PALESTINIAN INTERNAL MEDICINE RESIDENCY PROGRAM

TRAINING CURRICULUM

Palestinian Health Capacity Project (PHCP)

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PALESTINIAN INTERNAL MEDICINE RESIDENCY PROGRAM TRAINING CURRICULUM

This document is the result of the combined efforts, commitment, and dedication of a small group of professionals who reviewed and revised the Palestinian Internal Medicine Residency Training Curriculum. The aim of this exercise was to raise the standard of post-graduate medical education in internal medicine nationally and to meet the health needs of the Palestinian people.

These efforts have been supported by the Palestine Medical Council and Palestinian Ministry of Health (PMOH) through the Palestinian Health Capacity Project (PHCP), funded by USAID, and implemented by IntraHealth International and Juzoor for Health and Social Development.

This curriculum provides detailed technical information for the internal medicine residency program managed by the Palestinian National Residency Program under the auspices of Palestine Medical Council. The curriculum is intended to enhance the uniformity and standardization of internal medicine post-graduate medical education, according to evidence-based knowledge and practices, and ultimately contribute to improving the quality of care provided to Palestinian people.

Effective implementation of this curriculum is contingent upon the support of the Palestine Medical Council and clinical training institutions (e.g. PMOH and non-governmental organizations (NGOs)) to ensure that sufficient resources (including, but not limited to materials, equipment, human resources, management, supervision, and monitoring) are available, and that residency program directors, clinical instructors, and residents are oriented to its content.

FOREWORD

It is my great pleasure to introduce the revised internal medicine residency curriculum to our internal medicine educators and residents in Palestine. This curriculum responds to a national priority, identified in 2014 by key stakeholders in the medical community, to strengthen and standardize medical residency curricula in Palestine.

This curriculum is the third of many curricula to be developed in the future. The previous curricula were the general surgery and pediatric medicine residency programs that were completed over the last two years and launched in Palestinian Ministry of Health and NGO hospitals that offer general surgery and pediatric medicine residency. The PMOH's vision is to standardize teaching programs for all residencies and become a shining spot for medical education in Palestine and the region.

This curriculum will standardize the internal medicine residency teaching program and approach in Palestine, and produce high-caliber, competent internists. It establishes a road map for educators and residents to guide them through the needed knowledge, clinical skills, competencies, evidence-based medicine, communication skills, and ethics required for internists to graduate from the residency program.

Development of the internal medicine curriculum was a collaborative effort involving many parties under the leadership of the Palestine Medical Council, its internal medicine scientific committee, local consultants who worked hand-in-hand with an international expert from the Royal College of Surgeons in Ireland, with guidance from the PMOH. IntraHealth International provided the needed technical assistance through the Palestinian Health Capacity Project and its partner Juzoor for Health and Social Development, with USAID funding and support. Other key stakeholders and internal medicine experts in the medical community were also involved in the development of this curriculum.

It is my hope that the curriculum will be implemented by all internal medicine residency teaching programs in Palestine in 2018 and onwards to improve the quality of education and health services offered to our Palestinian people.

Dr. Jawad Awwad

Minister of Health

State of Palestine

PREFACE

In 2014, the Palestine Medical Council (PMC), the Palestinian Ministry of Health (PMOH) and key stakeholders in the medical community, identified the review of national medical residency programs as a priority issue. In response, under the Palestinian Health Capacity Project (PHCP) funded by USAID, Juzoor for Health and Social Development and the Palestine Medical Council coordinated to review and revise the first national curriculum in general surgery. After the success of the general surgery and pediatric medicine revision, the internal medicine residency training curriculum was selected for review and updating.

The revision process was done with the significant input and involvement of the Palestine Medical Council headed by his Excellency the Minister of Health, and has been enthusiastically supported by the Secretary General, and the Internal Medicine Scientific Committee as well as the Palestinian Ministry of Health (PMOH) and other key stakeholders in the internal medicine community. Review and elaboration of the residency training curriculum was led by Palestinian consultants supported by an international colleague from the Royal College of Surgeons in Ireland, using international standards and competency frameworks, and the latest evidence-based knowledge and practices. The scientific committee and key stakeholders in the internal medicine community played a major role in informing the content of the curriculum, providing feedback and suggestions, and ultimately endorsing the document.

The contents of this curriculum and further instructions related to the internal medicine residency program may be clarified or expanded upon by the Palestine Medical Council, in accordance with its mandate, through issuance of specific written communication and periodic notices.

BACKGROUND

The Palestine Medical Council (PMC) was formed in 1996 and its status as an independent scientific medical body was established by the Palestinian Legislative Council in Law Number 1 in 2006. The PMC offered the first Palestinian Board exam in November 2001 for six medical specialties (among them internal medicine), and has offered exams in several specialties on a regular basis since then. The Council has the authority to arrange Board examinations to certify physicians in all specialties and sub-specialties, even those not offered in local residency programs. Law Number 1 established the authority of the PMC to (among other powers) set criteria for specialty medical training and be the sole body to certify physicians as specialists (this applied from 2006 onwards and did not change the status of specialists recognized prior to then by either the PMC or the Jordanian Medical Council (JMC)). Certification by the PMC is a basic requirement of specialist physician licensing.

The Palestinian national residency program began in 2008 under the auspices of the Palestine Medical Council (PMC). Prior to the establishment of the national program, three Palestinian hospitals were accredited by the Jordanian Medical Council (JMC) as training centers. Al Makassed Hospital in Jerusalem was the only center with a fully accredited residency in internal medicine for all training years, having held accreditation from the JMC since 1988. The JMC system of recognition for training conducted at Al-Makassed and select West Bank hospitals continued until 2008.

In establishing the national residency programs, the PMC adopted the Arab Board of Health Specializations' accreditation criteria, including the criteria for internal medicine. The Arab Board outlines the overall aims of internal medicine residency training and specifies objectives per the four year training program

A more detailed curriculum tailored to the Palestinian health context that standardizes knowledge and competencies for each residency year was needed to improve the quality and outcome of the internal medicine residency program in Palestine. Therefore this curriculum provides residents, clinical preceptors, and the Palestine Medical Council with detailed technical content to assist in the implementation of the Palestinian Internal Medicine Residency Training Program while responding to both the Palestinian and Arab Board requirements.

ACKNOWLEDGEMENTS

This curriculum could not have been developed without valuable contributions from several health professionals and experts who gave of their precious time and expertise. The following individuals are hereby acknowledged for their significant contribution to the preparation, writing, and review of this curriculum:

- His Excellency Dr. Jawad Awwad, Minister of Health, for his overall leadership of the health sector and commitment to improving the health of all Palestinians
- Dr. Amin Thalji, Secretary General of the Palestine Medical Council, for his unfailing support and active engagement at all stages
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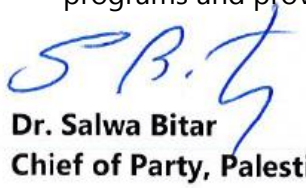
- Numerous Palestinian internists and specialists from the PMOH, private and NGO sectors who actively participated in discussion sessions and provided feedback and recommendations on the curriculum revision
- Internal medicine residents who shared their experiences in the local residency programs and provided valuable perspectives that informed the revision process



Dr. Salwa Bitar
Chief of Party, Palestinian Health Capacity Project

INTRODUCTION TO THE CURRICULUM

Introduction to this Curriculum

This document outlines the knowledge, attitudes, behaviors, and skills that residents are expected to have acquired by the end of their specialty training in the Internal Medicine Palestinian National Residency Program. This Curriculum provides a detailed guide for the content of internal medicine residency training across all years of the program. The Curriculum is intended for use by residents, instructors, training facilities, training program directors, the Palestine Medical Council, and others involved in medical education.

Residents should carefully review this Curriculum and ensure that they are meeting the required competencies, gaining the necessary knowledge and acquiring the appropriate skills outlined in this document. As adult learners, it is expected that residents take responsibility for their own progress and actively seek out opportunities to learn and benefit from the knowledge and experience of peers, instructors, other health care professionals, and patients and their families. It is also expected that residents will engage in on-going self-reflection and self-evaluation and direct their own learning to continually challenge themselves to development as surgeons. Residents should encourage constructive feedback from their instructors, peers, other health care professionals, and patients and their families, as an opportunity to grow professionally and improve their practice.

Instructors in the Internal Medicine Residency program should be thoroughly familiar with the knowledge and procedures on which the Curriculum is based, skilled in the practices described and have a positive attitude towards residents and their own work as educators. As mentors and teachers of the next generation of Palestinian internists, it is expected that instructors will model the same high standards in professional practice, attitudes and behavior as expected of their residents. Instructors have a responsibility to provide constructive feedback to residents that is timely, specific, and assists learners in improving their performance. It is highly recommended that instructors attend an “Educating the Educators” or other relevant course to hone their teaching skills.

Training facilities and program directors will find this Curriculum useful to further develop materials and set the teaching schedule for each year of the Internal Medicine residency program. Other medical educators may find this Curriculum useful as a model for adaptation in teaching programs in related or different specialties as well.

Organization of the Curriculum

The Curriculum is divided into sections:

Section 1: Skills Domains of Internal Medicine

This section provides a definition for the internal medicine physician and information on the unique attributes of the role.

Section 2: Overview of the Palestinian Internal Medicine Program and Curriculum

This section describes the process and purpose of development of the IM curriculum, and the rapid global changes affecting the medical practice, including societal, economic, technological, and epidemiological factors, and their effect on IM learning.

Section 3: Technical Content of Curriculum

This section lists the learning objectives, knowledge, skills, and behaviors to be attained through the IM program. Information is divided into two sections: the junior years (years 1-2 of internal medicine training) and the senior years (years 3-4 of internal medicine training).

Section 4: Assessment

This section outlines the process and tools for assessment including, trainer's assessments, multi-source feedback, and self-assessments, to ensure acceptable levels of competence for both trainees and practitioners participating in the internal medicine program.

Section 5: Training Pathways

This section provides the essential criteria for entry into the IM training program and the required residency rotation plan to complete it.

Section 6: Syllabus

The syllabus outlines the curriculum domains and themes included in the IM program.

Section 7: Common Competencies

This section provides the common competencies and details of their underlying domains and themes that should be attained by the trainee throughout the residency period.

Section 8: Educational and Clinical Supervisors and Appraisal Process

This section describes the roles and responsibilities of the educational and clinical supervisors. It also clarifies the required appraisal types, frequency, and process for trainees, and the approach for evaluating the curriculum and its implementation.

Section 9: References

The References section acknowledges the various stakeholders and organizations that participated in the development of the curriculum.

Section 10: Appendix

The appendix to this document provides a summary of procedural skills that trainees should be able to perform at the end of each year.

SECTION 1: SKILLS DOMAINS OF INTERNAL MEDICINE

The Definition of an Internal Medicine Physician

Internal medicine (IM) physicians have to demonstrate expertise in the diagnosis and management of immediate care of often complex, acute, and multisystem disorders in adult patients. They undertake a comprehensive assessment of a patient's urgent problems and needs- clinical, biomedical, and psychosocial- and provide and coordinate patient care with the assistance of multidisciplinary teams to optimize health outcomes. IM physicians have to be competent to deal with undifferentiated and ambiguous presentations and to diagnose and manage illnesses affecting more than one organ system. The work of an IM physician is not limited by patient age, diagnostic category, stage of disease, treatment intent, or clinical setting. The practice of IM physicians extends across acute hospital and ambulatory settings and involves interactions with other specialists from a variety of disciplines, particularly critical care, as well as primary care providers and allied health professionals where good communication is essential for optimum team work and hand-over skills. IM physicians therefore adopt a scientific, evidence-based approach to the patient as a whole person, notwithstanding an interest and some level of training in another specialty. This approach includes detailed knowledge of the pathophysiology, diagnostics, and therapeutics of a broad range of diseases.

This breadth and depth of knowledge and experience make IM physicians ideally suited to providing high quality consultant services across the spectrum of health and acute illnesses. These capacities place IM physicians in an important and responsible position as clinical leaders, teachers, and researchers, particularly in leading an admissions medical unit where clinical problems affect multiple organ systems and there are needs for healthcare prioritisation, as many issues do not fall within the domains of single organ system subspecialties, and where integration of multidisciplinary expertise may be required.

The Attributes of an Internal Medicine (IM) Physician

IM physicians possess several unique attributes which differentiate them from other medical specialists:

Expert diagnosticians
IM physicians have the ability to quickly assess the acutely ill patient and diagnose clinical problems in their entirety. Diagnostic formulations comprise not only specific medical diagnoses but a broader axis of functional and psychosocial problems and comorbidity burden which may impact prognosis and clinical management. In the case of undifferentiated presentations, IM physicians have the ability to consider the many possible causes (which may involve multiple organ systems), identify those most likely to be responsible, and synthesize a multidimensional diagnostic formulation. In arriving at a complete diagnosis, IM physicians are selective and rational in their use of diagnostic tests based on knowledge of test performance, and avoid ordering an array of investigations that are unlikely to contribute to clinical decision making.

Expert Providers of Integrated Medical Care
IM physicians have the ability to devise management plans in which choice of therapies and other clinical interventions are based on an integrated consideration of evidence of therapeutic effectiveness, interactions with comorbidities and other therapies, functional status and life expectancy, patient values and preferences, and the broader social and environmental context in which care is provided. Clinical care is tailored to meet the necessary urgent care, but IM physicians also have to be cognisant of the longer term issues that may have given rise to acute problems such as the therapeutic goals of prevention, cure, or palliation, taking into account the patient's needs and priorities which may change over time. IM physicians are skilled in providing longitudinal care of patients over many years, ensuring optimal management of acute exacerbations of chronic disease as well as optimal disease control and secondary prevention. An IM physician has integrative skills whereby multiple potential determinants of health outcomes that span clinical, functional, and psychosocial domains are considered simultaneously in devising management plans.

Expert Problem Solvers
IM physicians have the ability to take charge of difficult and complex clinical presentations, sort and prioritize management goals, and take decisive action in resolving problems using a flexible and broad-minded way of thinking. IM physicians are skilled in reconciling short term management of acute illness (including exacerbations of chronic diseases) with the potential for longer term prevention and rehabilitation. In situations where patient care has been splintered by conflicts of opinion and advice from different providers, IM physicians demonstrate leadership to broker workable solutions and forward-looking management plans to the benefit of patients and the whole care team.

Expert Patient Advocates
IM physicians not only have to treat the acute illness but also have the ability to see the whole patient, including the social background and the belief systems that mould his/her thoughts, actions, and attitudes to illness and intended management. IM physicians individualize their advice and recommendations according to patient values and preferences as well as the wishes of their families and carers. They are particularly mindful of the need to avoid or simplify complicated or invasive investigation and treatment regimens which offer only marginal benefit at the expense of placing patients at risk of harm, or imposing unnecessary burden and costs. This is particularly pertinent to patients with advanced disease and poor prognosis in whom the priority for end-of-life is maximizing quality of life and symptom palliation.

Expert Communicators and Negotiators
IM physicians have the ability to elicit and accommodate a diversity of views and opinions in relation to patient care and negotiate an agreed way forward on the part of all stakeholders. As a team leader and conciliator with well-developed interpersonal skills, the IM physician is able to assert leadership, resolve conflicts, and achieve collective agreement and action in the care patients receive.

Expert Innovators and System Leaders
IM physicians have the ability to see the big picture of health care systems, how they work and how they can be changed for the betterment of patient care. Their informed common sense perception of 'real world' medicine–devoid of conflicts of interest–and their familiarity

with the principles of evidence-based medicine enables IM physicians to be discerning in assessment and use of new and yet unproven technologies. In an era when a drive towards optimizing quality and safety of care is juxtaposed with a diminishing availability of healthcare resources, IM physicians possess the capacity to balance net benefit with opportunity cost in choosing models of care and clinical technologies that are best suited for maximising health at the level of both individuals and populations. IM physicians are ideally suited to play leadership roles in the clinical governance structures of area health services, institutions, and departments.

Expert Teachers and Mentors

IM physicians, by virtue of their broad experience and expertise, have the ability to separate and impart the essential knowledge, attitudes, and skills that medical students, young doctors, and other health professionals need to acquire if they are to adequately cope with the challenges of modern healthcare. While single organ system specialists can provide deeper content knowledge in specific domains of care, the IM physician can show how this knowledge needs to be integrated, prioritized, and contextualised in the grand scheme of things for each and every patient.

IM curriculum is designed to develop these attributes. A basic physician trainee does not possess the required level of knowledge, skill, or experience to be recognized as an IM physician who demonstrates the above attributes and is able to practice independently as a consultant. Prolonged immersion in a diversified IM medicine training program associated with exposure to experienced IM physicians as role models is required in nurturing these important physician skills.

SECTION 2: OVERVIEW OF THE PALESTINIAN INTERNAL MEDICINE PROGRAM AND CURRICULUM

The Palestinian Internal Medicine Program

The medical profession is currently operating within a context of rapidly increasing change in terms of the various professional, societal, economic, political, and technological aspects that impact its practice and the society within which it operates. Trainees will need to be cognisant of these various situations and incorporate the relevant aspects into the context of their overall training program.

Some of these key impacts include:

- Changing views of the profession towards training and assessment
- Increased community expectations of healthcare providers
- Exponential growth in the scope and depth of medical knowledge
- Rapid introduction of new medical technology and procedures
- Certification and continuing education
- Increased litigation
- Increased concern regarding the cost of health care
- Worldwide shortage of doctors
- Shorter working hours and changing industrial landscape
- Mismatches between health care needs and health care delivery internationally

The Palestinian IM program is a four-year program defined as the junior years (years 1–2) and the senior years (years 3-4). The junior years are underpinned by the definition of core competencies–the essential professional and common competencies that should be required of all doctors regardless of future specialty. The junior years training program will focus on the learning outcomes through developing core skills and knowledge, introducing each of the disciplines, and providing a foundation for consolidation and further study within the senior year training program. These competencies will also be subject to assessment and review of satisfactory progression. In the senior years, the trainees have to develop a significant number of critical care and leadership competencies emphasizing the need for progressive acquisition of core competencies to a greater depth of knowledge and skill. In order for the trainee to function as an independent, unsupervised consultant delivering comprehensive medical care at the completion of their training, there will be a need to build on the cognitive and practical skills of the junior years to achieve the consultant competencies.

Within the spiral curriculum there is an emphasis on the graded understanding of medicine as trainees advance from early to senior years. For example, senior trainees should be competent in the application and complications of pharmacological agents in patients with multi-system diseases, patient safety and prevention of acute illness, and the management of patients who are already in the hospital as well as patients presenting in an unscheduled manner. Furthermore, the management, organisational, and leadership competencies for the IM physician should be evidenced as trainees successfully progress through the program.

Development of the Palestinian Internal Medicine Program

This curriculum is trainee-centered and learning outcome-based, and should be followed through the junior and senior years with a spiral approach, as explained above. Thus, the senior years learning experience revisits topics and themes, each time expanding the sophistication of the knowledge, attitudes, and decision-making relevant to the topic. This approach aids in the reinforcement of principles, the integration of topics, and the achievement of higher levels of competency, and is key to ensuring deep learning. This principle underpins the ethos of effective life-long learning beyond specialty training, supporting the individual to progress from being 'competent' to 'expert.' Where appropriate, the **basic science** elements of the topics are mentioned. It is important to appreciate that these are sign posts of the sort of learning that should be explored and understood. It is not meant to be a comprehensive or a complete list of basic science learning. The trainee will be expected to revisit the topics with increasing depth as well as study and have a much more expansive knowledge of the sciences. The lists are only a guide.

Overview of the Curriculum

This internal medicine (IM) curriculum has been updated to reflect the rapid globalization and change in the way healthcare organizations are set up and the increasing demand of care for patients with medical illnesses. The curriculum focuses on the Palestinian population which, although relatively young, is still subject to the demographic changes occurring in most parts of the world towards an aging population with complex and multisystem disorders which has an immediate effect not only on the acute care sector, but also in community health centers and social care. In addition, medical care has to be delivered in a healthcare system where there has been a huge change in diagnostics, radiological investigations, and many new procedures such as minimal access technology and tele-medicine. In training, more sophisticated simulation and clinical skills laboratories have developed and they, along with the continuing new developments of learning technologies, influence teaching and learning. All of this has to be delivered in the context of patient-centered, informed, and transparent care with economic pressures and tight training budgets. The healthcare environment has also changed to be inter-disciplinary and multi-professional, and a workforce that often comprises many nationalities and cultures. This international dimension also affects medical education. There is more emphasis now on the recognition of scholarship and professionalism that the modern physician needs. As such, the future doctor will need to have the leadership, administrative, time management, and emotional intelligence skills to manage such complexity.

