training (Question 32 of 35)

The morale of the faculty is good.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 33 of 35)

Overall, I am very satisfied with the training our program provides.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Recommendations (Question 34 of 35)

What changes in the training program would you suggest to better prepare residents for their careers?

Additional Comments (Question 35 of 35)

Program Evaluation Committee (PEC)

Background

The purpose of this committee is to conduct and document a formal, systematic evaluation of the program & curriculum on an annual basis.

Membership

The chair and membership of the committee are appointed by the Program Director. The membership of the committee consists of at least twomembers of the program faculty, and at least one resident/subspecialty resident.

Meeting Frequency

The committee meets, at a minimum, annually.

Responsibilities of the PEC

- The PEC actively participates in planning, developing, implementing and evaluating the educational activities of the program.
- The PEC reviews and makes recommendations for revision of competency-based goals and objectives.
- Addresses areas of non-compliance with the standards; and reviews the program annually using written evaluations of faculty, residents, and others.

Required Documentation of PEC Activities

The PEC provides the GMEC with a written Annual Program Evaluation (APE) in the format that is appended to this document. This document detailsa written plan of action to document initiatives to improve performance based on monitoring of activities described below.

The APE document provides evidence that the PEC is monitoring the following areas, at a minimum:

1. Resident performance

2. Faculty development

3. Graduate performance, including performance of program graduates on the certifying examination

4. Assessment of program quality through:

. **A n n u a l confidential and formal feedback** from residents and faculty about the program quality;

b. **Assessment of improvements needed based on program evaluation feedback** from faculty, residents, and others

5. Continuation of progress made on prior year's action plan

6. Prepare and submit a written plan of action to

a. document initiatives to improve performance in one of more of the areas identified,

b. D e l i n e a t e how they will be measured and monitored

c. Document continuation of progress made on the prior year's action plan

Template for Documentation of Annual Program Evaluation and Improvement

Date of annual program evaluation meeting: _____

Attendees:

i. Program Director: _____
ii. Program Coordinator: _____
iii. Associate/Assistant PD: _____
iv. Faculty Members: _____
v. Residents: _____

	Reviewed √	**Discussion, Follow up, Action Plan**
1. Current Program Requirements & Institutional Requirements		
2. Most recent Internal Review Summary to ensure all recommendations are addressed		
3. Review Curriculum a. effective mechanism in place to distribute Goals & Objectives (G&O) to residents and faculty b. overall program educational goals c. up-to-date competency-based G&O for each assignment d. up-to-date competency-based G&O for each level of training e. G&O contain delineation of resident responsibilities for patient care, progressive responsibility for patient management, and supervision of residents		

4. Evaluation System a. Resident formative evaluation meets or exceeds program requirement b. Resident summative evaluation meets or exceeds program requirement c. Faculty evaluation meets or exceeds program requirement d. program evaluation meets or exceeds program requirement.		
5. Didactic Curriculum a. includes recognizing the signs of fatigue and sleep deprivation b. the didactic curriculum meets program requirements c. the didactic curriculum meets residents needs		
6. Clinical Curriculum – the effectiveness of in-patient and ambulatory teaching experience (structure, case mix, meetsresident's needs)		
7. Volume and variety of patients and procedures (case log data) meets requirements and residents' needs		
8. Summary of written program evaluations completed by both faculty and residents		
9. Resident supervision complies with Program Requirement		
10. Recruiting results		
11. Duty hour monitoring results		

12. Track all research and scholarly activities of faculty and residents/fellows		
13. Educational outcomes: is the program achieving its educational objectives? What aggregate data (residents as a group) can be used to show the program is achieving its objectives? Board scores, in-service training exam scores, graduate surveys, employer surveys, etc.		
15. Clinical outcomes – specialty-specific metrics aligned with dept./division QI initiatives, disease outcomes, patient safety initiatives (describe resident involvement), QI projects (describe resident involvement)		

Note:

If deficiencies are found during this process, the program should prepare a written plan of action to document initiatives to improve performance in theareas that have been identified. The action plan should be reviewed and approved by the teaching faculty and documented in meeting minutes.

Annual Program Evaluation (APE)

Minutes & Action Plan

Date of the APE meeting:

Date; Minutes & Action Plan were reviewed and Approved by teaching faculty:

Please attach the minutes of the meeting where the Minutes & Action Plan were reviewed and approved.

Academic Year reviewed:

Faculty Members of the PEC in attendance Other Members of the PEC in attendance: Areas reviewed:

1. Resident performance
    - Supporting documents:
2. Faculty development
    - Supporting documents:
3. Graduate performance
    - Supporting documents:
4. Program quality
    - Supporting documents:
5. Policies, Protocols & Procedures
    - Supporting documents:

THE END