IM Palestinian curriculum will therefore need to deliver physicians capable of handling acute care and the emergency take (triaging a patient and making an initial assessment) which includes rapid assessment, facilitated access to investigations, accurate diagnosis and prompt instigation of treatment either when an inpatient hospital stay is required or within an ambulatory care setting. Furthermore, approved standards for the delivery of medical care should be adhered to providing appropriate urgent care to medical patients.

Thus the IM curriculum reflects the on-going change in clinical practice in hospitals where there is an increasing need for physicians dedicated to providing prompt, high quality, and

effective management of patients who present with medical illnesses. This is essential to improve patient care and outcomes. There is the recognition of the increasing number of patients with complex medical problems and associated acute exacerbations. Effective acute multi-professional pathways and processes are critical to the delivery of best care. Trainees in IM will therefore need to acquire competencies relevant to:

- The prompt practical management of acute presentation of medical illness
- The management of medical patients in an in-patient, outpatient, and ambulatory care setting
- The development of new patient pathways to maximize safe, effective care in the community where feasible
- The provision of leadership skills within a high care admissions medical unit
- The development of multidisciplinary teams[1] and systems to promote optimal patient care
- The care of patients requiring more intensive levels of care than would be generally managed in a medical ward. These competencies are generally acquired from experience within a critical care unit.

IM physicians are by necessity required to provide high level care for patients with acute medical problems but also specialist care in many situations, such as inpatients and outpatients who present acutely. There is recognition that physicians also play a vital role in the management of inpatients in different situations, such as in surgical or mental health wards, as these patients may also require an urgent medical opinion. Many hospitals have developed acute medical admissions units where high care is provided within the first 48-72 hours. This supports early, safe discharge of patients to a community setting, most often their own home.

Definition of the Curriculum

A curriculum not only has to define the content but also how it is related to the expected learning outcomes. In addition, it encompasses the learning methods, assessment methods of the learning including the learned syllabus, resources required to deliver the learning, and credentialing of the trainee to be fit to commence specialist practice at the end of training. Thus, the curriculum not only determines what is to be taught but also why it is taught, how it is taught, and when it is taught (Quinn and Hughes, 2007).

Purposes of the Curriculum

The purpose of this curriculum is to define the process of training and the competencies needed for specialist qualification in IM. The declared curriculum needs to be understood in terms of the intentions, the actual taught curriculum, the learned curriculum (the curriculum in action–what happens in practice), and importantly, the curriculum that is experienced (the

[1] Multidisciplinary teamwork is defined as the collaboration between different professional groups to achieve a common purpose, is commonly regarded as a means to meet the complex needs of patients and their families. Elderly people with multiple chronic conditions often have interrelated social, health, and mental problems. Multidisciplinary teams have become a standard to address such needs as no single agency has all the resources and experience needed to address such complex needs.

hidden curriculum). Many aspects of specialist education are not defined by the content but are part of the maturation process of the physician in training as they progress. By utilising a spiral curriculum approach, there is an opportunity to revisit the program between the early years and the late years of training and gain competencies of a deeper nature, moving away from the apprentice learner, demonstrating greater understanding of the complexity of healthcare, and eventually mastery at the level of a new consultant. The curriculum should be thought of as a planned educational experience.

SECTION 3: TECHNICAL CONTENT OF THE CURRICULUM

This section lists the specific learning objectives, knowledge, skills, and behaviors to be attained throughout training in IM. Each stage of learning in the curriculum has defined the competencies to be attained by the trainee within the domains of learning outcomes, knowledge, skills, and behaviors. The sequencing of these learning objectives is also presented for the Junior years (Years 1 and 3) and Senior years (Years 3 and 4) of the residency program.

The curriculum has been made trainee-friendly by concentrating initially on what must be known by all physicians, building onto how patients present and getting a strong grasp of symptom competencies, which is later built upon by the system competencies.

The Junior Years: Years 1–2 of Internal Medicine Training

All trainees should be appointed an educational supervisor at the start of their first year of IM training who will mentor them for the whole of their training program. This supervisor should ideally be an acute care physician.

Although it may not be possible for the clinical supervisor during this period to be an IM physician, it is mandated that anybody taking on the education supervisory role must be actively engaged in providing care in an acute care setting including on-call duties in an emergency room.

The features of the Junior Years IM training programs are:

- **Trainee-led.** The training log book is designed to encourage a learner-centered approach with the support of educational supervisors. Each resident must keep an updated log book. The log book records the procedures performed along with the skills gained and the clinical cases encountered and studied.

- **Competency-based.** The curriculum outlines competencies that trainees must reach by the end of the second year, and is directly linked to the training portfolio. The curriculum defines the standards required for good medical practice and the training portfolio facilitates the recording of formal assessments, during the junior (core) training program.

- **The continuation of Good Medical Practice.** Building on internship training, the curriculum further emphasizes the generic competencies necessary for practice as a physician.

- **Supervision.** Each trainee's program is supervised by individuals with clearly defined roles and responsibilities to oversee training, including the clinical supervisor, educational supervisor, IM program director, and head of school.

- **Appraisal Meetings with Supervisor.** The frequency and type of meetings with review of competence progression are outlined in the training portfolio.

- **Workplace-based Assessments.** These assessment are conducted throughout training and are outlined below.

At the completion of the junior years, it is expected that trainees will have:

- Built on the knowledge and skills acquired during medical school and their internship year
- Gained experience and had the opportunity to develop and demonstrate competency in a comprehensive range of 'core' generic and discipline-specific knowledge, clinical skills, and attitudes
- Had broad-based exposure to, and clinical experience within, each of the discipline areas that will be further developed and focused on during the subsequent two senior years
- Acquired a 'breadth of competence' that will be further developed into a 'depth of competence' within their senior training years
- Rotated through a series of training opportunities, especially cardiology including CCU, respiratory medicine, and acute care in medicine for the elderly
- Gained background knowledge and understanding of the full range of discipline areas which will facilitate cross referral/multi-specialty teamwork, etc.
- Demonstrated the ability to communicate effectively and sensitively with patients and their families, colleagues, and other allied health professionals
- Gained an initial understanding and able to acknowledge the importance of the various socio-economic factors that contribute to illness and vulnerability
- Acquired an awareness of, and sensitivity to, the special needs of patients from culturally and linguistically diverse backgrounds
- Acquired the skills to be able to work within, and fully utilize, multidisciplinary team-based approaches to the assessment, management, and care of their patients
- Implemented their future career-planning and decision making processes based on a more informed level of knowledge and understanding.

The Senior Years: Years 3–4 of Internal Medicine Training

For residents to proceed to the senior years of training in IM (years 3-4), they must have satisfactory log books and assessments, especially the rotation evaluation form from the junior rotation.

The senior training program is a minimum two year program that builds on a trainee's ability to provide medical care in the hospital setting. Competencies are symptom-based, and thus concentrate on the provision of appropriate medical care in the emergency unplanned care, inpatient, ambulatory, and outpatient settings.

Upon completion of the senior years training as defined by the curriculum, it is expected that the trainee will have acquired the following competencies:

- Undertake timely, comprehensive and systematic clinical assessments
- Efficiently formulate diagnosis and management plans in partnership with patients and other health professionals
- Provide a learned, comprehensive, rational, evidence-based consultant opinion
- Prioritize care according to clinical circumstances and treatment goals
- Care for patients at all stages of life from adolescence onwards
- Care for complex patients with multiple problems and comorbidities
- Care for acute, undifferentiated illness and well-defined clinical syndromes
- Care for common chronic diseases including end-of-life care
- Integrate research evidence and clinical expertise in providing optimal care
- Show willingness and capability to manage a diverse spectrum of clinical problems and patient case mix in a variety of clinical settings
- Demonstrate rational, cost-effective, and appropriate use of interventions, investigations, and medication
- Competently perform procedures according to current and future practice settings, patient needs, and credentialing requirements
- Manage patients in spite of clinical uncertainty

In particular, trainees should also gain experience in critical care medicine which should include a minimum of four months in a critical care setting.

Experience in other medical specialties should be encouraged where there is a distinct acute presentation of patients, and also to ensure complete coverage of the curriculum. These include:

- Infectious diseases
- Gastroenterology
- Renal medicine
- Stroke medicine
- Rheumatology

Other experience may be obtained in an emergency medicine department where the majority of experience should be in the management of patients with acute medical

problems rather than the ‘minor’ patient pathways. Experience in other specialties may be relevant, but approval must be obtained from the training program director.

The final year of training should include training in management and leadership skills as well as taking a more senior, but supervised, role within the running of the acute medical take.

Throughout training the trainee should be aware of the need to acquire special competencies that define an area of special interest. It would be impossible for all trainees to acquire adequate expertise in all of these competencies. Trainees should review with their educational supervisor which area would be most relevant for their career development and enhance their interest. Acquisition of one of these competencies such as Echocardiography, Diagnostic upper GI endoscopy, Bronchoscopy (list is not exhaustive) is a mandatory part of training.

SECTION 4: ASSESSMENT

Assessment and Feedback

Assessment plays a central role in the IM training program at all levels, and aims to sustain learning and provide students with independent judgement, critical thinking skills, and, importantly, self-awareness. To promote sustainable learning, formative assessment is needed and should include the trainer's assessment, multi-source feedback, and self-assessment. Formative assessment is comprised of two features. First, it guides trainees' learning, inspires and motivates trainees, encourages them to regulate their learning, and leads to deep-learning approaches. Second, it leads to improvement in the trainees' performance with immediate feedback and involvement of the trainee in taking responsibility for their learning. As an adult self-directed learner the trainee becomes an active participant in their own education. Trainees develop their vision of patient care and why the knowledge, skills, and behavior are essential. They become lifelong learners through developing their values and what they care about. The competence thresholds are more concerned with protecting the public from incompetence, which threatens patient safety. Thus, for trainees, clinical reasoning is a critical skill.

Finally, from a quality assurance perspective, assessment is seen as the primary mechanism by which both institutions (e.g. hospitals) and organizations (e.g. professional licensing and certifying bodies such as the PMC) can assure the public of acceptable levels of competence among their trainees and practitioners.

Assessment Process and Tools

The integrated assessment system comprises workplace-based assessments and knowledge-based assessments. There are a total of eight forms used in evaluation of the resident by the supervisor and team, and one form for evaluation of the team by the resident.

In-training Evaluation Report
This form is used by the supervisor of the rotation to evaluate the resident's competence on multiple criteria including medical knowledge, professionalism, communication, patient safety, and health advocacy.

Evaluation of Procedural Skills
This form is used by the clinical supervisor of the team to evaluate the resident's procedural skills, including details such as knowledge of the procedure techniques and complications.

Evaluation form for Presentation Skills
This form is used to evaluate resident presentations such as journal club presentations. This is used by the supervisor who is in charge of the resident for that particular presentation. Evaluation is based on the content of the presentation and presentation skills.

Mini-clinical Evaluation (MINI-CEX)
This tool is used to quickly evaluate a clinical competence of a resident by the consultant in charge of the team. This exercise evaluates a clinical encounter with a patient to provide an indication of competence in the skills essential for good clinical care, such as history taking,

examination, and clinical reasoning. The trainee receives immediate feedback to aid learning. This can be used at any time and in any setting when there is a trainee-patient interaction and an assessor is available.

Rotation Evaluation Form
This form is used by the supervisor to evaluate the resident's competencies achieved by the end of the rotation, including the number of patients seen by the resident, presentations done, patient management, and ward rounds.

Quality Assurance – Mortality-Morbidity Presentation Report
This report is used to assess the case presented by the resident in the meeting, the summary of the case, and the summary of the findings in the case presented.

Educational Supervisor's Comments/Feedback Form:
This form is used by the educational supervisor nominated for the resident to give feedback to the resident in the form of issues, concerns, and discussion details between the supervisors and resident. The discussion will inform the decision to agree to future learning plans and training goals.

In each ration, the rotation supervisors sit with each resident for feedback, enforcing the weaknesses and strengths of the resident, and collaborate with educational supervisors for any further comments and feedback. The personal development plan is also periodically reviewed.

Case-based Discussion Form
Case-based discussion (CBD) is a structured discussion of the clinical case managed by the resident. It is used to assess clinical approaches and reasoning, to provide an opportunity to present and discuss the cases with the trainer, to obtain systematic and structured feedback, to assess decision-making and the application of medical knowledge, and to enable the discussion of the ethical and legal framework of practice.

Mini-Form for Clinic Rotation
This form is specifically designed for the OPD Clinic Rotation of R2, R3, and R4 residents. It has information on the time-in, time-out, number of patients seen for each subspecialty clinic, and the comments and signature of the supervisor.

The form is completed at the end of the block before the supervisor completes the online in-training evaluation.

SECTION 5: TRAINING PATHWAYS

Entry into the IM training program is based on fulfilling the following essential criteria:

1. The resident must be a holder of an MD/Bachelor's degree in medicine and surgery from a recognized university.
2. The resident must have successfully completed a year of internship.
3. The resident must be medically fit for the training.
4. The applicant must have passed the differentiation (admission) exam.
5. The resident must provide two letters of recommendation from two consultants with whom he/she has worked, confirming his/her ability and capability to undergo the IM training program.
6. The resident may be asked to pass an interview.

After the approval of the Palestinian Medical Council IM Committee, the committee may add other conditions such as oral or written exams, or additional tests for admission. The residents are selected as per PMC rules, regulations, and available slots.

Rotation Plan

The program extends over a period of four years. The training periods are divided into 13 blocks. Each block is comprised of 4 weeks or 28 days.

First Year

8 blocks	Clinical Teaching Unit/GIM
1 block	CCU
1 block	ICU
1 block	Emergency
1 block	Elective
1 block	Elective

Advanced Cardiovascular Life Support (ACLS) should be done by the candidate before joining or during the first year.

Second Year

6 blocks	Clinical Teaching Unit/GIM
1 block	CCU
1 block	ICU
1 block	Medical Consult Emergency
1 block	Clinic
1 block	Elective
1 block	Research/Clinical Audit
1 block	Leave

Residents will be required to take the IM part 1 examination, administered by the Palestine Medical Council Internal Medicine Committee, at the end of the second year of training for promotion to the next year.

Third Year

5 blocks	Clinical Teaching Unit/GIM
1 block	CCU
1 block	ICU
1 block	Clinic
1 block	Neurology
1 block	Elective
1 block	Research
1 block	Leave

Fourth Year

2 blocks	Clinical Teaching Unit/GIM
1 block	General Internal Medicine consult
1 block	Clinic
1 block	Endocrinology
6 blocks	Elective
1 block	Research
1 block	Leave

By the end of the fourth year, a final assessment of the candidate will be done by the program director to decide whether the candidate fulfilled the requirements to do part 2 of IM exam administered by PMC.

Outline of Major and Minor Rotations

Below is a summary of the required blocks in the 4-year training period.

Year	CCU	ICU	CTU	EM	Neurology	IM Consult	Endocrin-ology	Research	Subspecialty	Annual Leave	Clinic	Total
First	1	1	8	1	-	-	-	-	1	1	-	13
Second	1	1	6	1	-	-	-	1	1	1	1	13
Third	1	1	5	-	1	-	-	1	2	1	1	13
Fourth	-	-	2	-	-	1	1	1	6	1	1	13
Total	3	3	21	2	1	1	1	3	10	4	3	48

Major and Minor Rotations

Major Rotations	Ward CCU General Internal Med Consult ICU Emergency Medicine Clinic (Subspecialty + Ambulatory Care) Research Neurology Endocrinology
Minor Rotations	Subspecialty Rotations Compulsory Subspecialty Rotations Infectious Diseases Respiratory Gastroenterology Nephrology Hematology Selective Subspecialty Rotations Oncology Radiology Geriatrics Allergy and Immunology Rheumatology Dermatology Psychiatry Cardiology Consult

SECTION 6: SYLLABUS

The content of the Internal Medicine Curriculum is outlined below. The various domains are listed, followed by a detailed framework of each domain.

CURRICULUM DOMAINS AND THEMES

Domain 1: Internal Medicine Essential Competencies

Themes
- 1.1 Basic Clinical Skills – History Taking
- 1.2 Basic Clinical Skills – Clinical Examination
- 1.3 Basic Clinical Skills – Therapeutics and Safe Prescribing

Domain 2: Internal Medicine Professional Competencies

Themes
- 2.1 Time Management
- 2.2 Decision Making and Clinical Reasoning
- 2.3 The Patient as Central Focus of Care
- 2.4 Teaching and Training
- 2.5 Personal Behavior

Domain 3: Patient Safety

Themes
- 3.1 Prioritisation of Patient Safety in Clinical Practice
- 3.2 Team Working and Patient Safety
- 3.3 Principles of Quality and Safety Improvement

Domain 4: Communication Skills

Themes
- 4.1 Relationships with Patients and Communication within a Consultation
- 4.2 Breaking Bad News
- 4.3 Complaints and Medical Error
- 4.4 Communication with Colleagues and Co-operation

Domain 5: Data Collection, Research, and Ethics

Themes
- 5.1 Principles of Medical Ethics and Confidentiality
- 5.2 Valid Consent
- 5.3 Legal Framework for Practice
- 5.4 Ethical Research
- 5.5 Evidence and Guidelines
- 5.6 Audit

Domain 6: Health Promotion and Public Health

Themes
- 6.1 Infection Control
- 6.2 Managing Long Term Conditions and Promoting Patient Self-care
- 6.3 Reduce Ill Health and Healthcare Inequalities
- 6.4 Understand Patient Care within the Palestinian Healthcare Structure

Domain 7: General Internal Medicine Competencies

Themes
- 7.1 Acute Medical Take

Domain 8: Internal Medicine Emergency Presentations

Themes
- 8.1 Cardio-Respiratory Arrest
- 8.2 Shocked Patient
- 8.3 Unconscious Patient
- 8.4 Anaphylaxis

Domain 9: Internal Medicine Common Medical Presentations

Themes
- 9.1 Abdominal Pain
- 9.2 Acute Back Pain
- 9.3 Acute Kidney Injury and Chronic Kidney Disease
- 9.4 Blackout/Collapse
- 9.5 Breathlessness
- 9.6 Chest Pain
- 9.7 Confusion, Acute/Delirium
- 9.8 Diarrhea
- 9.9 Falls
- 9.10 Fever
- 9.11 Fits/Seizure
- 9.12 Hematemesis and Malena
- 9.13 Jaundice
- 9.14 Limb Pain and Swelling
- 9.15 Management of Patients Requiring Palliative and End of Life Care
- 9.16 Palpitations
- 9.17 Poisoning
- 9.18 Rash
- 9.19 Weakness and Paralysis
- 9.20 Headache
- 9.21 Diabetes - Hypoglycemia and Hyperglycemia

Domain 10: Internal Medicine Other Important Medical Presentations

Themes
- 10.1 Abdominal Mass/Hepatosplenomegaly
- 10.2 Abdominal Swelling and Constipation
- 10.3 Abnormal Sensation (Paresthesia and Numbness)
- 10.4 Aggressive/Disturbed Behavior
- 10.5 Alcohol and Substance Dependence
- 10.6 Anxiety/Panic Disorder
- 10.7 Bruising and Spontaneous Bleeding
- 10.8 Dialysis
- 10.9 Dyspepsia
- 10.10 Dysuria
- 10.11 Genital Discharge and Ulceration
- 10.12 Hematuria
- 10.13 Hemoptysis
- 10.14 Head Injury
- 10.15 Hoarseness and Stridor
- 10.16 Hypothermia

10.17 Immobility
10.18 Incidental Findings
10.19 Involuntary Movements
10.20 Joint Swelling
10.21 Loin Pain
10.22 Lymphadenopathy
10.23 Memory Loss (Progressive)
10.24 Micturition Difficulties
10.25 Neck Pain
10.26 Physical Symptoms in Absence of Organic Disease
10.27 Polydipsia
10.28 Polyuria
10.29 Pruritus
10.30 Rectal Bleeding
10.31 Skin and Mouth Ulcers
10.32 Speech Disturbance
10.33 Suicidal Thoughts
10.34 Swallowing Difficulties
10.15 Syncope and Pre-syncope
10.36 Unsteadiness/Balance Disturbance
10.37 Visual Disturbance (Diplopia, Visual Field Deficit, Reduced Acuity)
10.38 Weight Loss

Domain 11: Medical Complications during Acute Illness and Following Surgical Procedures

Themes 11.1 Medical Complications Following Surgical Procedures

Domain 12: Medical Problems in Pregnancy

Themes 12.1 Medical Problems in Pregnancy

Domain 13: Assessing the Acutely Unwell Medical Patient

Themes 13.1 The Acutely Unwell Medical Patient
13.2 The Acutely Unwell Pre-operative Surgical Patient
13.3 The Acutely Unwell Post-operative Surgical Patient
13.4 Ambulatory Care
13.5 The Management and Leadership of the Acute Medical Admissions Unit
13.6 Interaction with Critical Care

Domain 14: System Specific Competencies

Themes 14.1 Allergy
14.2 Oncology
14.3 Palliative and End of Life Care
14.4 Cardiovascular Medicine
14.5 Clinical Genetics
14.6 Clinical Pharmacology
14.7 Dermatology
14.8 Diabetes and Endocrinology

14.9 Gastroenterology and Hepatology
14.10 Hematology
14.11 Immunology
14.12 Infectious Diseases
14.13 Elderly
14.14 Musculoskeletal
14.15 Neurology
14.16 Psychiatry
14.17 Renal Medicine
14.18 Respiratory Medicine
14.19 Public Health and Health Promotion

Domain 15: Evidence Based Medicine

Themes

15.1 Integrating Evidence and Knowledge in Providing Optimal Care to Individual
Patients and for Patient Populations
15.2 Integrating Evidence and Knowledge through Clinical Information Systems
15.3 Using Evidence Based Medicine to Make Appropriate Clinical Decisions About Patients
15.4 Enhancing Research Evidence from Multiple Evidence Sources and Databases
15.5 Integrating Evidence and Knowledge to Critically Appraise Publications and Recommendations
15.6 Critically Appraise Clinical Reasoning and Decision Making through Known Heuristics
15.7 Establish Initiatives to seek more Evidence for Clinical Decisions

Domain 16: Leadership and Multidisciplinary Team Management

Themes

16.1 Leadership in Building Effective Teams
16.2 Leadership in Mentoring and Training Effective Teams
16.3 Leadership in Creating a Positive Culture in Effective Teams
16.4 Leadership in Integrating Cultural and Skill Diversity in Effective Teams
16.5 Leadership in Providing Effective, High Quality and Safe Health Systems
16.6 Leadership in Evaluating High Quality and Safe Health Systems
16.7 Leadership in Embedding Strategies for High Quality and Safe Health Systems
16.8 Leadership in Creating Innovative, High Quality and Safe Health Systems
16.9 Leadership in Critically Appraising, High Quality and Safe Health Systems

Domain 17: Internal Medicine Investigation Competencies

Themes

17.1 Biochemistry
17.2 Hematology
17.3 Microbiology/Immunology
17.4 Radiology
17.5 Physiological Studies
17.6 Endoscopic Examinations

17.7 Pathology
17.8 Medical Physics

Domain 18: Internal Medicine Procedural Competencies

Themes
18.1 Essential Clinical Independence Procedures Junior Years
18.2 Clinical Independence in Doing Procedures by Mid Rotation
18.2 Clinical Independence in Doing Procedures by End of Training

SECTION 7: COMMON COMPETENCIES

Common competencies are those that should be acquired by all physicians during their training period, starting within the undergraduate career and developed throughout the postgraduate career.

INTERNAL MEDICINE ESSENTIAL COMPETENCIES

The first three essential competencies cover the simple principles of history taking, clinical examination, therapeutics, and prescribing. These are competencies with which the specialist trainee should be well-acquainted from internship training. It is vital that these competencies are practiced to a high level by all specialty trainees who should be able to achieve competencies to the highest descriptor level early in their specialty training career.

The following sections describe the competencies under each domain. The reviewers found it appropriate and efficient to define and differentiate competencies related to Domains 1-7 and 17 between residency years 1 and 2, and years 3 and 4. However, for the other domains, a spiral curriculum approach is utilized. These are important competency areas with which all trainees need to engage. In the senior years, trainees should revisit all these competencies with more in depth knowledge, so their judgement is better and they start moving from closely supervised practice to a more independent approach, and start developing their leadership role in running a medical take.

DOMAIN 1: INTERNAL MEDICINE ESSENTIAL COMPETENCIES

THEME 1.1: BASIC CLINICAL SKILLS – HISTORY TAKING
Learning Objectives:
- 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:
- Recognize the importance of different elements of history

- 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
- Appropriately manage time and draw consultation to a close
- Supplement history with standardised instruments or questionnaires.
- Manage alternative and conflicting views from family, carers and
- Assimilate history from the available information from patient and other sources
- Focus on relevant aspects of history
- Critically evaluate the history in light of the degree of functional impairment, physical findings, and other data

Behaviors:

- Show respect and behave in accordance with good medical practice

Competencies:

Years 1 and 2	Years 3 and 4
- Obtains, records, and presents accurate clinical history relevant to the clinical presentation - Elicits most important positive and negative indicators of diagnosis - Starts to ignore irrelevant information - Demonstrates ability to obtain relevant focused clinical history in the context of limited time e.g. outpatients, ward referral - Demonstrates ability to target history to discriminate between likely clinical diagnoses - Records information in most informative fashion	- Demonstrates ability to rapidly obtain relevant history in context of severely ill patients - Demonstrates ability to obtain history in difficult circumstances e.g. from angry or distressed patient/relatives - Demonstrates ability to keep interview focused on most important clinical issues - Able to quickly focus questioning to establish working diagnosis and relate to relevant examination, investigation, and management plan in most acute and common chronic conditions in almost any environment

THEME 1.2: BASIC CLINICAL SKILLS – CLINICAL EXAMINATION

Learning Objectives:

- 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:

- Understand the need for a valid clinical examination
- 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
- Recognize situations where it is appropriate to not investigate at all

Skills:

- Perform an examination relevant to the presentation and risk factors that is valid, targeted, and time efficient
- 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
- Weigh the costs and benefits of investigation in each clinical situation

Behaviors:

- Show respect and behave in accordance with Good Medical Practice
- Considers patient dignity and the need for a chaperone for some or all of the examination
- Demonstrates sensitivity to patients who are in pain, embarrassed, or who are vulnerable

Competencies:

Years 1 and 2	Years 3 and 4
- Performs, accurately records, and describes findings from basic physical examination	- Performs and interprets relevant advanced focused clinical examination e.g. assessment of less common joints, neurological

- Elicits most important physical signs - Uses and interprets findings adjuncts to basic examination e.g. internal examination, blood pressure measurement, pulse oximetry, peak flow - Performs focused clinical examination directed to presenting complaint e.g. cardiorespiratory, abdominal pain	examination - Elicits subtle findings - Uses and interprets findings of advanced adjuncts to basic examination e.g. sigmoidoscopy, FAST ultrasound, echocardiography

THEME 1.3: BASIC CLINICAL SKILLS – THERAPEUTICS AND SAFE PRESCRIBING

Learning Objectives:

- To progressively develop the ability to prescribe, review, and monitor appropriate medication relevant to clinical practice including therapeutic and preventative indications
- To incorporate health and wellness promotion in clinical practice

Knowledge:

- Recall indications, contraindications, side effects, drug interactions and dosage of commonly used drugs
- Recall range of adverse drug reactions to commonly used drugs, including complementary medicines
- 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 trainees practice
- Recognize the roles of regulatory agencies involved in drug use, monitoring and licensing (e.g. Palestinian Ministry of Health and hospital formulary committees)

Skills:

- Review the continuing need for long term medications relevant to the trainees' clinical practice
- 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
- Employ validated methods to improve patient concordance with prescribed medication
- Provide comprehensible explanations to the patient, and carers when relevant, for the use of medicines
- Communicate importance of lifestyle measures to patients and refer appropriately for assistance

Behaviors:

- Recognize the benefit of minimizing number of medications taken by a patient
- 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

Competencies:

Years 1 and 2	Years 3 and 4
- Understands the importance of patient compliance with prescribed medication - Outlines the adverse effects of commonly prescribed medicines - Uses reference works to ensure accurate, precise - prescribing - Takes advice on the most appropriate medicine in all - but the most common situations - Makes sure an accurate record of prescribed medication is transmitted promptly to relevant others involved in an individual's care - Knows indications for commonly used drugs that require monitoring to avoid adverse effects	- Is aware of the regulatory bodies relevant to prescribed medicines both locally and nationally

- Modifies patient's prescriptions to ensure the most appropriate medicines are used for any specific condition - Maximizes patient compliance by minimizing the number of medicines required that is compatible with optimal patient care - Maximizes patient compliance by providing full explanations of the need for the medicines prescribed	

Basic Science:

- Mechanism of drugs at the receptor and intracellular level
- Principles of absorption, distribution, metabolism, and excretion of drugs
- Effect of aging, pregnancy, and lactation on pharmacokinetics
- Importance of genetic alterations in drug metabolism
- Pharmacological basis of drug interactions
- Impact of organ dysfunction on pharmacokinetics and dose modification

INTERNAL MEDICINE PROFESSIONAL COMPETENCIES

DOMAIN 2: INTERNAL MEDICINE PROFESSIONAL COMPETENCIES

THEME 2.1: TIME MANAGEMENT

Learning Objectives:

- To become increasingly able to prioritize and organize clinical and clerical 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 resource

Knowledge:

- Understand that organization is key to time management
- Understand that some tasks are more urgent or more important than others
- Understand the need to prioritize work according to urgency and importance
- 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

Skills:

- Identify clinical and clerical tasks requiring attention or predicted to arise
- 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 work load
- Organize and manage workload effectively

Behaviors:

- Ability to work flexibly and deal with tasks in an effective fashion
- Recognize when you or others are falling behind and take steps to rectify the situation
- Communicate changes in priority to others
- Remain calm in stressful or high pressure situations and adopt a timely, rational approach

Competencies:

Years 1 and 2	Years 3 and 4
- Recognizes the need to identify work and compiles a list of tasks - Works systematically through tasks with little attempt to prioritize - Needs direction to identify most important tasks - Sometimes slow to perform important work - Does not use other members of the clinical team	- Recognizes the most important tasks and responds appropriately - Anticipates when priorities should be changed - Starting to lead and direct the clinical team in effective fashion - Supports others who are falling behind - Automatically prioritizes and manages workload in most effective fashion

- Finds high workload very stressful - Organizes work appropriately but does not always respond to or anticipate when priorities should be changed - Starting to recognize which tasks are most urgent - Starting to utilize other members of the clinical team but not yet able to organize their work	- Communicates and delegates rapidly and clearly - Automatically responsible for organizing the clinical team - Calm leadership in stressful situations

THEME 2.2: DECISION MAKING AND CLINICAL REASONING

Learning Objectives:

- 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:

- Define the steps of diagnostic reasoning
- 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
- 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 and sensitivity, specificity in relation to diagnostic tests
- Know how to use expert advice, clinical guidelines, and algorithms, and that patients may also use non-medical information sources

Skills:

- Interpret clinical features, their reliability and relevance to clinical scenarios, including recognition of the breadth of presentation of common disorders
- Recognize critical illness and respond with due urgency
- Generate plausible hypothesises 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

Behaviors:

- 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
- 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

Competencies:

Years 1 and 2	Years 3 and 4

- In both a straightforward and a difficult clinical case, should demonstrate clinical reasoning as follows:
  ○ Develops a provisional diagnosis and a differential
	- In a complex, non-emergency or emergency case, should demonstrate clinical reasoning as follows:
	  ○ Develops a provisional diagnosis and a differential

diagnosis on the basis of the clinical evidence ○ Institutes an appropriate investigative plan ○ Institutes an appropriate therapeutic plan ○ Seeks appropriate support from others ○ Takes account of the patient's wishes	diagnosis on the basis of the clinical evidence ○ Institutes an appropriate investigative plan ○ Institutes an appropriate therapeutic plan ○ Seeks appropriate support from others ○ Takes account of the patient's wishes

THEME 2.3: THE PATIENT AS CENTRAL FOCUS OF CARE

Learning Objectives:

- To prioritize the patient's wishes encompassing their beliefs, concerns, expectations, and needs

Knowledge:

- Recall health needs of particular populations (e.g. adolescents/young adults, ethnic minorities) and recognize the impact of culture and ethnicity in presentations of physical and psychological conditions

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
- 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, actively exploring for example whether they have sought health information online, have undertaken any form of 'direct to consumer' medical testing, or purchased pharmaceuticals on line

Behaviors:

- Support patient self-management
- Recognize the duty of the medical professional to act as patient advocate

Competencies:	
Years 1 and 2	**Years 3 and 4**

- Responds honestly and promptly to patient questions but knows when to refer for senior help
- Recognizes the need for disparate approaches to individual patients
  ○ Recognizes more complex situations of communication, accommodates disparate needs, and develops strategies to cope
	- Deals rapidly with more complex situations, promotes patients self-care and ensures all opportunities are outlined
	  ○ Is able to deal with all cases to outline patient self-care and to promote its provision when it is not readily available

THEME 2.4: TEACHING AND TRAINING

Learning Objectives:

- 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 program with appropriate assessments

Knowledge:

- Outline adult learning principles relevant to medical education:
  - Identification of learning methods and effective learning environments
  - Constructions of educational objectives
  - Use of effective questioning techniques
  - Varying teaching format and stimulus
- Demonstrate knowledge of literature relevant to developments in medical education
- Outline the structure of the effective appraisal interview
- Define the roles to the various bodies involved in medical education

- Differentiate between appraisal and assessment and 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
- Provide effective feedback after teaching, and promote learner reflection
- Conduct effective appraisal
- Demonstrate effective lecture, presentation, small group, and bed side 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 programs including journal clubs
- Recognize the failing trainee

Behaviors:

- In discharging educational duties, maintain the dignity and safety of patients at all times
- Recognize 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
- Balance the needs of service delivery with the educational imperative
- Demonstrate willingness to teach trainees and other health and social workers in a variety of settings to maximize effective communication and practical skills
- Encourage discussions in the clinical settings to colleagues to share knowledge and understanding
- Maintain honesty and objectivity during appraisal and assessment
- Show willingness to participate in workplace-based assessments
- Show willingness to take up formal tuition in medical education and respond to feedback obtained after teaching sessions
- Demonstrate a willingness to become involved in the wider medical education activities and fosters an enthusiasm for medical education activity in others
- Recognize the importance of personal development as a role model to guide trainees in aspects of good professional behaviour

- Demonstrate consideration for learners including their emotional, physical, and psychological well-being with their development needs

Competencies:

Years 1 and 2	Years 3 and 4
- Develops basic PowerPoint presentations to support educational activity - Delivers small group teaching to medical students, nurses, or colleagues - Able to: o Seek and interpret simple feedback following teaching o Supervise a medical student, nurse, or colleague through a procedure o Perform a workplace based assessment including being able to give effective feedback	- Able to o Devise a variety of different assessments (e.g. multiple choice questions, work place based assessments) o Appraise a medical student, nurse, or colleague o Act as a mentor to a medical student, nurse, or colleague o Plan, develop, and deliver educational activities with clear objectives and outcomes o Plan, develop, and deliver an assessment program to support educational activities

The individual practitioner has to have appropriate attitudes and behaviors that help deal with complex situations, and to work effectively, providing leadership and working as part of the healthcare team.

THEME 2.5: PERSONAL BEHAVIOR

Learning Objectives:

- To develop the behaviors that will enable the doctor to become a senior leader able to deal with complex situations and difficult behaviors and attitudes
- To increasingly work 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 all situations

Knowledge:

- Recall and build upon the competencies defined in the Internship Program:

- 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
- Define the concept of modern medical professionalism

Skills:

- Practice with:
  - Integrity
  - Compassion
  - Altruism
  - Continuous Improvement
  - Excellence
  - Respect of Cultural and Ethnic Diversity
  - Regard to the Principles of Equity
- 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 unprofessional behavior in other colleagues
- Be able to provide specialist support to hospital and community based services
- Be able to handle enquiries from the press and other media effectively

Behaviors:

- Recognize personal beliefs and biases and understand their impact on the delivery of health services

- Recognize the need to use all healthcare resources prudently and appropriately
- Recognize the need to improve clinical leadership and management skills
- 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
- 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

Competencies:

Years 1 and 2	Years 3 and 4
- Works work well within the context of multi-professional teams - Listens well to others and takes other viewpoints into consideration - Supports patients and relatives at times of difficulty (e.g. after receiving difficult news) - Is polite and calm when called or asked to help - Responds to criticism positively and seeks to understand its origins and works to improve - Praises staff when they have done well and provides constructive feedback where there are failings in delivery of care - Wherever possible involves patients in decision making	- Recognizes when other staff are under stress and not performing as expected and provides appropriate support for them - Takes necessary action to ensure that patient safety is not compromised - Helps patients who show anger or aggression with staff or with their care or situation and works with them to find an approach to manage their problem - Is able to engender trust so that staff feel confident about sharing difficult problems and feel able to point out deficiencies in care at an early stage

INTERNAL MEDICINE BASIC TRAINING COMMON COMPETENCIES

DOMAIN 3: PATIENT SAFETY

THEME 3.1: PRIORITIZATION OF PATIENT SAFETY IN CLINICAL PRACTICE

Learning Objectives:

- To understand that patient safety depends on the organization of care and health care staff working well together and be familiar with mechanisms for reporting and learning from errors, adverse events (including 'never events'), incidents and near misses (e.g. root cause analyses)
- 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 decisions about risks
- To ensure that all staff are aware of risks and work together to minimize risk

Knowledge:

- Outline the features of a safe working environment
- 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 the personal, clinical, and organizational settings (e.g. use of SBAR (Situation, Background, Assessment, Recommendations) and equivalent systems)
- Recall local procedures for optimal practice (e.g. GI bleed protocol, safe prescribing)

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, and ensure faulty equipment is reported appropriately
- Improve patients' and colleagues' understanding of the side effects and contraindications of therapeutic intervention

- Sensitively counsel a colleague following a significant event, or near 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

Behaviors:

- Continue to maintain a high level of safety awareness and consciousness at all times
- Encourage feedback from all members of the team on safety issues and appropriately report errors, adverse events (including 'never events'), incidents, and near misses, and participate fully in processes designed to learn from such matters, e.g. root cause analyses.
- Show willingness to take action when concerns are raised about performance of members of the healthcare team, and act appropriately when these concerns are voiced to you by others, recognizing the need for a blame free environment, the necessity to respond honestly in all circumstances, and the need to provide apology when appropriate
- Continue to be aware of one's own limitations, and operate within them competently

Competencies:

Years 1 and 2	Years 3 and 4
- Discusses risks of treatments with patients and is able to help patients make decisions about their treatment - Does not hurry patients into decisions - Promotes patients safety to more junior colleagues - Always ensures the safe use of equipment - Follows guidelines unless there is a clear reason for doing otherwise - Acts promptly when a patient's condition deteriorates - Demonstrates ability to lead team discussion on risk assessment and risk management and to work with the team to make organisational changes that will reduce risk and improve safety - Recognizes untoward or significant events and always reports them - Leads discussion of causes of clinical incidents with staff and	- Able to assess the risks across the system of care and to work with colleagues from different departments or sectors to ensure safety across the health care system - Able to undertake a root cause analysis - Shows support for junior colleagues who are involved in untoward events - Is fastidious about following safety protocols and encourages junior colleagues to do the same

enables them to reflect on the causes - Able to participate in a root cause analysis	

THEME 3.2: TEAM WORKING AND PATIENT SAFETY

Learning Objectives:

- To develop the ability to work well in a variety of different teams–for example 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 and safer care

Knowledge:

- Outline the components of effective collaboration
- Describe the roles and responsibilities of members of the healthcare team
- Outline factors adversely affecting a doctor's performance and methods to rectify them

Skills:

- Practice with attention to the important steps of providing good continuity of care
- Accurate attributable note-keeping
- Preparation of patient lists with clarification of problems and ongoing care plans
- Detailed hand over 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

Behaviors:	
- Encourage an open environment to foster concerns and issues about the functioning and safety of team working - 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 Primary Care team following hospital discharge	
Competencies:	
Years 1 and 2	**Years 3 and 4**
- Works well within the multidisciplinary team and recognizes when assistance is required from the relevant team member - Demonstrates awareness of own contribution to patient safety within a team and is able to outline the roles of other team members - Keeps records up-to-date, legible, and relevant to the safe progress of the patient - Hands over care in a precise, timely, and effective manner - Demonstrates ability to discuss problems within a team to senior colleagues - Provides an analysis and plan for change - Demonstrates ability to work with the virtual team to develop the ability to work well in a variety of different teams–for example 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	- Leads multidisciplinary team meetings but promotes contribution from all team members - Recognizes need for optimal team dynamics and promotes conflict resolution - Demonstrates ability to convey to patients after a handover of care that although there is a different team, the care is continuous - Leads multi-disciplinary team meetings allowing all voices to be heard and considered. - Fosters an atmosphere of collaboration - Demonstrates ability to work with the virtual team - Ensures that team functioning is maintained at all times - Promotes rapid conflict resolution

THEME 3.3: PRINCIPLES OF QUALITY AND SAFETY IMPROVEMENT

Learning Objectives:

- 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:

- Understand the elements of clinical governance
- 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

Skills:

- Adopt strategies to reduce risk (e.g. surgical pause)
- Contribute to quality improvement processes such as:
    - Audit of personal and departmental performance
    - Errors / discrepancy meetings
    - Critical incident reporting
    - Unit morbidity and mortality meetings
    - Local and national databases
- Maintain a folder of information and evidence drawn from personal medical practice
- Reflect regularly on personal standards of medical practice in accordance with national guidance on licensing and revalidation

Behaviors:

- Show willingness to participate in safety improvement strategies such as critical incident reporting
- 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

Competencies:	
Years 1 and 2	**Years 3 and 4**
- Understands that clinical governance is the over-arching framework that unites a range of quality improvement activities. This safeguards high standards of care and facilitates the development of improved clinical services. - Maintains personal portfolio - Able to define key elements of clinical governance - Engages in audit	- Demonstrates personal and service performance - Designs audit protocols and completes audit loop - Leads in review of patient safety issues - Implements change to improve service - Engages and guides others to embrace governance

Issues of communication both with patients and carers and within the healthcare team are often causes of complaint. Inadequate communication can lead to poorer standards of patient care. Specific issues are highlighted within this section to promote better communication generally and within certain situations.

DOMAIN 4: COMMUNICATION SKILLS

THEME 4.1: RELATIONSHIPS WITH PATIENTS AND COMMUNICATION WITHIN A CONSULTATION
Learning Objectives:
- To communicate effectively and sensitively with patients, relatives, and carers
Knowledge:
- Structure an interview appropriately - Understand the importance of the patient's background, culture, education, and preconceptions (ideas, concerns, expectations) to the process - Understand the importance of the developmental stage when communicating with adolescents and young adults
Skills:
- Establish a rapport with the patient and any relevant others (e.g. carers) - Listen actively and question sensitively to guide the patient and to clarify information in particular with regard to matters that they may find

it difficult to discuss (e.g. domestic violence or other abuse)
- Identify and manage communication barriers (e.g. cognitive impairment, speech and hearing problems), 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/carer's understanding, ensuring that all their concerns/questions have been covered
- Indicate when the interview is nearing its end and conclude with a summary
- Make accurate contemporaneous records of the discussion
- Manage follow-up effectively

Behaviors:

- Approach the situation with courtesy, empathy, compassion and professionalism, especially by appropriate body language - act as an equal not a superior
- Ensure that the approach is inclusive and patient centred 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

Competencies:

Years 1 and 2	Years 3 and 4
- Conducts simple interviews with due empathy and sensitivity and writes accurate records thereof - Conducts interviews on complex concepts satisfactorily, confirming that accurate two-way communication has occurred	- Handles communication difficulties appropriately, involving others as necessary, establishes excellent rapport - Shows mastery of patient communication in all situations, anticipating and managing any difficulties which may occur

THEME 4.2: BREAKING BAD NEWS

Learning Objectives:

- 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:

- Recognize that the way in which bad news is delivered irretrievably affects the subsequent relationship with the patient

- Recognize that every patient may desire different levels of explanation and have different responses to bad news
- 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
- 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, for example:
    - Set the scene
    - Establish understanding
    - Discuss: diagnosis, implications, treatment, prognosis, and subsequent care

Behaviors:

- Take leadership in breaking bad news

- Respect the different ways people react to bad news

Competencies:

Years 1 and 2	Years 3 and 4
- Recognizes when bad news must be imparted - Recognizes the need to develop specific skills - Requires guidance to deal with most cases - Able to break bad news in planned settings - Prepares well for interview - Prepares patient to receive bad news - Responsive to patient reactions	- Able to break bad news in unexpected and planned settings - Clear structure to interview - Establishes what patient wants to know and ensures understanding - Able to conclude interview - Skilfully delivers bad news in any circumstance including adverse events - Arranges follow up as appropriate - Able to teach others how to break bad news

THEME 4.3: COMPLAINTS AND MEDICAL ERROR

Learning Objectives:

- To appreciate the impact of effective and early communication in handling complaints from patients
- To understand the importance of probity in apologizing for medical errors

Knowledge:

- Basic consultation techniques and skills to include:
    - Define the local complaints procedure
    - Recognize factors likely to lead to complaints (poor communication, dishonesty etc.)
    - Adopt behavior likely to prevent complaints
    - Deal with dissatisfied patients or relatives
    - Recognize when something has gone wrong and identify appropriate staff to communicate with
    - Act with honesty and sensitivity in a non-confrontational manner
- 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
- 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

Behaviors:

- Take leadership over complaint issues
- Recognize the impact of complaints and medical error on staff, patients, and the 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

Competencies:

Years 1 and 2	Years 3 and 4
- Defines the local complaints procedure - Recognizes need for honesty in management of complaints - Responds promptly to concerns that have been raised - Understands the importance of an effective apology - Learns from errors - Manages conflict without confrontation - Recognizes and responds to the difference between system failure and individual error	- Recognizes and manages the effects of any complaint within members of the team - Provides timely accurate written responses to complaints when required - Provides leadership in the management of complaints

THEME 4.4: COMMUNICATION WITH COLLEAGUES AND CO-OPERATION

Learning Objectives:

- To recognize and accept the responsibilities and role of the doctor in relation to other healthcare professionals
- To communicate succinctly and effectively with other professionals as appropriate

Knowledge:

- Understand the section in "Good Medical Practice" on working with colleagues, in particular:
    - 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 care is transferred
- 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

Behaviors:

- Be aware of the importance of, and take part in, multi-disciplinary work, including adoption of a leadership role when appropriate
- 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 you, 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

Competencies:

Years 1 and 2	Years 3 and 4
- Accepts his/her role in the healthcare team and communicates appropriately with all relevant members thereof - Fully recognizes the role of, and communicates appropriately with, all relevant potential team members (individual and corporate)	- Able to predict and manage conflict between members of the healthcare team - Able to take a leadership role as appropriate, fully respecting the skills, responsibilities and viewpoints of all team members

The legal and ethical framework associated with healthcare must be a vital part of the practitioner's competencies if safe practice is to be sustained. Within this, the ethical aspects of research must be considered. The competencies associated with these areas of practice are defined below.

DOMAIN 5: DATA COLLECTION, RESEARCH, AND ETHICS

THEME 5.1: PRINCIPLES OF MEDICAL ETHICS AND CONFIDENTIALITY
Learning Objectives:
- To know, understand, and apply appropriately the principles, guidance, and laws regarding medical ethics and confidentiality
Knowledge:
- Define the role of the Caldicott Guardian within an institution, and outline the process of attaining Caldicott 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 - Recognize the factors influencing ethical decision making: religion, moral beliefs, and cultural practices - Do not resuscitate: Define the standards of practice defined by the PMC when deciding to withhold or withdraw life-prolonging treatment - Outline the principles of any mental health regulations - Demonstrate knowledge of the principles of medical ethics - Outline and follow the guidance given by the PMC on confidentiality
Skills:
- Use and share information with the highest regard for confidentiality, and encourage such behavior in other members of the team - 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
Behaviors:
- Encourage ethical reflection in others - Show willingness to seek advice of peers, legal bodies, and the PMC in the event of ethical dilemmas over disclosure and confidentiality - 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

Competencies:

Years 1 and 2	Years 3 and 4
- Uses and shares information with the highest regard for confidentiality adhering to the Data Protection Act and Freedom of Information Act in addition to guidance given by the PMC - Is familiar with the principles of the Mental Capacity Act - Participates in decisions about resuscitation status and withholding or withdrawing treatment - Counsels patients on the need for information distribution within members of the immediate healthcare team and seek patients' consent for disclosure of identifiable information	- Defines the role of the Caldicott Guardian within an institution, and outline the process of attaining Caldicott approval for audit or research - Is able to assume a full role in making and implementing decisions about resuscitation status and withholding or withdrawing treatment

THEME 5.2: VALID CONSENT

Learning Objectives:

- To obtain valid consent from the patient

Knowledge:

- Outline the guidance given by the PMC on consent, in particular:
    - 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
- Provide a balanced view of all care options

Behaviors:	
- Respect a patient's rights of autonomy even in situations where their decision might put them at risk of harm - 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 beliefs prevent a usual professional action	
Competencies:	
Years 1 and 2	**Years 3 and 4**
- Obtains consent for straightforward treatments with appropriate regard for patient's autonomy - Able to explain complex treatments meaningfully in layman's terms and thereby to obtain appropriate consent	- Obtains consent in "grey-area" situations where the best option for the patient is not clear - Obtains consent in all situations even when there are problems of communication and capacity

THEME 5.3: LEGAL FRAMEWORK FOR PRACTICE
Learning Objectives:
- To understand the legal framework within which healthcare is provided in Palestine in order to ensure that personal clinical practice is always provided in line with this legal framework
Knowledge:
- All decisions and actions must be in the best interest of the patient - Understand the legislative framework within which healthcare is provided in Palestine–in particular death certification and the role of the coroner, child protection legislation, mental health legislation (including powers to detain a patient and giving emergency treatment against a patient's will under common law), advanced directives and living wills, withdrawing and withholding treatment, decisions regarding resuscitation of patients, surrogate decision making, organ donation and retention, communicable disease notification, medical risk and driving, provision of continuing care, and community nursing care by a local authorities - Understand sources of medical legal information - Understand disciplinary processes in relation to medical malpractice

- Understand the role of the medical practitioner in relation to personal health and substance misuse, including understanding the procedure to be followed when such abuse is suspected

Skills:

- Ability to cooperate with other agencies with regard to legal requirements–including reporting to the coroner's officer or the proper officer of the local authority in relevant circumstances
- Ability to prepare appropriate medical legal statements for submission to the coroner's court, fatal accident inquiry, and any other legal proceedings
- Be prepared to present such material in court
- Incorporate legal principles into day to day practice
- Practice and promote accurate documentation within clinical practice

Behaviors:

- Show willingness to seek advice from healthcare and legal bodies (including defence unions) and the PMC on medico-legal matters
- Promote reflection on legal issues by members of the team

Competencies:

Years 1 and 2	Years 3 and 4
- Demonstrates knowledge of the legal framework associated with medical qualification and medical practice and the responsibilities of registration with the PMC - Demonstrates knowledge of the limits to professional capabilities, particularly those of pre-registration doctors - Identifies with senior team members cases which should be reported to external bodies and where appropriate and initiate that report - Identifies with senior members of the clinical team situations where consideration of medical legal matters may be of benefit.	- Works with external strategy bodies around cases that should be reported to them; collaborates with them on complex cases preparing brief statements and reports as required - Actively promotes discussion on medical legal aspects of cases within the clinical environment - Participates in decision making with regard to resuscitation decisions and around decisions related to driving, discussing the issues openly but sensitively with patients and relatives - Works with external strategy bodies around cases that should be reported to them, collaborates with them on complex cases providing full medical legal statements as required and present material in court where necessary

- Maintains awareness of local hospital procedures around substance abuse and clinical malpractice	- Leads the clinical team in ensuring medical legal factors are considered openly and consistently wherever appropriate in the care of a patient - Ensures that patients and relatives are involved openly in all such decisions

THEME 5.4: ETHICAL RESEARCH
Learning Objectives:
- To ensure that research is undertaken using relevant ethical guidelines
Knowledge:
- Outline the Palestinian Medical Council (PMC) guidance on good practice in research - 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 - 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 presentations skills - Understand the difference between population-based assessment and unit-based studies and be able to evaluate outcomes for epidemiological work
Behaviors:
- Recognize the ethical responsibilities to conduct research with honesty and integrity, safeguarding the interests of the patient and obtaining ethical approval when appropriate - Follow guidelines on ethical conduct in research and consent for research

- Show willingness to the promotion of involvement in research	
Competencies:	
Years 1 and 2	**Years 3 and 4**
- Defines ethical research and demonstrates awareness of PMC guidelines - Differentiates audit and research - Knows how to use databases - Demonstrates ability to write a scientific paper - Demonstrates critical appraisal skills	- Demonstrates ability to apply for appropriate ethical research approval - Demonstrates knowledge of research funding sources - Demonstrates good presentation and writing skills - Provides leadership in research - Promotes research activity - Formulates and develops research pathways

It is the responsibility of each practitioner to ensure that they are aware of relevant developments in clinical care and to ensure that their practice conforms to the highest standards of practice possible. An awareness of the evidence base behind current practice and a need to audit one's own practice is vital for the physician training in Acute Internal Medicine.

THEME 5.5: EVIDENCE AND GUIDELINES
Learning Objectives:
- 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:
- Understand of the application of statistics in scientific medical practice - Understand the advantages and disadvantages of different study methodologies (randomized control 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 - Understand the processes that result in nationally applicable guidelines from the PMC

Skills:

- Ability to search the medical literature including use of PubMed, Medline, Cochrane reviews and the internet
- Appraise retrieved evidence to address a clinical question
- 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

Behaviors:

- Keep up to date with national reviews and guidelines of practice
- 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

Competencies:

Years 1 and 2	Years 3 and 4
- Participates in departmental or other local journal club - Critically reviews an article to identify the level of evidence - Leads in a departmental or other local journal club - Undertakes a literature review in relation to a clinical problem or topic	- Produce a review article on a clinical topic, having reviewed and appraised the relevant literature - Perform a systematic review of the medical literature - Contribute to the development of local or national clinical guidelines

THEME 5.6: AUDIT

Learning Objectives:

- To progressively develop the ability to perform an audit of clinical practice and to apply the findings appropriately

Knowledge:

- Understand the different methods of obtaining data for audit including patient feedback questionnaires, hospital sources, and national reference data
- Understand the role of audit (developing patient care, risk management etc.)

- Understand the steps involved in completing the audit cycle
- Understand the working and uses of national and local databases used for audit (e.g., data collection systems, cancer registries, etc.) as well as the working and uses of local and national systems available for reporting and learning from clinical incidents and near misses in Palestine

Skills:

- Design, implement, and complete audit cycles
- Contribute to local and national audit projects as appropriate
- Support audit by junior medical trainees and within the multi-disciplinary team

Behaviors:

- Recognize the need for audit in clinical practice to promote standard setting and quality assurance

Competencies:

Years 1 and 2	Years 3 and 4
- Attends departmental audit meetings - Contributes data to a local or national audit - Identifies a problem and develops standards for a local audit	- Compares the results of an audit with criteria or standards to reach conclusions - Uses the findings of an audit to develop and implement change - Organizes or leads a departmental audit meeting - Leads a complete clinical audit cycle including development of conclusions, implementation of findings and re-audit to assess the effectiveness of the changes - Becomes audit lead for an institution or organization

For all hospital-based physicians there is a need to be aware of public health issues and health promotion. Competencies that promote this awareness are defined below.

DOMAIN 6: HEALTH PROMOTION AND PUBLIC HEALTH

THEME 6.1: INFECTION CONTROL

Learning Objectives:

- 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:

- Understand the principles of infection control
- Understand the principles of preventing infection in high-risk groups (e.g. managing antibiotic use to prevent clostridium difficile) including understanding the local antibiotic prescribing policy
- Understand the role of notification within the hospital and identify the principle notifiable diseases for Palestine and international purposes
- Understand the role of the local authorities in relation to infection control

Skills:

- Recognize the potential for infection within patients being cared for
- Counsel patients on matters of infection risk, transmission, and control
- Actively engage in local infection control procedures, e.g. hand hygiene
- Actively engage in local infection control monitoring and reporting processes
- Prescribe antibiotics according to local antibiotic guidelines
- Recognize potential for cross-infection in clinical settings

Behaviors:

- Encourage all staff, patients, and relatives to observe infection control principles

Competencies:

Years 1 and 2	Years 3 and 4
- Always follows local infection control protocols, including washing hands before and after seeing all patients.	- Demonstrate an ability to perform more complex clinical procedures while maintaining aseptic technique throughout

- Is able to explain infection control protocols to students and to patients and their relatives - Always defers to the nursing team about matters of ward management - Is aware of infections of concern, including MRSA and C difficile - Is aware of the risks of nosocomial infections - Understands the links between antibiotic prescription and the development of nosocomial infections - Always discusses antibiotic use with a more senior colleague - Demonstrates ability to perform simple clinical procedures utilising aseptic technique - Manages simple common infections in patients using first-line treatments - Communicates effectively to the patient the need for treatment and any prevention messages to prevent re-infection or spread - Liaises with diagnostic departments in relation to appropriate investigations and tests	- Identify potential for infection among high-risk patients obtaining appropriate investigations and considering the use of second line therapies - Communicate effectively to patients and their relatives with regard to the infection, the need for treatment, and any associated risks of therapy - Work effectively with diagnostic departments in relation to identifying appropriate investigations and monitoring therapy - Work in collaboration with external agencies in relation to reporting common notifiable diseases, and collaborating over any appropriate investigation or management - Demonstrate an ability to perform most complex clinical procedures while maintaining full aseptic precautions, including those procedures which require multiple staff - Identify the possibility of unusual and uncommon infections and the potential for atypical presentation of more frequent infections Manage these cases effectively with potential use of tertiary treatments being undertaken in collaboration with infection control specialists - Work in collaboration with diagnostic departments to investigate and manage the most complex types of infection including those potentially requiring isolation facilities - Work in collaboration with external agencies to manage the potential for infection control within the wider community including communicating effectively with the general public and liaising with regional and national bodies where appropriate

THEME 6.2: MAINTAINING LONG-TERM CONDITIONS AND PROMOTING PATIENT SELF-CARE

Learning Objectives:

- To understand the impact of demographic changes and co-existing multi-morbidities and their impact on healthcare organizations

Knowledge:

- Recall the natural history of diseases that run a chronic course
- 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
- Understand the experience of adolescents and young adults with long term conditions and/or disability diagnosed in childhood requiring transition into adult services and the potential implications on psychological, social, and educational/vocational development (including awareness of the Disability Discrimination Act) and how developmental stage may impact self-management

Skills:

- Develop and agree on a management plan with the patient (and carers), ensuring comprehension to maximize self-care within care pathways when relevant
- 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

Behaviors:

- Show willingness to act as a patient advocate
- Recognize the impact of long-term conditions on the patient, family, and 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
- 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

Competencies:

Years 1 and 2	Years 3 and 4
- Describes relevant long term conditions - Understands the meaning of quality of life - Is aware of the need for promotion of patient self-care - Helps the patient with an understanding of their condition and how they can promote self-management - Demonstrates awareness of management of relevant long term conditions - Is aware of the tools and devices that can be used in long term conditions - Is aware of external agencies that can improve patient care - Teaches the patient and the team to promote excellent patient care	- Develops management plans in partnership with the patient that are pertinent to the patient's long term condition - Can use relevant tools and devices in improving patient care - Engages with relevant external agencies to promote patient care - Provides leadership within the multidisciplinary team that is responsible for management of patients with long term conditions - Helps the patient networks develop and strengthen

THEME 6.3: REDUCE ILL HEALTH AND HEALTHCARE INEQUALITIES

Learning Objectives:

- 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:

- Understand the factors that influence the incidence and prevalence of common conditions
- Understand the factors that influence health–psychological, biological, social, cultural and economic, especially work and poverty
- Understand the influence of lifestyle on health and the factors that influence an individual to change their lifestyle

- Understand the purpose of screening programs and know in broad terms the common programs available within Palestine
- 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 globalisation 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 the developing world
- Outline the major causes of global morbidity and mortality, and effective, affordable interventions to reduce these
- Recognize the links between health and work, including the positive benefits of work on well-being, and develop skills to enable patients with illness to remain at work or return to work whenever appropriate

Skills:

- Identify opportunities to prevent ill health and disease in patients
- 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
- Identify opportunities to promote changes in lifestyle and other actions which will positively improve health, e.g. to encourage smoking cessation and/or weight reduction
- Work collaboratively with other agencies (e.g. occupational health services) to improve the health of individual patients and communities, and help patients to remain at or return to work whenever appropriate
- Encourage patients to remain at or return to work whenever appropriate
- Work collaboratively with others to encourage patients to safely reduce their weight if obese and increase their physical activity/exercise
- Provide information to an individual about mechanisms to support them remaining at work or returning to work, and offer encouragement that they should do so whenever possible
- Engage with local or regional initiatives to support patients remaining at or returning to work

Behaviors:

- Engage in effective team-working around the improvement of health
- Encourage where appropriate screening to facilitate early intervention

Competencies:	
Years 1 and 2	**Years 3 and 4**
- Discusses with patients and others factors that could influence their personal health - Maintains own health and is aware of own responsibility as a doctor to promote healthy approach to work-life balance - Communicates information to individuals about the factors that influence their personal health - Supports individuals in a simple health promotion activity (e.g. smoking cessation, weight reduction, increasing physical activity/exercise	- Communicates to individuals and their relatives information about the factors that influence their personal health - Supports small groups in a simple health promotion activity (e.g. smoking cessation, weight reduction, increasing physical activity/exercise) - Provides information to individuals about screening programs and offers information about its risks and benefits - Discusses with small groups the factors that have an influence on their health and describes initiatives they can undertake to address these - Provides information to an individual about a screening program offering specific guidance in relation to their personal health and circumstances concerning the factors that would affect the risks and benefits of screening to them as an individual - Engage with local or regional initiatives to improve individual health and reduce inequalities in health between communities

Working within the health service, there is a need for trainees to understand and work within the organizational structures that are set.

THEME 6.4: UNDERSTAND PATIENT CARE WITHIN THE PALESTINIAN HEALTHCARE STRUCTURE
Learning Objectives:
- To understand the structure of the Palestinian and other local healthcare structures and the management of such systems in order to be able to participate fully in managing healthcare provision
Knowledge:

- Understand the guidance given on management and doctors by the PMC
- Understand the local structure of healthcare systems in your locality
- Understand the structure and function of healthcare systems as they apply to your specialty
- Understand the consistent debates and changes that occur in the healthcare system including the political, social, technical, economic, organizational and professional aspects that can impact on provision of service
- Understand the importance of local demographic, socio-economic, and health data, and their use to improve system performance
- Understand the principles of:
  o Healthcare structure and relationships
  o Healthcare finance and budgeting
  o Consultant contract and the contracting process
  o Resource allocation
  o The role of the independent sector as providers of healthcare
- Understand the principles of recruitment and appointment procedures

Skills:
- Participate in managerial meetings - Take an active role in promoting the best use of healthcare resources - Work with stakeholders to create and sustain a patient-centered service - Employ new technologies appropriately, including information technology - Conduct an assessment of the community needs for specific health improvement measures
Behaviors:
- Recognize the importance of just allocation of healthcare resources

- Recognize the role of doctors as active participants in healthcare systems
- Respond appropriately to health service targets and take part in the development of services
- Recognize the role of patients and carers as active participants in healthcare systems and service planning
- Show willingness to improve managerial skills (e.g. management courses) and engage in management of the service

Competencies:

Years 1 and 2	Years 3 and 4
- Describes in outline the roles of primary care, including general practice, public health, community, mental health, secondary and tertiary care services within healthcare - Describes the roles of members of the clinical team and the relationships between those roles - Participates fully in clinical coding arrangements and other relevant local activities - Can describe in outline the roles of primary care, community, and secondary care services within healthcare - Can describe the roles of members of the clinical team and the relationships between those roles - Participates fully in clinical coding arrangements and other relevant local activities	- Can describe the relationship between Palestinian Medical Council, hospitals, secondary care, and community care, including relationships with local authorities and social services - Participates in team and clinical directorate meetings including discussions around service development - Discusses the most recent guidance from the relevant health regulatory agencies in relation to the specialty - Describes the local structure for health services and how they relate to regional or devolved administration structures - Is able to discuss funding allocation processes from central government in outline and how that might impact the local health organization - Participates fully in clinical directorate meetings and other appropriate local management structures in planning and delivering healthcare within the specialty - Participates as appropriate in staff recruitment processes in order to deliver and effective clinical team - Within the Directorate, collaborates with other stake holders to ensure that their needs and views are considered in managing services

A good physician will ensure that the knowledge possessed is communicated effectively. In the formal setting of teaching and training, specific competencies will have to be acquired to ensure the practitioner recognizes the best practice and techniques.

DOMAIN 7: GENERAL INTERNAL MEDICINE COMPETENCIES

THEME 7.1: ACUTE MEDICAL TAKE
Learning Objectives:
- To be able to provide leadership in the acute medical unit from a clinical, managerial, research, and educational viewpoint
Knowledge:
- Outline parameters influencing the need for in patient care and the appropriate dependency setting within the hospital - Outline parameters for high quality ambulatory care - Cite evidence base for best practice
Skills:
- Co-ordinate acute medical take as part of multidisciplinary team - Recognize and actively manage patients in relation to illness severity including monitoring response to intervention - Teach evidence-based best practice patient management within the acute setting - Develop safe outpatient protocols and procedures - Co-ordinate care at home when appropriate - Provide back up for colleagues during practical procedures (e.g. failed central venous access) - Establish, maintain, and secure a patent airway - Teach and supervise procedural skills within the acute setting - Recognize atypical presentations of common disease, and typical presentations of uncommon disease
Behaviors:
- Maintain highest standards of care through leadership, training, and management throughout Acute Care service in organization - Promote active acute intervention when appropriate - Promote multidisciplinary management of common medical problems including liaison with other specialties - Promote alternatives to hospital admission when appropriate, such as out-patient care - Adopt proactive role in identifying potential risk of infection to others - Promote excellent use of investigative resources - Recognize active role in healthcare resource management

- Show willingness to set up services from the acute setting (e.g. falls, DVT)

INTERNAL MEDICINE EMERGENCY PRESENTATIONS

DOMAIN 8: INTERNAL MEDICINE EMERGENCY PRESENTATIONS

THEME 8.1: CARDIO-RESPIRATORY ARREST
Learning Objectives:
- To have full competence in the assessment and resuscitation of the patient who has suffered a cardio-respiratory arrest
Knowledge:
- Demonstrate knowledge of when advanced life support should be discontinued, in consultation with colleagues assisting with case - Demonstrate knowledge of safe transfer to ITU if required - Demonstrate knowledge of evidence base for best practice
Skills:
- Competently lead a cardiac arrest team - Delegate tasks to colleagues equipped with appropriate competencies - Debrief team after arrest - Transfer the patient safely to ITU - Teach evidence-based best practice patient management - Debrief the resuscitation officer or department after the cardiac arrest and discuss issues for concern and improvement
Behaviors:
- Demonstrate willingness to undergo Acute Life Support course re-certification every three years - Communicate with critical care team re-transfer to critical care unit - Communicate with resuscitation department
Basic Science:
- Cardiovascular structure and function:

- Conduction
- Cardiac cycle
- Cardiac output

- Blood pressure homeostasis:
  - Circulatory control (e.g. splanchnic, macro, and microvascular, pulmonary, cerebral)
  - Pathogenesis of shock, hypovolemic, septic, and cardiogenic
  - Lactic acidosis
  - Laboratory markers of cardiac disease
- Pharmacology of major drug classes used

Evaluation of type 1 and 2 respiratory failure

THEME 8.2: SHOCKED PATIENT

Learning Objectives:

- To be able to identify a shocked patient, assess their clinical state, produce a list of appropriate differential diagnoses, and initiate immediate management

Knowledge:

- Recognize rarer forms of shock (e.g. spinal, Addisonian crisis)
- Outline the indications for, and limitations of, central venous access and pressure monitoring
- Outline the legal framework for organ donation
- Demonstrate a detailed knowledge of the Surviving Sepsis 2008 International Guidelines for the management of severe sepsis and septic shock
- Demonstrate knowledge of non-invasive measurements of cardiovascular hemodynamics
- Demonstrate the knowledge for intra-aortic balloon pumping
- Demonstrate the knowledge of safe transfer of the critically-ill patient

Skills:

- Leads major (non-traumatic) resuscitation
- Identify incipient organ failure
- Order, interpret, and act on more specialist tests appropriately based on initial investigations

- Insert central line safely when indicated
- Implement protocols and care bundles appropriately (e.g. septic bundles)
- Expert assessment of neurological status of acutely unwell patient, including diagnosis of brainstem death
- Co-ordinate and manage care within a HDU/Level 2 setting
- Implement surviving sepsis guidelines appropriately
- Adjust therapy to non-invasive measurements of cardiovascular hemodynamics
- Insert an arterial line safely when indicated
- Adopt a leadership role to perform of safe transfer of the critically-ill patient

Behaviors:

- Adopt leadership role
- Arrange transfer of patient to specialist team (cardiac, ICU) when appropriate
- Discuss prognosis with patient/carer
- Discuss issues of donation appropriately with transplant coordinators, and family/carers of patient

Basic Science:

- Pathogenesis of shock, hypovolemic, septic, and cardiogenic
- Lactic acidosis
- Pharmacology of major drug classes used
- Fluid and electrolyte balance status
- Pathophysiology of cardiac, ventilation, and renal systems

THEME 8.3: UNCONSCIOUS PATIENT

Learning Objectives:

- To 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

Knowledge:

- Identify rarer causes of coma and relevant investigations

- Outline more complex management options
- Detail the legal framework for organ donation

Skills:

- Provide robust airway support for the unconscious patient including the use of tracheal masks and endotracheal intubation when appropriate
- Order, interpret and act on more specialist tests based on initial investigations
- Manage transfer of patient to appropriate arena of care
- Perform tests for brain stem death

Behaviors:

- Adopt leadership role
- Involve carer/next-of-kin in decision-making process where appropriate
- Make difficult ethical choices (e.g., DNR) appropriately and sensitively
- Discuss issues of donation appropriately with transplant co-ordinators, and family/carers of patient

Basic Science:

- Drug toxicity
- Cerebral events
- Glasgow coma scale
- Cerebral edema physiology
- Cerebral isomoles and csf fluid exchange mechanisms

THEME 8.4: ANAPHYLAXIS

Learning Objectives:

- To 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

Knowledge:

- Be aware of the full range of allergies and other provoking stimuli causing anaphylactic shock

- Elucidate the management of individual patients at risk of anaphylactic shock from any cause
- Recall evidence base for best practice in management of acute anaphylaxis

Skills:

- As Acute Life Support team leader, lead major resuscitation
- Identify and manage all clinical manifestations and associations of anaphylactic shock (laryngoedema, urticaria/angioedema, hypotension and cardiac arrest)
- Institute more specialized tests based on suspected etiology
- Maintain and secure a patient airway in patients with laryngoedema

Behaviors:

- Adopt leadership and teaching role
- Arrange transfer of patient to a specialist team when appropriate
- Discuss prognosis with patient/carer
- Ensure appropriate further investigation and management

Basic Science:

- Type 1 to type 4 hypersensitivity reactions immunology
- Mast cells de-granulation
- Histamine release

INTERNAL MEDICINE COMMON MEDICAL PRESENTATIONS

DOMAIN 9: INTERNAL MEDICINE COMMON MEDICAL PRESENTATIONS

THEME 9.1: ABDOMINAL PAIN

Learning Objectives:

- To be able to assess a patient presenting with abdominal pain to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Identify differences in presentation between functional symptoms and organic disease
- Demonstrate knowledge of focused ultrasound scanning of the abdomen

Skills:

- Communicate with patients with functional symptoms in a comprehensible and sensitive manner
- Ensure a FAST scan is performed in patients who present with abdominal pain

Behaviors:

- Recognize the prominence of the potential for non-organic illness in abdominal pain
- Recognize role of specialist pain clinics and mental health services in chronic pain
- Report results of USS with radiology and discuss findings

Basic Science:

- Understand pain receptors
- Anatomy of GI Tract and gut motility
- Acute inflammatory markers (e.g. appendicitis)

THEME 9.2: ACUTE BACK PAIN

Learning Objectives:

- To 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

Knowledge:

- Recall the pathophysiology of acute back pain
- Outline the difference between vertebral osteomyelitis and epidural abscess
- Outline the indications for surgery in vertebral osteomyelitis and epidural abscess
- Acute cord syndrome

Skills:

- Order, interpret and act on urgent MRI of spine, including urgent treatment when indicated
- Investigate and refer appropriately when abdominal pathology is suspected
- Order and interpret radiology imaging to differentiate between osteomyelitis and epidural abscess
- Manage medically as appropriate and refer for surgery when indicated

Behaviors:

- Involve orthopedics/rheumatologists/physiotherapists when indicated

Basic Science:

- Knowledge of dermatomal anatomy, lumbar sacral anatomy, disc structure)

THEME 9.3: ACUTE KIDNEY INJURY AND CHRONIC KIDNEY DISEASE

Learning Objectives:

- To able to assess a patient presenting with impaired renal function, distinguishing acute kidney injury from chronic kidney disease, and producing a valid differential diagnosis, plan for investigation, and formulating and implementing an appropriate management plan
- To be aware of the methods for delivering renal replacement therapy (RRT) and able to assess and manage a patient receiving RRT who presents acutely to hospital

Knowledge:

- Describe the less common conditions that cause chronic kidney disease and acute kidney injury

- Outline the clinical approach required to diagnose less common causes of acute kidney injury and chronic kidney disease
- Describe the principles of maintaining fluid balance in the complex patient
- Describe the basic details of the methods of providing RRT

Skills:

- Formulate a plan for investigation and management of a patient with chronic kidney disease and/or acute kidney injury
- Recognize the presence of urinary obstruction or renal inflammation as causes of acute kidney injury
- Assess fluid balance and prescribe fluids appropriately in the complex patient
- Prescribe drugs appropriately in the patient with renal failure
- Formulate a plan for management of a patient receiving RRT who presents acutely to hospital

Behaviors:

- Ensure appropriate and timely specialist renal input
- Recognize that patients on long term RRT may have valuable insight into the nature of their symptoms and ensure that this is appropriately considered in management plans

Basic Science:

- Structure and function of the renal system and male and female genital tract (link to care of the pregnant woman, endocrine)
- Regulation of fluid and electrolyte status
- Acid base regulation (link to respiratory)
- Urine composition
- Hormonal regulation–ADH, renin-angiotensin system (link to endocrine)
- Measurement of renal function/calculation of creatinine clearance and GFR
- Principles of renal replacement therapy–transplant and dialysis
- Pharmacology of major drug classes used

THEME 9.4: BLACKOUT/COLLAPSE

Learning Objectives:

- To 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')

Knowledge:

- Define the recommendations concerning fitness to drive
- Define indications for detailed investigations: tilt table testing, ambulatory ECG monitoring, neuroimaging
- Demonstrate knowledge of the workings of the temporary pacing system (i.e. gain, threshold, capture)

Skills:

- Correct causes of orthostatic hypotension when possible
- Develop a management plan for acute period of care
- Act on results of tilt table testing
- OPTIONAL: Insert internal temporary pacing wire using aseptic technique with minimal discomfort to patient
- Be able to adjust the temporary pacing wire to maintain adequate pacing

Behaviors:

- Recognize problems specific to the elderly and address social needs
- Involve other specialists as appropriate: cardiology, neurology, care of the elderly

Basic Science:

- Understand neuroanatomy and link it with neurological disease
- Brady arrhythmias–sinus atrial nodal function
- AV node conduction pathways
- Carotid hypersensitivity
- Postural hypotension mechanisms

THEME 9.5: BREATHLESSNESS

Learning Objectives:

- To be able to assess a patient presenting with breathlessness to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Specify rarer causes of breathlessness
- Outline indications for bronchoscopy, chest ultrasound, cardiac investigations and pulmonary function tests
- Outline the physiological effects of BiPAP and CPAP
- Draw the pressure waves of the various ventilatory modes
- Outline the indications for BiPAP or CPAP in pulmonary edema and COPD
- Outline the evidence base for non-invasive ventilation for causes of breathlessness

Skills:

- Formulate a management plan for acute period of care, including in the event of normal or inconclusive investigations
- Interpret and act on results of echocardiography
- Prescribe non-invasive ventilation safely when appropriate
- Initiate appropriate palliative management of the breathless patient when appropriate
- Maintain and secure a patent airway
- Modify non-invasive ventilation parameters appropriately
- Manage patients with breathlessness who require non-invasive ventilation in a level 2 area

Behaviors:

- Recognize and relate immediate prognosis to patient and carers
- Recognize patients who would benefit from pulmonary rehabilitation
- Involve other specialty teams promptly as appropriate (e.g. intensive care, cardiology, respiratory, palliative care)
- Engage patients regarding risk factor modification (e.g. smoking, diet)
- Liaise with the critical care team re: levels of care and safe transfer to level 3 facility (critical care unit)

Basic Science:

- Anatomy of lungs and airways

- Understand gas exchange, oxygen transport and the hemoglobin dissociation curve and the variables that affect it
- Respiratory center in the brain stem and respiratory acidosis and alkalosis
- Ventilation and perfusion mis-match
- Impact of PaO_2 and H^+ and relationship of carotid and aortic bodies on the respiratory center
- Applied respiratory physiology to interpret basic pulmonary function tests
- Occupational and environmental toxins (e.g. cigarettes and asbestos)
- Inflammation of airways

THEME 9.6: CHEST PAIN

Learning Objectives:

- To be able to assess a patient with chest pain to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Outline the indications for further investigation in chest pain syndromes: radio nucleotide scanning, angiography, stress echo
- Outline complications of acute coronary syndromes
- Outline indications for thrombolysis for severe PE
- List less common but life threatening causes of chest pain

Skills:

- Practice risk stratification and safe discharge planning including a management plan post-discharge
- Arrange appropriate out-patient investigation and follow-up
- Identify complicated acute coronary syndrome cases and discuss with cardiologist
- Co-ordinate expert management for life-threatening causes of chest pain
- Interpret exercise tolerance tests (ETT)
- Interpret CT pulmonary angiograms in patients with large central pulmonary embolus
- Run follow up clinic for patients found not to have an acute cause for their chest pain

Behaviors:
- Involve specialist colleagues as indicated: cardiology, chest medicine - Recommend assessment in specialist chest pain clinics when appropriate - Explain to the patient the result of ETT
Basic Science:
- Oxygen delivery and myocardium - Conduction system of the heart. PQRST complex - Understanding the process of how atherosclerosis develops - Causes of hyperlipidemia and coronary artery disease development - Non-cardiac - pneumothorax and pulmonary embolism - Pharmacology of major drugs used

THEME 9.7: CONFUSION, ACUTE/DELIRIUM
Learning Objectives:
- To be able to assess an acutely confused/delirious patient to formulate a valid differential diagnosis, investigate appropriately, formulate and implement a management plan
Knowledge:
- List the principle causes of acute confusional state - Understand the impact of systematic illness on cognitive function
Skills:
- Employ non-pharmacological methods of calming patient (e.g. quieter environment) - Practice safe and minimal sedation when necessary - Recognize pathology on CT head/MRI brain and act on results - Outline pharmacological management of confused patient and associated risks
Behaviors:
- Involve other specialist teams when appropriate

- Recognize the role of specialised health workers and wards for the management of the acutely confused elderly

Basic Science:

- Metabolic and electrolyte disturbance (e.g. hypoglycemia and hyponatremia)
- Pharmacology of drugs especially in the elderly
- Principles of drug toxicity and development of addiction and withdrawal symptoms

THEME 9.8: DIARRHEA

Learning Objectives:

- To be able to assess a patient with diarrhea to formulate a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall functional disorders of the bowel
- List the principle and serious infectious causes of diarrhea and public health implications
- Recall less common and unpredictable pharmacological causes of diarrhea
- List rarer causes of diarrhea particularly in the foreign traveller
- Demonstrate knowledge for the indications for a sigmiodoscopy

Skills:

- Interpret relevant features of pathology on a plain abdominal x-ray (e.g. colonic mucosal islands)
- Prescribe appropriate specific symptomatic treatments safely
- Notify public health authorities when appropriate
- Treat the rare causes of diarrhea (e.g. giardiasis)
- Perform a rigid sigmoidoscopy (+ rectal biopsy) safely and interpret the findings

Behaviors:

- Recognize the indication for further specialist opinion and endoscopy
- Recognize the role of specialist staff in management: lower GI nurse, IBD nurse
- Discuss with patient likely outcomes and prognosis of condition and requirement for long-term review

- Communicate with the infectious diseases specialists re: the management of such patients
- Communicate with the gastroenterologists re: ongoing management of such patients

Basic Science:

- Consequences of loss of fluids and salts from the body
- Structure and function of the gastrointestinal tract
- Pharmacology of drugs used to manage diarrhea
- Biology of common pathogens
- Malabsorption syndrome (e.g. celiac disease, autoimmune and inflammatory bowel disease, tumor necrosis factor)
- Hormonal/enzymatic control of the alimentary tract including control of acid and pancreatic secretion

THEME 9.9: FALLS

Learning Objectives:

- To 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')

Knowledge:

- Define when a single fall needs a falls risk assessment approach
- Explain the interventions to prevent falls in the community and acute hospital setting
- Act upon the pharmacological causes of falls

Skills:

- Initiate appropriate bone prophylaxis
- Communicate with patients on falls risk and prevention
- Demonstrate a health promotion approach
- Demonstrate ability to decide on how far to investigate an individual
- Risk stratification of patients who present acutely with falls re: admission or discharge
- Co-ordinate multidisciplinary management of falls (i.e. falls clinic)

Behaviors:

- Recognize psychological problems associated with patients who fall
- Involve other specialists as necessary
- Contribute to the multidisciplinary team discussion and management appropriately, including community services
- Formulate realistic rehabilitation goals
- Liaise with primary care team and other community services to establish an effective falls prevention program

Basic Science:

- Impact of cardiac emboli and hypoglycemia
- Neuroanatomy including cerebral blood supply
- Loss of autonomic regulatory homeostasis
- Postural hypotension
- Bone metabolism- Development of osteoarthritis and osteopenia

THEME 9.10: FEVER

Learning Objectives:

- To be able to assess a patient presenting with fever to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall the investigations in the event of a PUO which are relevant when initial investigations fail to identify cause of fever
- Recall the main causes of immunodeficiency (infective, pharmacological, acquired, and inherited)
- Outline the principles of prophylactic antibiotics
- List causes of fever in a recent foreign traveller

Skills:

- Establish the likelihood of a non-infective cause for fever and investigate appropriately
- Management of neutropenic sepsis
- Conduct investigations and apply initial management in cases of tropical disease

- Conduct appropriate investigations in cases of fever in a recent traveller

Behaviors:

- Seek specialist advice when appropriate, particularly when there is risk of transmission of highly infectious and life threatening disease
- In event of PUO, involve appropriate specialist
- Follow local and national guidance on notification of communicable diseases
- Liaise with tertiary infectious diseases center as appropriate
- Keep up to date with recent public health guidance in event of pandemic/epidemic

Basic Science:

- Physiology of temperature control
- Immunology of Mantoux testing
- White cell scans and use of transferrin and lactoferrin in Gallium scans
- Pro-inflammatory cascades

THEME 9.11: FITS/SEIZURE

Learning Objectives:

- To be able to assess a patient presenting with a fit, stabilize promptly, investigate appropriately, formulate and implement a management plan

Knowledge:

- Outline the principles and indications for EEG and other imaging when initial investigations are inconclusive
- Implement appropriate epilepsy management
- Outline indications for artificial ventilation
- Recall the indication for EEG in patients with status epilepticus who are paralyzed and ventilated

Skills:

- Order, interpret, and act on results of CT head/MRI brain following liaison with radiology
- Recognize patient requiring airway management and critical care involvement and organize proper care
- Practice safe prescribing of anti-convulsants

- Discuss the need for anti-convulsant medication and the best choice with patient
- Recognize and manage pseudo-seizures
- Recognize and actively manage all forms of status epilepticus
- Manage a patient in status epilepticus requiring artificial ventilation appropriately
- Interpret and manage the findings of an EEG appropriately with respect to the patient

Behaviors:

- Advise patient on driving, pregnancy, employment, alcohol use
- Seek prompt involvement of critical care team when required
- Liaise with neurologists in the management of the patient with status epilepticus

Basic Science:

- Mechanism of use of common drugs to control epilepsy
- Brain activity and how EEG works
- Generalized and focused seizure activity
- Viral encephalitis mechanisms and impact

THEME 9.13: JAUNDICE

Learning Objectives:

- To be able to assess a patient presenting with jaundice to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Outline the indications for liver transplantation in liver failure (including criteria for transplantation in fulminant liver failure)
- Explain the indications for specialist investigations: liver biopsy, MRI, CT, ERCP
- Practice safe prescribing in jaundice/liver failure
- Recall the supportive treatment for acute liver failure (e.g. indications for antibiotics, management of cerebral edema)

Skills:

- Management of less common causes of jaundice and initiation of further investigations when initial investigations have been inconclusive

- The coordination of management of complicating factors including specialist input: sepsis, malnutrition, renal failure, coagulopathy, GI bleed, alcohol withdrawal syndrome, electrolyte derangement
- Ensure appropriate area of care and monitoring
- Co-ordinate expert management of fulminant liver failure

Behaviors:

- Recognize the need for urgent specialist opinion
- Engage patients in dialogue regarding risk factor modification: alcohol, substance abuse
- Relate to patient likely outcomes and prognosis of condition and requirement for long term review
- Seek prompt involvement of critical care team when required

Basic Science:

- Bilirubin metabolism
- Histological appearances of liver disease such as cirrhosis and primary biliary cirrhosis
- Pharmacology of drug induced jaundice
- Alcohol metabolism
- Laboratory markers of hepatic and pancreatic function
- Hepatitis B and C infection mechanisms

THEME 9.14: LIMB PAIN AND SWELLING

Learning Objectives:

- To be able to assess a patient presenting with limb pain or swelling to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall the management options for thrombosis in complicated situations (e.g. malignancy)
- Define and list less common causes of acute and chronic limb pain and the relevant investigations
- Outline the importance of follow up of patients with proven DVT

Skills:

- Employ preventative measures in patients at risk of developing limb swelling of any cause
- Order, interpret, and act on further investigations which are indicated after initial investigation (e.g. angiography, CT, ECHO)
- Management of thrombosis in high risk groups
- Run a venous thromboembolic (VTE) follow up clinic

Behaviors:

- Liaise with other specialities as appropriate
- Advise patient on the risks and benefits of anti-coagulation therapy
- Explain to the patient the long term sequelae of VTE

Basic Science:

- Science of coagulability
- Anatomy of veins of the pelvis and leg
- Diseases of the blood vessel wall
- Action of anticoagulants such as low molecular weight heparin and warfarin
- Ventilation perfusion matching
- Gas exchange
- Lymphodema
- Role of D Dimers in DVT

THEME 9.15: MANAGEMENT OF PATIENTS REQUIRING PALLIATIVE AND END OF LIFE CARE

Learning Objectives:

- To be able to work and liaise with a multi-disciplinary team in the management of patients requiring palliative and terminal care
- To be able to recognize the dying phase of a terminal illness, assess and care for a patient who is dying, and be able to prepare the patient and family
- To facilitate advance care planning, the establishment of aims of care

Knowledge:
- Knowledge of spectrum of professional and complementary therapies available (e.g. palliative medicine, community services, nutritional support, pain relief, psychology of dying) - Describe different disease trajectories and prognostic indicators and the signs that a patient is dying - Knowledge of major cultural and religious practices relevant to the care of dying people - Describe the role of the coroner and when to refer to them
Skills:
- Delivery of effective pain relief, symptom control (including for agitation, excessive respiratory secretions, nausea, and vomiting, breathlessness), spiritual, social, and psychological management - Communicate honestly and sensitively with the patient (and family), about the benefits and disadvantages of treatment, and appropriate management plan allowing the patient to guide the conversation - Lead a discussion about cardiopulmonary resuscitation with patient, carers, family, and colleagues appropriately and sensitively ensuring patient's interests are paramount - Complete death certificates and cremation forms
Behaviors:
- Refers to specialist palliative care services when recognizes that care is complex - Recognizes the needs of the carers and is able to support them
Basic Science:
- Pathophysiology of impending death and pain - Science of pressure sores development and prevention - Pharmacology of opiate analgesics - Dose conversions to parenteral or transdermal medications

THEME 9.16: PALPITATIONS

Learning Objectives:

- To be able to assess a patient presenting with palpitations to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall the further investigations indicated after arrhythmia presents: ECHO, ambulatory monitoring
- Recall the management of chronic and paroxysmal arrhythmias
- Outline the indications for specialist tests such as loop recorders

Skills:

- Interpret reports of ECHO and ambulatory ECG monitoring
- Practice safe discharge decisions
- Management of arrhythmias in the patient with comorbidity

Behaviors:

- Seek specialist advice when indicated

Basic Science:

- Cardiovascular structure and function including conduction, cardiac cycle, and cardiac output
- Pharmacology of drugs used to manage palpitations
- Williams Vaughan classification of antiarrhythmic drugs and their mechanisms

THEME 9.17: POISONING

Learning Objectives:

- To be able to assess promptly a patient presenting with deliberate or accidental poisoning, initiate urgent treatment, ensure appropriate monitoring and recognize the importance of psychiatric assessment in episodes of self-harm

Knowledge:

- Outline the principles of the relevant mental health legislation and Common Law that pertain to treatment against patients' will
- Demonstrate knowledge of the role of analytical toxicology
- Define parameters prompting consideration of liver transplantation in paracetamol poisoning

- Demonstrate knowledge of the management of the rarer poisons (e.g. beta blockers, ACE Inhibitors, calcium channel blockers)
- Demonstrate evidence based knowledge for the management of poisons

Skills:

- Use scoring tools to assess risk of further self-harm (e.g. Beck's score)
- Formulate management plan for acute period of care and liaison with appropriate colleagues and agencies
- Recognize and treat complications of poisoning (e.g. aspiration), including any delayed effects
- Manage cases of the rarer poisons that present to hospital

Behaviors:

- Recognize importance of psychiatric review pre-discharge in deliberate self-poisoning
- Involve critical care promptly when indicated
- Co-ordinate multiple specialty management of patient (ITU, Renal, etc.)

Basic Science:

- Pharmacology of common drugs ingested in poisoning such as paracetamol, sedatives, alcohol, amphetamines, antipsychotic drugs, and antidepressants
- Principles of absorption, distribution, metabolism, and excretion of drugs
- Cytochrome P450 and drug metabolism especially in reference to paracetamol poisoning
- Action of carbon monoxide on the body

THEME 9.18: RASH

Learning Objectives:

- To 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

Knowledge:

- Recall less common causes of acute skin rashes, particularly infective, drug induced, haematological
- Recall the indications for specialist investigations including skin biopsy

Skills:

- Management of severe skin disease in consultation with specialist
- Apply measures to maintain fluid balance and to prevent and/or treat skin infection
- Implement appropriate management plan in cases of 'skin failure'

Behaviors:

- Recognize the need for an early specialist opinion
- Recognize the social/psychological problems caused by acute skin disease

Basic Science:

- Structure and function of skin
- Inflammatory response of the skin
- Immunology of hypersensitivity
- Vasculitis Antinuclear antibodies – SLE and Wegener's granulomatosis
- Henoch-Schönlein Purpura

THEME 9.19: WEAKNESS AND PARALYSIS

Learning Objectives:

- To 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)

Knowledge:

- Outline role of more detailed investigations depending on differential diagnosis: neuroimaging, nerve conduction studies, EMG, muscle biopsy
- Define severity markers in rapidly progressing motor weakness
- Practice appropriate use of drugs in patients with weakness and paralysis
- Recall potentially reversible life threatening causes of weakness
- Outline the indications for hemicraniectomy in stroke

Skills:

- Ensure appropriate care: nutrition, toileting, monitoring of progress including coordination of multidisciplinary care

- Formulate management plan for acute period of care including impaired swallowing and respiratory failure
- Intervene promptly in life threatening causes of weakness
- Maintain and secure a patient airway
- Be part of a stroke thrombolysis team and perform safe stroke thrombolysis

Behaviors:

- Involve critical care appropriately with concerns over consciousness and rapidly progressive motor weakness
- Involve specialist teams as appropriate: neurology, stroke team, nurse specialists
- Sensitively relay prognosis to patient and carers, and contribute to appropriate resuscitation decisions
- Refer to neurosurgical services appropriately
- Obtain consent as appropriate from a patient for stroke thrombolysis

Basic Science:

- Neuroanatomy including cerebral blood supply
- Electrical activity of the brain and nerve conduction
- Neurotransmitters and neurotransmission
- Drug toxicity and botulism
- Myopathies

THEME 9.20: HEADACHE

Learning Objectives:

- To be able to assess a patient presenting with headache to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall the importance of the functional components to chronic headache
- Recall the causes of drug induced headache
- Outline presentation of life threatening causes of headache
- Outline the management of the rarer causes of headache (e.g. benign intracranial hypertension)

Skills:

- Practice safe discharge planning in a patient with headache
- Recognize situations when lumbar puncture can proceed prior to CT scan of head
- Initiate treatment for less common causes of headache
- Active intervention for life threatening headache
- Differentiate between a subdural and extradural bleed reliably on a CT scan
- Identify features of a subarachnoid hemorrhage on a CT scan
- Follow up and the management of patients with non-life threatening and/or chronic headaches

Behaviors:

- Seek expert opinion when treatment or diagnosis is unclear
- Ensure appropriate and rapid investigation of acute headache
- Explain pain management to patient with chronic headaches

Basic Science:

- Pathophysiology of temporal arteritis and migraine
- Cerebral vascular anatomy
- Cerebral development of aneurysms (xanthochromia in CSF) and arterio-venous malformation
- Pathophysiology of meningitis (e.g. meningococcal disease)

THEME 9.21: DIABETES – HYPOGLYCEMIA AND HYPERGLYCEMIA

Learning Objectives:

- To be able to diagnose and manage acutely and long term patients with insulin deficiency and/or insulin resistance and deal with hyperglycemia and hypoglycemia

Knowledge:

- Know the following common and important conditions, the epidemiology, pathophysiology, clinical presentation, differential diagnosis, investigations, detailed initial management, principles of ongoing management, potential complications of the disease and its management, primary and secondary preventive strategies:

- Diabetes mellitus – Type I and II
- Osteoporosis
- Obesity

- Know the symptoms of mild to moderate, severe, and diabetic ketosis hyperglycemia symptoms
- Be able to tailor the management range from diet, oral hypoglycemic therapy, and insulin indications
- Understand the complications of diabetes affecting the whole patient, microvascular complications affecting cardiovascular, cerebral, renal, and peripheral vascular disease
- Impact of diabetes in pregnancy, surgical patients, infections and psychosocial effects
- Impact of obesity and family history in diabetes

Skills:

- Physical examination to include loss of peripheral sensation and retinal damage
- Be able to manage diabetic emergencies of hypoglycemia and hyperglycemic ketoacidosis
- Understand carbohydrate and lipid metabolism
- Be able to advise on a diabetic and renal diet if appropriate
- Conduct glucose tolerance test (GTT) and able to interpret results including an impaired GTT

Behaviors:

- Work closely with the diabetic nurse specialist and primary care in long term management of the disease
- Initiate regular retinal examination recording through the community diabetic retinal service

Basic Science:

- Structure and function of hormones, hormone receptors, second messengers, and hormone action
- Structure and function of the pancreas and islet cells
- Secretion, transport, and feedback control of hormones
- Carbohydrate and lipid metabolism
- Insulin function and insulin receptors
- Metabolism – nutrition, obesity, starvation
- Autoimmunity and genetics as it relates to hormone disease
- Pharmacology of major drug classes used
- Impaired gluconeogenesis in hepatic failure

INTERNAL MEDICINE OTHER IMPORTANT MEDICAL PRESENTATIONS

DOMAIN 10: INTERNAL MEDICINE OTHER IMPORTANT MEDICAL PRESENTATIONS

THEME 10.1: ABDOMINAL MASS/HEPATOSPLENOMEGALY

Learning Objectives:

- To be able to assess a patient presenting with an abdominal mass to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Understand the relative benefits of ultrasound and CT scanning
- Consider the likelihood of an abdominal cancer as a cause of the mass
- Demonstrate awareness of potential acute complications of hepatomegaly and splenomegaly

Skills:

- Formulate a management plan for acute period of care of a patient presenting with a mass or hepatomegaly and/or splenomegaly and act on the results of investigations
- Integrate the actions which may result following a diagnosis of intra-abdominal cancer with the care of a patient's other chronic diseases where appropriate
- Manage acute esophageal varices bleeding

Behaviors:

- Involve specialist teams as appropriate, particularly multidisciplinary teams, where a cancer is diagnosed
- Organize investigations within the target timescales when cancer is suspected
- Communicate bad news in a sensitive and thoughtful manner

Basic Science:

- Demonstrate knowledge of portal hypertension and the various connections between the portal and systemic circulation
- Acute and chronic hepatitis leading to cirrhosis of the liver
- Lymphoproliferative disease
- Chagas disease pathology
- Oncological causes of abdominal masses and hepatosplenomegaly

THEME 10.2: ABDOMINAL SWELLING AND CONSTIPATION

Learning Objectives:

- To able to undertake assessment of a patient presenting with abdominal swelling or distension to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall the management of ascites and intestinal obstruction
- Recall the preponderance of functional causes of constipation including constipation with overflow and the investigation and management of fecal incontinence
- Recall abdominal wall pathology as possible causes of distension, including divarication of the recti

Skills:

- Practice safe management of ascites and intestinal obstruction, including the use of diuretics, fluid and salt restriction, and hemofiltration
- Select appropriate second line investigations of constipation when indicated, including blood tests imaging and endoscopy
- Following diagnosis of the cause of constipation prescribe bulk or osmotic laxatives or motility stimulants as necessary
- Provide review of medications in patients with constipation in the context of multisystem disease

Behaviors:

- Involve specialists promptly when appropriate (surgery, gastroenterology, radiology, palliative care)
- Discuss with patient likely outcomes and prognosis of condition

Basic Science:

- Structure and function of the gastrointestinal tract
- Gut motility
- Hypercalcemia
- Dietary impact
- Congestive cardiac failure

THEME 10.3: ABNORMAL SENSATION (PARESTHESIA AND NUMBNESS)

Learning Objectives:

- To be able to assess a patient with abnormal sensory symptoms to arrive at a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Demonstrate knowledge of appropriate and potential complications of invasive investigations (e.g. nerve biopsy)

Skills:

- Initiation and interpretation of the results of more specialised investigations: neuroimaging, screening blood tests for neuropathy, neurophysiology studies
- Produce a comprehensive differential diagnosis
- Initiate effective urgent symptomatic and remedial treatments

Behaviors:

- Involve specialist teams as appropriate

Basic Science:

- Pathophysiology of B12 and folic acid deficiency, alcoholic and diabetic neuropathy, amyloid and Raynaud's – vascular syndrome

THEME 10.4: AGGRESSIVE/DISTURBED BEHAVIOR

Learning Objectives:

- To be competent in predicting and preventing aggressive and disturbed behavior using safe physical intervention and tranquillisation, investigating appropriately, and liaising with the mental health team

Knowledge:

- Outline de-escalation techniques that can be taken to prevent violent behavior

Skills:

- Determine whether disturbed behavior is a result of organic or psychiatric disease
- Formulate a management plan for the acute period of care

Behaviors:
- Encourage review of violent incident soon after it has occurred - Involve mental health care team in patient management
Basic Science:
- Toxins and poisoning of the central nervous system - Cerebral tumours - Psychiatric disorders

THEME 10.5: ALCOHOL AND SUBSTANCE DEPENDENCE
Learning Objectives:
- To be able to assess a patient seeking help for substance abuse, and formulate an appropriate management plan
Knowledge:
- Recall the occult presentation alcoholism and substance misuse and appropriate investigations - Recall less common causes of substance misuse - Outline the indications for inpatient and outpatient alcohol withdrawal
Skills:
- Recognize the co-existence of psychiatric disease - Formulate a management plan of co-existing medical problems for the acute and ongoing period of care - Run an outpatient alcohol withdrawal service
Behaviors:
- Identify the need to counsel patient with regard of maintaining abstinence - Liaise with psychiatric, GP, and substance misuse teams as appropriate for ongoing community care
Basic Science:
- Alcohol metabolism and liver failure - Renin-Aldosterone system - Liver function tests - Mechanism of ascites

THEME 10.6: ANXIETY/PANIC DISORDER

Learning Objectives:

- To be able to assess a patient presenting with features of an anxiety disorder and reach a differential diagnosis to guide investigation and management

Knowledge:

- Recognize the role of psychological and self-help therapy in management
- Elucidate the principles of pharmacotherapy in the treatment of anxiety disorders

Skills:

- Recognize that atypical physical symptoms may herald an underlying anxiety disorder
- Recognize treatment goals
- Involve primary care or mental health services as appropriate

Behaviors:

- Recommend initial treatment be undertaken in primary care setting
- Discuss with patient that the condition is treatable and aims of treatment
- Advise patient on self-help strategies and support groups
- Share decision making with patient

Basic Science:

- Knowledge of the sympathetic nervous system
- Thyroid metabolism as in hyperthyroidism

THEME 10.7: BRUISING AND SPONTANEOUS BLEEDING

Learning Objectives:

- The trainee will be able to assess a patient presenting with easy bruising to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall the clinical presentation of the less common bleeding disorders
- Recall the patterns of bleeding associated with anticoagulant therapy and its management

Skills:
- Define a management plan for patients with acute coagulation disorders for the acute period of care - Communicate with patients in whom easy bruising does not require admission
Behaviors:
- Demonstrate awareness of the serious consequences of a diagnosis of leukemia - Liaise closely with the hematology department in the early stages of the patient's care pathway
Basic Science:
- Clotting cascade - Platelet function - Clotting factors and understanding of prothrombin time and activated partial thromboplastin time - Bone marrow function and failure

THEME 10.8: DIALYSIS
Learning Objectives:
- To be aware of the principles, indications, and complications of renal replacement therapy (RRT)
Knowledge:
- Identify the importance of co-morbidities in patients on RRT - Outline indications for hemfiltration as a temporary measure
Skills:
- Place central venous dialysis catheter with meticulous aseptic technique
Behaviors:
- Involve renal unit for specialist input
Basic Science:
- Fluid and membrane exchange and body weight - Calcium homeostasis and hyperparathyroidism - Phosphate metabolism

- Pharmacology of major drugs used
- Acquired infections

THEME 10.9: DYSPEPSIA

Learning Objectives:

- To be able to assess a patient presenting with heartburn to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall the frequency of non-ulcer dyspepsia
- Recall the indications for esophageal pH monitoring and manometry
- Recall surgical procedures to control acid reflux
- Recall Barrett's esophagus, the diagnosis, the principles of management

Skills:

- Formulate a management plan for peptic ulceration and non-ulcer dyspepsia for acute period of care
- Institute appropriate management: lifestyle advice, test and treat, endoscopy referral
- Act on the results of gastroscopy and arrange further investigations including imaging in patients with non-responsive dyspepsia
- Review medication particularly in patients with multisystem disease

Behaviors:

- Encourage patient to follow lifestyle advice, and use minimal effective doses of acid suppression medication
- Recognize national and international guidelines on dyspepsia

Basic Science:

- Gastric pH homeostasis
- H Pylori infection mechanism
- Esophageal sphincter function

THEME 10.10: DYSURIA

Learning Objectives:

- To be able to assess a patient presenting with dysuria to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Know the anatomy of the urological tract and congenital variations such as horseshoe kidney, pelvic-ureteric junction obstruction, and urological stones
- Understand the principle of prophylaxis antibiotics for recurrent infection

Skills:

- Provide patient with detailed information on prevention of recurrent urinary tract infections

Behaviors:

- Recognize the need for urological input in appropriate cases of urinary tract infection

Basic Science:

- Colonization of lower urinary tract
- Pathology of formation of bladder stones
- Development of resistance to urinary tract infection organisms

THEME 10.11: GENITAL DISCHARGE AND ULCERATION

Learning Objectives:

- To be able to assess a patient presenting with genital discharge or ulceration to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall the complications of untreated STDs
- Recall the causes of non-infective urethritis
- Recall and recognize genital skin diseases including squamous cell carcinoma and lichen sclerosus

Skills:

- Formulate a management plan

- Prescribe appropriate anti-microbials after consultation with microbiology or genito-urinary medical team

Behaviors:

- Involve genito-urinary medical team as appropriate
- Recognize importance of offering screening of other sexually transmitted diseases following counselling: HIV, hepatitis, syphilis

Basic Science:

- Pathophysiology of HIV, syphilis, gonorrhea, chlamydia, herpes infection and ulcer formation
- Drug resistance in sexually transmitted disease
- Principles of infection control
- Host response to infection

THEME 10.12: HEMATURIA

Learning Objectives:

- To be able to assess a patient with hematuria to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Broadly outline the pathophysiology of glomerulonephritis
- Outline the indications for renal biopsy

Skills:

- Undertake appropriate investigations when glomerulonephritis is suspected
- Choose appropriate mode of imaging: USS, CT, IVU

Behaviors:

- Involve appropriate specialist colleagues when indicated
- Discuss with patient likely outcomes and prognosis of condition and requirement for long term review

Basic Science:

- Oncology of urinary tract malignancy
- Stone disease formation and types

- Hypercalcemia and hypercalciuria
- Glomerulonephritis
- Post streptococcal infection mechanism

THEME 10.13: HEMOPTYSIS

Learning Objectives:

- To be able to assess a patient presenting with hemoptysis to produce valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Elucidate unusual causes of hemoptysis as indicated by presentation
- Define need for specialist investigations
- Identify indications for specialist investigations (e.g. bronchoscopy, CT chest, CT pulmonary angiography, angiography)

Skills:

- Formulate a thorough differential diagnosis, including systemic causes
- Recognize the importance of co-morbidities in relation to presentation and treatment

Behaviors:

- Recognize need for timely specialist opinion including respiratory, renal, and rheumatology when appropriate
- Promote outpatient management under care of respiratory team when appropriate

Basic Science:

- Dual circulation of the lung
- Oncology and predisposition to lung cancer
- Common lung infections and abscesses
- Pathophysiology of TB and vasculitic causes
- Mechanism of bronchiectasis

THEME 10.14: HEAD INJURY

Learning Objectives:

- To be able to assess a patient with traumatic head injury, stabilize, admit to hospital as necessary, and liaise with appropriate colleagues, recognizing local guidelines

Knowledge:

- Outline the indications for MR imaging (e.g. presence of neurological signs and symptoms referable to the cervical spine and if there is suspicion of vascular injury)
- Outline the indications for transfer from secondary settings to a neuroscience unit
- Recall the long term complications of head injury
- Outline the indication and the duration of anticonvulsant therapy in post-traumatic seizure
- Outline the indication for intravenous mannitol

Skills:

- Decide on appropriate venue of care: discharge, ward, HDU
- Practice safe discharge decisions
- Perform safe transfer from secondary settings to a neuroscience unit
- Outline how to perform safe transfer from secondary settings to a neuroscience unit
- Outline indications for intubation and ventilation for transfer from secondary settings to a neuroscience unit

Behaviors:

- Recognize importance of multi-disciplinary rehabilitation following head injury
- Advise patient on possible chronic symptoms following head injury
- Advise indications for intubation and ventilation as per local guidelines
- Recommend GP follow up routinely at one week following discharge from hospital
- Communicate with the neuroscience units to facilitate safe transfer of patients

Basic Science:

- Pathophysiology of cerebral edema and loss of consciousness
- Structure of the brain
- Glasgow coma scale

THEME 10.15: HOARSENESS AND STRIDOR

Learning Objectives:

- To be able to assess a patient presenting with symptoms of upper airway pathology to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan (see also 'wheeze')

Knowledge:

- Outline the significance of the timing of the stridor within the respiratory cycle
- Outline the indications for further investigations: bronchoscopy, CT of upper and lower airways, laryngoscopy, MRI, lung function testing
- Outline use of helium/oxygen mixture for critical stridor

Skills:

- Initiate appropriate anti-microbial therapy if infective cause is suspected
- Discontinue or alter management plan (e.g. inhaled steroids)
- Formulate management plan for acute period of care
- Recognize potential need for urgent tracheostomy and liaise with appropriately skilled colleague promptly

Behaviors:

- Involve specialist teams as appropriate

Basic Science:

- Innervation of vocal chords and laryngeal nerve
- Vocal cord tumor and polyps
- Anatomy of left laryngeal nerve involvement from left hilar cancers

THEME 10.16: HYPOTHERMIA

Learning Objectives:

- To be able to assess a patient presenting with hypothermia to establish the cause, investigate appropriately, formulate and implement a management plan

Knowledge:

- Differentiate between submersion and immersion and outline the management of each
- Recall methods of rewarming in severe hypothermia

Skills:

- Recognize and treat the complications of hypothermia
- Prevent complications of hypothermia

Behaviors:

- Anticipate problems on discharge to prevent recurrence in consultation with multi-disciplinary team

Basic Science:

- Thermoregulatory mechanisms
- Physiology of hypothyroidism
- Re-warming mechanisms

THEME 10.17: IMMOBILITY

Learning Objectives:

- To be able to assess a patient with immobility to produce a valid differential diagnosis, investigate appropriately, and produce a management plan

Knowledge:

- Recall the resources available for improving mobility in hospital and community
- Recall the local mechanisms available for managing patients with reduced mobility between primary and secondary care (e.g. rapid response teams, day hospital, hospital at home, long term care, respite care, step down/step up facilities and home rehabilitation)

Skills:

- Perform evaluation of functional status including ADL and mobility including gait and balance
- Identify key features in history and examination which may indicate an unusual or remediable cause for the immobility
- Discharge planning understanding of the resources available for older people within the community

Behaviors:

- Chair team meetings with goal setting and communicate with patients and relatives sensitively
- Demonstrate willingness to liaise with primary care and community services
- Demonstrate empathy when discussing long term goals including disability services and residential care with patients, their relatives, and carers

Basic Science:
- Stroke mechanisms - Structure and function of bone, muscle and synovium - Bone and mineral metabolism

THEME 10.18: INCIDENTAL FINDINGS
Learning Objectives:
- To be able to construct a management plan for patients referred by colleagues due to asymptomatic abnormal findings
Knowledge:
- Outline acute management for malignant or accelerated hypertension, including investigations into a secondary cause - Distinguish between hypertensive emergencies and hypertensive urgencies - Outline the investigation and management of incidental pulmonary hypertension found on echo - Outline the investigation and management of incidentalomas (e.g. pituitary, adrenal) found on CT or MRI
Skills:
- Manage malignant or accelerated hypertension appropriately - Manage pulmonary hypertension appropriately - Manage incidentalomas (e.g. pituitary, adrenal) found on CT or MRI appropriately
Behaviors:
- Chair team meetings with goal setting and communicate with patients and relatives sensitively - Demonstrate willingness to liaise with primary care and community services - Demonstrate empathy when discussing long term goals including disability services and residential care with patients, their relatives, and carers Practice safe discharge planning
Basic Science:
- Coordinate with GP and specialist colleagues the most appropriate method of ongoing care

THEME 10.19: INVOLUNTARY MOVEMENTS

Learning Objectives:

- To be able to assess a patient presenting with involuntary movements to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Recall the investigations indicated to reach a diagnosis

Skills:

- Recognize more uncommon types of involuntary movements (e.g. spinal myoclonus, athetosis)
- Formulate a management plan for acute period of care: social support, drugs, OT, physiotherapy

Behaviors:

- Recommend support services and patient organisations
- Involve specialist nurses/neurologists when appropriate

Basic Science:

- Anatomy and function of the basal ganglia and substantia nigra
- Knowledge of muscle movement
- Inheritance patterns of Huntington's Chorea
- Understand physiology of Parkinson's disease, dopamine receptors, and impact of dopaminergic drugs

THEME 10.20: JOINT SWELLING

Learning Objectives:

- To be able to assess a patient presenting with joint pain or swelling to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Recall the clinically pertinent complications of diseases of the musculoskeletal system and their treatments
- Demonstrate awareness of risks of drugs used in rheumatic diseases in relation to comorbidities
- Demonstrate understanding of serological tests in diagnosis and management

Skills:

- Recognize when joint swelling heralds the presentation of a systemic disease and treat it appropriately
- Employ appropriate use of other imaging techniques in diagnosis
- Employ appropriate use of serological tests in diagnosis and treatment decisions

Behaviors:

- Demonstrate awareness of need for specialist radiological advice
- Involve rheumatology or orthopedic team when indicated

Basic Science:

- Pathophysiology of rheumatoid arthritis, osteoarthrosis, and purine metabolism
- Anatomy of the synovium and affected joints

THEME 10.21: LOIN PAIN

Learning Objectives:

- To be able to assess a patient presenting with loin pain to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- List causes for acute papillary necrosis
- Outline indications for more specialized investigations: CT, abdomen/pelvis, urine cytology

Skills:

- Interpret more detailed investigations: IVU, abdominal ultrasound, CT KUB
- Identify scenarios in which referred pain is likely
- Formulate management plan for acute period of care

Behaviors:

- Involve other specialists as appropriate

Basic Science:

- Mechanism of retroperitoneal pain

- Pathophysiology of urinary stone formation including promotors and inhibitors of stone formation, hypercalcemia and hypercalciuria, types of hyperoxaluria
- Stone analysis techniques

THEME 10.22: LYMPHADENOPATHY

Learning Objectives:

- To be able to assess a patient presenting with lymphadenopathy to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge:

- Outline more specialised investigations as appropriate
- Differentiate methods for obtaining lymphoid tissue

Skills:

- Perform a fine needle aspiration using aseptic technique with minimal discomfort to patient
- Formulate a management plan for acute period of care

Behaviors:

- Follow local and national guidance on notification of communicable diseases
- Break bad news to patient and family sensitively in event of serious diagnosis
- Recognize importance of a multi-disciplinary team in assessment and management of patients presenting with lymphadenopathy

Basic Science:

- Anatomy of the lymphatic system
- Pathophysiology of lymphoproliferative disorders
- Type 4 hypersensitivity reactions as in TB and sarcoid
- Malignant spread

THEME 10.23: MEMORY LOSS (PROGRESSIVE)

Learning Objectives:

- To be able to assess a patient with progressive memory loss to determine severity, differential diagnosis, investigate appropriately, and formulate management plan

Knowledge:

- Recall causes for young onset chronic confusion or memory loss
- Recall the commonly used pharmacological treatments for dementia and their indications for use

Skills:

- Interpret assessment and investigations to make appropriate diagnosis of dementia

Behaviors:

- Involve neurologists or psychiatrists in elderly care when appropriate
- Recognize the legal implications of dementia
- Identify and anticipate the ethical and capacity issues that arise in patients with memory loss

Basic Science:

- Pathophysiology of dementia

THEME 10.24: MICTURITION DIFFICULTIES

Learning Objectives:

- To be able to assess a patient presenting with difficulty in micturition to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Outline management of patient to minimize risk of acute kidney injury
- Outline indications for more detailed investigation: abdominal and pelvic ultrasound, CT, urine cytology, urodynamics

Skills:

- Recognize indications for supra-pubic catheterisation and refer appropriately
- Formulate management plan for acute period of care

Behaviors:

- Involve specialist teams appropriately
- Participate in multi-disciplinary approach to care of patients with long term or intermittent catheterisation

Basic Science:

- Innervation of the bladder
- Lower and upper motor lesions affecting bladder
- Physiology of micturition and prostate enlargement

THEME 10.25: NECK PAIN

Learning Objectives:

- To be able to assess a patient presenting with difficulty in micturition to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Recall indications for more specialised tests: CT, MRI

Skills:

- Formulate a management plan for the acute period of care for critically ill patient
- Demonstrate the ability to recognize complex neurological features which may aid diagnosis and management

Behaviors:

- Involve other specialist teams as appropriate

Basic Science:

- Knowledge of cervical anatomy and disc prolapse

THEME 10.26: PHYCIAL SYMPTOMS IN ABSENCE OF ORGANIC DISEASE

Learning Objectives:

- To be able to assess and appropriately investigate a patient to conclude that organic disease is unlikely, counsel sensitively, and formulate

an appropriate management plan

Knowledge:

- Define and differentiate from each other: somatisation disorders, malingering, dissociative disorders, hypochondriasis, psychogenic (or somatoform) pain disorders and factitious disorders
- Recognize the phenomenon of excessive symptoms in the context of established disease (e.g. breathlessness in well controlled asthma)
- Recall the reattribution approach

Skills:

- Safely determine after appropriate work up that a patient is likely to have a non-organic cause for their presentation
- Identify underlying psychiatric disease: psychosis, depression, or anxiety
- Formulate a management plan for acute period of care
- Use the reattribution approach:
    - Feeling understood – engage the patient and gather information
    - Broadening the agenda – to include social and psychological factors
    - Making the link – between physical symptoms, psychological distress, and social problem

Behaviors:

- Recognize the pattern of repetition that non-organic presentations can have
- Respect the distress the mode of presentation may be causing
- Adopt a non-judgemental sensitive attitude when engaging in counselling a patient over the likelihood of non-organic disease
- Involve psychiatric services when appropriate
- Address security issues where necessary
- Recognize the importance of the primary care team in assessment and management
- Recognize the cultural differences in somatoform disorders
- Communicate with primary care and other local EDs where possible

THEME 10.27: POLYDIPSIA

Learning Objectives:

- To be able to assess a patient presenting with polydipsia to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Detailed knowledge of homeostatic mechanisms for fluid balance and defects that occur (e.g. hypernatremia, hyponatremia)
- Recall the subsequent investigations required to provide a definitive cause of polyuria
- Knowledge of the causes of diabetes insipidus
- Recall the mechanisms of altered water metabolism in patients with psychogenic polydipsia
- Recall how to correct disturbance of sodium balance if required
- Recall the indications for hypertonic saline in patients with psychogenic polydipsia

Skills:

- Interpret the subsequent investigations required to provide a definitive cause of polyuria
- Start long term treatment for the cause of hyponatremia (e.g. desmopressin, bisphosphonates)
- Monitor and alter fluid replacement regime according to electrolyte results

Behaviors:

- Seek specialist opinion from relevant specialist after cause for polydipsia determined when appropriate
- Communicate bad news sensitively and thoughtfully

Basic Science:

- Osmotic effect in diabetes mellitus
- ADH deficiency
- Renal failure physiology

THEME 10.28: POLYURIA

Learning Objectives:

- To be able to assess a patient presenting with polyuria to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Outline investigation and treatment of diabetes insipidus

Skills:

- Formulate a management plan for acute period of care

Behaviors:

- Involve specialist teams as appropriate

Basic Science:

- Water and electrolyte handling in diabetes mellitus, diabetes insipidus, and renal failure

THEME 10.29: PRURITUS

Learning Objectives:

- The trainee will be able to assess a patient presenting with itch to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Outline the indications for a skin biopsy
- Outline the indications of and side effects of topical steroids and differentiate their different potencies
- Liaise closely with specialist dermatologists in managing the patient

Skills:

- Formulate a management plan for acute period of care
- Prescribe symptomatic remedies
- Act on the results of initial investigations
- Be aware of appropriate investigations for staging skin cancer
- Review current and previously prescribed medication as possible causes for itch
- Consider infective causes of itch

Behaviors:

- Advise on lifestyle measures to prevent dermatological disease

- Sympathetically discuss the impact of the patient's symptoms on their lifestyle

Basic Science:

- Action of histamine, neuropeptide substance P, serotonin, bradykinin, proteases (e.g. mast cell tryptase), and endothelin in pruritus
- Understanding of nerve fibers that transfer sensations of itching
- Structure of the skin
- Pharmacology of drugs used to manage pruritus

THEME 10.30: RECTAL BLEEDING

Learning Objectives:

- To be able to assess a patient with rectal bleeding to identify significant differential diagnoses, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Recall indications for sigmoidoscopy/colonoscopy
- Recall possible imaging modalities: contrast studies, CT, angiography, capsule endoscopy
- Recall the principal infective causes of rectal bleeding and their treatments
- Recall coagulopathy as a cause of rectal bleeding
- Recall the leading risk factors for colorectal cancer, family history, panulcerative colitis, previous history of colorectal polyps

Skills:

- Act on the results of initial investigations
- Institute first line treatment when it is likely- bleeding heralds an exacerbation of ulcerative colitis: aminosalicylates, corticosteroids, thrombosis prophylaxis
- Ask for urgent review by specialist gastroenterologist
- Monitor vital signs, initiate blood transfusion where necessary

Behaviors:

- Involve gastroenterology and/or surgical teams promptly when indicated

Basic Science:

- Mechanism of hemorrhoid formation

- Understanding of sigmoid rectal anatomy
- Pathology of inflammatory bowel disease such as Crohns disease

THEME 10.31: SKIN AND MOUTH ULCERS

Learning Objectives:

- To be able to assess a patient presenting with skin or mouth ulceration to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan (see also dermatology in section 2 for skin tumor competencies)

Knowledge:

- Outline the indications for biopsy and immunofluorescence studies

Skills:

- Construct a comprehensive list of differential diagnoses
- Formulate a management plan for acute period of care

Behaviors:

- Involve specialist team as appropriate

Basic Science:

- Pathophysiology of Behcet's disease and inflammatory bowel disease, herpes simplex infection, arteiovenous insufficiency, infections and vasculitis

THEME 10.32: SPEECH DISTURBANCE

Learning Objectives:

- To be able to assess a patient with speech disturbance to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Outline more detailed investigations: neurophysiology, neuroimaging

Skills:

- Formulate a management plan for acute period of care

Behaviors:

- Discuss with patient likely outcomes and prognosis of condition and requirement for long term review

Basic Science:

- Anatomy of the speech center Broca's area
- Lower cranial nerve function
- Physiology of sensory and motor dysphasia

THEME 10.33: SUICIDAL THOUGHTS

Learning Objectives:

- To be able to take a valid psychiatric history to elicit from a patient suicidal thoughts and underlying psychiatric pathology, assess risk, and formulate appropriate management plan

Knowledge:

- Be aware that there are laws governing mental health especially in relation to consent

Skills:

- Stratify patients according to risk
- Discharge to appropriate setting patients who have been deemed to be at low risk of repeat suicidal attempt
- Formulate a management plan for patients with co-existing psychiatric disease: medications, counselling

Behaviors:

- Recognize the importance of ongoing input by health services following discharge
- Liaise with psychiatric services

Basic Science:

- Neurotransmitters function
- Pharmacology of major classes of drugs that can cause mood changes

THEME 10.34: SWALLOWING DIFFICULTIES

Learning Objectives:

- To be able to assess a patient with swallowing difficulties to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Recall the pathophysiology, staging, and therapeutic options of esophageal malignancy
- Identify curative and palliative treatment options for esophageal malignancy
- Outline treatment options in achalasia
- Define odynophagia and list causes
- Aware of the symptoms of pharyngeal pouch
- Awareness of the complications of esophageal stricture

Skills:

- Select appropriate initial mode of investigation
- Act on the results of investigations
- Liaise with gastroenterologists and radiologists
- Prescribe acid suppressants when a benign esophageal stricture is found
- Liaise with nutrition team in patients with malnutrition
- Liaise with ENT specialists in patients with 'high' dysphagia

Behaviors:

- Liaise with gastroenterologist, neurologist, or palliative care promptly as appropriate
- Consider the lifestyle advice needed for patients with chronic reflux

Basic Science:

- Understand the physiology of swallowing and involvement of different cranial nerves

THEME 10.35: SYNCOPE AND PRE-SYNCOPE

Learning Objectives:

- To be able to assess a patient presenting with syncope to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan (see also 'blackouts/collapse')

Knowledge:

- Outline the specific indications for 24 hour ECG monitoring, loop recording, echo and tilt testing
- Outline the ECG diagnostic criteria for syncope thought to be due to cardiac arrhythmia
- Understand the pathophysiological response to head up tilting
- Outline the protocol for head up tilt testing
- Interpret the head up tilt test and classify the types of positive responses
- Understand the pathophysiological response to carotid sinus massage
- Outline the protocol for carotid sinus massage
- Interpret the positive response to carotid sinus massage
- Outline the indications for cardiac loop recorder

Skills:

- Risk stratify patients who present with syncope
- Develop a management plan for acute period of care
- Perform carotid sinus massage appropriately

Behaviors:

- Recognize the need for specialized input (e.g. falls and syncope specialist)
- Recognize problems specific to the elderly and address social needs

Basic Science:

- Pathophysiology of cardiac and neurogenic causes

THEME 10.36: UNSTEADINESS/BALANCE DISTURBANCE

Learning Objectives:

- To be able to assess a patient presenting with unsteadiness or a disturbance of balance to produce a valid list of differential diagnoses, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Outline more complex investigations: neuroimaging, neurophysiology, audiometry

Skills:

- Perform bedside tests for vertigo: the Hallpike maneuver
- Formulate a management plan for acute period of care

Behaviors:

- Involve appropriate specialists as indicated
- Engage multi-professional team including physiotherapy and occupational therapy as indicated

Basic Science:

- Middle ear anatomy – labyrinth and cochlea
- Physiology of balance
- Cerebellar function

THEME 10.37: VISUAL DISTURBANCE (DIPLOPIA, VISUAL FIELD DEFICIT, REDUCED ACUITY)

Learning Objectives:

- To assess the patient presenting with a visual disturbance to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Outline indications for more specialised investigation: neuroimaging, visual evoked potentials, lumbar puncture, optometry assessment
- Outline implications for driving of visual field loss

Skills:

- Produce comprehensive differential diagnosis
- Formulate management plan for acute and ongoing period of care

Behaviors:

- Involve specialists appropriately: ophthalmology, neurology, neurosurgery, stroke team

Basic Science:

- Anatomy of the optic nerve and relationship to pituitary tumors
- Physiology of cataract formation and occipital cortex function

THEME 10.38: WEIGHT LOSS

Learning Objectives:

- To be able to assess a patient presenting with unintentional weight loss to produce a valid differential diagnosis, investigate appropriately, formulate, and implement a management plan

Knowledge:

- Recall more detailed investigations depending on context (e.g. celiac serology)
- Recall indications and complications of parenteral feeding

Skills:

- Order, interpret, and act on serological tests as a guide of degree of malnutrition in severe weight loss (e.g. phosphate, trace elements, albumin, iron studies)
- Recognize and treat re-feeding syndrome

Behaviors:

- Involve specialist teams appropriately (gastroenterology, elderly care, psychiatry)
- Recommend nutritional advice with the support of nutritional services, including adequate social support

Basic Science:

- Physiology of nutrition, malignancy, digestion, malabsorption syndromes, and thyroid function

MEDICAL COMPLICATIONS OF SURGERY AND PREGNANCY

DOMAIN 11: MEDICAL COMPLICATIONS DURING ACUTE ILLNESS AND FOLLOWING SURGICAL PROCEDURES

THEME 11.1: MEDICAL COMPLICATIONS FOLLOWING SURGICAL PROCEDURES

Learning Objectives:

- To be able to assess, investigate, and treat medical problems arising post-operatively and during acute illness, and recognize importance of preventative measures plan

Knowledge:

- Identify factors which put patients at increased risk of developing medical complications of surgery
- Recall anesthetic and analgesic complications
- Recall comorbidities such as diabetes, ischemic heart disease, hypertension, obesity, and COPD in the context of post-operative complications
- Outline pre-operative assessments which risk stratify surgical risk

Skills:

- Formulate diagnosis and a management plan for the acute period of care
- Initiate treatment, when appropriate, in consultation with the surgical team
- Consider the role of prescribed medication in patients with post-operative complications by carefully reviewing the full medical record
- Perform in reaching of appropriate surgical patients to the AMU/medical HDU for stabilization

Behaviors:

- Involve surgical team in decision making processes
- Liaise closely with the critical outreach team

Basic Science:

- Impact on nutrition especially after prolonged ileus
- Organ dysfunction of the chest and abdomen
- Lymphodema and chronic fatigue

DOMAIN 12: MEDICAL PROBLEMS IN PREGNANCY

THEME 12.1: MEDICAL PROBLEMS IN PREGNANCY

Learning Objectives:

- To be competent in the assessment, investigation, and management of the common and serious medical complications of pregnancy

Knowledge:

- Understand the role of diagnostic imaging including the use of radiographs, CT, and radio nucleotide scanning
- Drug prescribing in pregnancy and post-partum

Skills:

- Formulate a management plan for acute period of care: pre-eclampsia, eclampsia, suspected pulmonary embolism, infection, heart failure, diabetes mellitus, asthma, epilepsy

Behaviors:

- Recognize the importance of respiratory medicine and hematology input in the management of thrombo-embolic disease
- Recognize that patients with long-term conditions need specialist medical input before and throughout the pregnancy
- Discuss with patient likely outcomes and prognosis of condition
- Seek expert advice when prescribing in pregnancy

Basic Science:

- Physiological changes associated with normal pregnancy and lactation
- Changes in pharmacokinetics with normal pregnancy
- Mechanisms of teratogenesis (drugs, infections, radiation, pre-pregnancy lifestyle issues) and prevention
- Post chicken pox exposure management
- Changes in normal ranges of common blood tests in pregnancy (FBC, TFTs, electrolytes, creatinine, LFTs, ABGs, ECG)

THE ACUTELY UNWELL MEDICAL PATIENT

DOMAIN 13: ASSESSING THE ACUTELY UNWELL MEDICAL PATIENT

THEME 13.1: THE ACUTELY UNWELL MEDICAL PATIENT
Learning Objectives:
- Build on the foundation of knowledge about the acutely unwell patient including the common presentations
Knowledge:
- Demonstrate extensive knowledge of common medical illnesses that present acutely
Skills:
- Perform an accurate A to E assessment - Take an accurate history from all relevant parties including patient and carer - Perform full physical examination - Review the patient's current and previous investigations including radiology imaging - Review the patient's medication (chart and drugs taken prior to admission) and modify when appropriate - Review and interpret the patient's observation charts - Review patients case notes in a systematic manner - Produce a comprehensive management plan and instigate the plan - Arrange any further investigations as required appropriately - Identify patients who are at high-risk and require a higher level of care than a ward area
Behaviors:
- Communicate the details of the plan to the patient, carers, and other members of the ward team - Outline treatment principles with drawbacks - Recognize when specialist care or opinion is needed - Break bad news to patient and family in a sensitive and appropriate manner - Contribute to discussions on decisions not to resuscitate with patient, carers, family and colleagues' appropriately and sensitively ensuring patient's interests are paramount

- Recognize the dying phase of terminal illness
- Manage symptoms in dying patients appropriately
- Assess the likely success or futility of cardiopulmonary resuscitation

Basic Science:

- Hospital acquired pneumonia
- Pulmonary edema
- Acute coronary syndrome
- Arrhythmias
- Acute kidney injury
- Delirium or acute confusional state
- Sepsis and septic shock
- Acute oncological emergencies including neutropenic sepsis
- Thromboembolic disease – DVT or pulmonary embolus
- Pyrexia
- Electrolyte disturbances
- Hypoglycemia or hyperglycemia
- Hypoxia
- Hypotension/hemorrhage
- Drug adverse reactions
- Stroke

THEME 13.2: THE ACUTELY UNWELL PRE-OPERATIVE SURGICAL PATIENT

Learning Objectives:

- To be able to assess, investigate, diagnose, and treat patients presenting with acute medical illness in the pre-operative phase
  (It is acknowledged that medical fitness for surgery should be assessed by the anesthetist and surgeon not the acute physician. The physician can, however, give a view of the patient's physiological status.)

- To acquire the defined knowledge base of common problems with applied competencies in cases of acutely unwell pre-operative surgical patients

Knowledge:

- Demonstrate knowledge of conditions that could affect the patient's fitness to undergo a surgical procedure
- Demonstrate knowledge of the effects of differing modes of anesthesia on pre-existing medical conditions
- Demonstrate knowledge of methods to improve physiological reserves prior to surgery
- Demonstrate knowledge of ASA score

Common or Important Medical Problems:

- Pulmonary edema
- Acute coronary syndrome
- Tachyarrithmyas/bradyarrithmyias
- Chronic kidney disease
- Acute kidney injury (poor urine output)
- Delirium or acute confusional state
- Sepsis and septic shock
- Electrolyte disturbances
- Hyperglycemia
- Hypotension
- Drug adverse reactions
- Chronic lung disease
- Asthma

THEME 13.3: THE ACUTELY UNWELL POST-OPERATIVE SURGICAL PATIENT

Learning Objectives:

- To be able to assess, investigate, diagnose, and treat patients presenting with acute medical illness in the post-operative phase
- To acquire the defined knowledge base of common problems with applied competencies in cases of acutely unwell post-operative surgical patients

Knowledge:
- Demonstrate knowledge of commonly occurring medical illnesses that affect surgical patients in the postoperative period
Skills:
- Perform an accurate A to E assessment - Take an accurate history from all relevant parties including patient and carer - Perform full physical examination - Review the patient's current and previous investigations including radiology imaging - Review the patient's medication (chart and drugs taken prior to admission) and modify when appropriate - Review and interpret the patient's observation charts - Review patients case notes in a systematic manner - Produce a comprehensive management plan and instigate the plan - Arrange any further investigations as required appropriately - Identify patients who are at high-risk and require a higher level of care than a ward area
Behaviors:
- Communicate the details of the plan to the patient, carers, and other members of the clinical team with emphasis on adequate communication with the team primarily responsible for the patient's care - Outline treatment principles with drawbacks - Recognize when specialist care or opinion is needed - Break bad news to patient and family in a sensitive and appropriate manner - Contribute to discussions on decisions not to resuscitate with patient, carers, family, and colleagues appropriately and sensitively, ensuring patient's interests are paramount - Recognize the dying phase of terminal illness - Manage symptoms in dying patients appropriately - Assess the likely success or futility of cardiopulmonary resuscitation and complete "do not actively resuscitate" forms when necessary and appropriate
Common or Important Medical Problems in the Surgical Inpatient
- Hospital acquired pneumonia

- Pulmonary edema
- Acute coronary syndrome
- Arrhythmias
- Acute kidney injury
- Delirium or acute confusional state
- Sepsis and septic shock
- Thromboembolic disease – DVT or pulmonary embolus
- Pyrexia
- Electrolyte disturbances
- Hypoglycemia or hyperglycemia
- Hypoxia
- Hypotension/Hemorrhage
- Drug adverse reactions
- Stroke

THEME 13.4: AMBULATORY CARE

Learning Objectives:

- To acquire the knowledge base that defines ambulatory care including the conditions that may be safely treated in this manner

Knowledge:

- Demonstrate knowledge of what is meant by ambulatory care
- Demonstrate knowledge of the various ambulatory care models
- Demonstrate knowledge of which conditions are suitable for ambulatory care
- Demonstrate knowledge of the criteria for discharge from the AMU for such conditions
- Demonstrate knowledge of the various risk stratification models which enable the acute physician to risk stratify the patient into low, medium, and high risk
- Demonstrate knowledge of the relevant investigations or treatments that facilitate ambulatory care
- Demonstrate knowledge of the criteria for admission after treatment failure for conditions suitable for ambulatory care

- Describe the resources required to set up an ambulatory care service in a given hospital (e.g. radiology requirements, clinical rooms, etc.)
- Demonstrate knowledge of the measures that should be used to assess the effectiveness of the service

Skills:

- Demonstrate the need for ambulatory care services for each relevant condition by reviewing local data that illustrates the potential number of patients suitable for ambulatory care
- Demonstrate ability to run ambulatory care service
- Produce a comprehensive management plan for patient, GP, and other healthcare professionals to ensure that there are no errors in care or communication which would result in unnecessary admission
- Monitor patient progress and identify when ambulatory care treatment is no longer appropriate
- Provide adequate information for patients and carers about conditions that are suitable for ambulatory care
- Successfully negotiate with other healthcare professionals to promote ambulatory care

Behaviors:

- Ensure that adequate patient information is available for each condition in the service
- Outline how information would be feedback to the GP or other referring clinician
- Review the effectiveness of ambulatory care services

THEME 13.5: MANAGEMENT AND LEADERSHIP OF THE ACUTE ADMISSIONS MEDICAL UNIT

Learning Objectives:

- To acquire necessary competencies to provide clinical leadership within the acute admissions medical unit ensuring that the multi-professional aspects of care are maximized for optimal patient care

Knowledge:

- Demonstrate knowledge of the major links between the acute medical unit and other parts of the healthcare team including:
    - Critical care
    - Emergency medicine
    - Primary care
    - Specialist teams
- Demonstrate knowledge of disparate patterns of consultant working to maximize effectiveness of the AMU including consultant of the day

or consultant of the week
- Twice daily ward rounds or continuous patient assessment and review
- Demonstrate knowledge of disparate patterns of junior doctor working to maximize effectiveness of the AMU including:
    - Sessional on-call
    - Blocks of placement
    - Mixture of the two
- Demonstrate knowledge of how to match capacity to demand with the various junior doctor and consultant rotas
- Demonstrate knowledge and effectiveness of the various models for specialist input including:
    - Sessional commitment as part of the acute physician team
- Visit physician usually daily
- Demonstrate knowledge of the relative effectiveness of specialist care as opposed to care by the acute physician for common acute medical conditions
- Demonstrate knowledge of the role and importance the other members of the healthcare team in the acute medical unit in promoting optimal patient care including:
    - Nursing staff
    - Physiotherapists
    - Occupational therapists
    - Pharmacists
- Demonstrates knowledge of relevant performance and quality indicators to monitor the effectiveness of an acute medical unit
    - Demonstrates knowledge of how data may be acquired including the following quality of care indicators:
    - Time to be seen by nurse and doctor
    - Time to delivery of first dose of antibiotics or analgesia
    - Proportion of patients given DVT prophylaxis
    - Proportion patients who have an early warning score performed and proportion in who it was calculated correctly
    - The whole patient journey in the from arrival to discharge or arrival to admission to a bed
- Patient feedback – surveys

Skills:

- Demonstrate leadership skills to maximize effectiveness of the acute medical unit including promoting education of the multidisciplinary team
- Demonstrate innovation to develop new services

- Maximize patient safety within the AMU
- Interaction with critical care to develop and review facilities to manage level 1a/2 patients (Medical HDU), which may include the safe use of:
    - Cardiac monitors
    - CVP monitors
    - Arterial line monitors
    - CPAP and NIV or BiPAP
    - Dobutamine or noradrenaline
- Development and review of:
    - Criteria for admission and in reaching from medical ward
    - Interaction with critical care outreach
    - Criteria for transfer to a higher level of care (level 3 area)
    - Criteria for step down from higher levels of care
- Staffing resources:
    - Involvement in training of healthcare staff to manage patients requiring higher levels of care
    - Interaction with the local emergency department to ensure optimal patient pathways including:
        - Joint pathways of care and referral criteria
        - Co-operation in the development of patient documentation
- Interaction with local specialty services to ensure optimal patients pathways including:
    - Specialities that require daily input (e.g. cardiology, respiratory, psychiatry)
    - Specialties that require regular input but not necessarily daily (e.g. elderly, gastroenterology, diabetes)
- Organization of disparate speciality input to the AMU in the most appropriate way (e.g. pre-acute internal medicine ward round on all patients of that speciality or post-acute internal medicine ward round on preselected patients)
- Interactions with primary care to ensure optimal patient pathway including:
    - Development of robust system for receiving GP calls
    - Development and communication of direct access clinics
- Development of robust communication links for the benefit of patient care both pre- and post-admission to the AMU
- Review and update operational policies

Behaviors:

- Demonstrate willingness to ensure that the acute medical unit is as effective as possible by leading regular audits of performance including:
    - Demand in the AMU in terms of patient numbers and conditions

- Patient length of stay – 0 days, 1 day, 2-5 days and >7days
- Number and proportion of direct discharges from the AMU
- Readmissions rate sat – 7 and 28 days
- Patient mortality – 24 hour, 28 day and hospital

- Demonstrate willingness to review the quality of care provided to patients in the AMU
- Demonstrate willingness to co-operate with other departments and healthcare workers to promote optimal patient care

THEME 13.6: INTERACTION WITH CRITICAL CARE

Learning Objectives:

- To acquire necessary competencies to ensure that clinical communication with members of the critical care team are optimized in the interest of effective and safe patient care

Knowledge:

- Outline critical aspects of patient assessment that dictate need for higher levels of care
- Outline criteria that exist to aid selection of patients for critical care

Skills:

- Assess patients with acute medical illness accurately and effectively
- Commence airway and inotropic support when appropriate
- Implements care bundles when defined prior to patient transfer

Behaviors:

- Liaises with colleagues in critical care departments to promote better patient care
- Considers opinions of others and acts as patient and carer advocate in the need of higher care

System Specific Competencies

This curriculum has described the competencies required to practice internal medicine in a patient-centered manner by listing the common ways in which a patient can present. In so doing, certain important knowledge-based competencies have not been adequately defined.

This section considers each system in turn, alphabetically, and lists the competencies, common conditions, and clinical science required for each system. However, it is not intended that this is a description of the environment in which these competencies are to be attained. For example, the internal physician trainee may gain experience of the management of acute asthma in the emergency setting and many medical wards, rather than solely in a respiratory ward.

Common and / or Important Problems

Learning to manage each mode of presentation does not avoid the need for a trainee to have a solid grounding of knowledge in specific medical conditions. It is also the case that patients very often already have a 'diagnostic label,' for example family medicine referring 'a breathless patient with heart failure.' In the age of better patient education and patient involvement in their chronic disease management, today's clinician frequently needs to refer to disease-specific knowledge earlier in the consultation.

Therefore, listing the specific conditions aims to advise the trainee on the conditions that require detailed comprehension. The list also gives a guide to the topics that will form the basis for formal and work-place assessments.

A framework for the knowledge required for specific conditions is set out below, and should continue to improve with time in line with the principles of a spiral curriculum:

- Definition
- Pathophysiology
- Epidemiology
- Features of history
- Examination findings
- Differential diagnosis
- Investigations indicated
- Detailed initial management and principles of ongoing management (counselling, lifestyle, medical, surgical, care setting, and follow up)
- Complications
- Prevention (where relevant to condition)

DOMAIN 14: SYSTEM SPECIFIC COMPETENCIES

THEME 14.1: ALLERGY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Allergy

Competencies:

- Recognize when specialist allergy opinion is required
- Be aware of the management and subsequent investigation of patients presenting with immune-mediated medical emergencies:
    - Anaphylaxis
    - Laryngoedema
    - Urticaria
    - Angioedema

Common Problems:

- Anaphylaxis
- Recognition of common allergies
- Introducing occupation-associated allergies
- Food, drug, latex, insect venom allergies
- Urticaria and angioedema
- Indications and contraindications for, and therapeutic scope of, allergen immunotherapy
- Indications for, and limitations of skin prick testing and in vitro tests for allergen-specific IgE

Clinical Science:

- Mechanisms of allergic sensitization: primary and secondary prophylaxis
- Natural history of allergic diseases
- Mechanisms of action of anti-allergic drugs and immunotherapy
- Principles and limitations of allergen avoidance

THEME 14.2: ONCOLOGY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Oncology

Competencies:

- Recognize the terminally ill often present with problems with multi-factorial causes
- Recognize that patients with oncological illness may present with co-exist illness separate from the primary disease and/or complicating the illness
- Recognize associated psychological and social problems
- Investigate appropriately
- Recognize when specialist oncology or palliative care opinion is needed
- Outline treatment principles with drawbacks: surgery, chemotherapy, and radiotherapy
- Break bad news to patient and family with cancer in sensitive and appropriate manner
- Contribute to discussions on decisions not to resuscitate with patient, carers, family, and colleagues appropriately and sensitively, ensuring patient's interests are paramount
- Recognize the dying phase of terminal illness

Common Problems:

- For the acute physician, active liaison with local oncology services is vital to ensure management of complications of oncological disease is prompt effective and based on agreed protocols
- Hypercalcemia
- SVC obstruction
- Spinal cord compression
- Neutropenic sepsis
- Common cancers (presentation, diagnosis, staging, treatment principles): lung, bowel, breast, prostate, stomach, esophagus, bladder, skin, hematological, testicular, and ovarian
- Premalignant conditions (e.g. familial polyposis coli)
- Paraneoplastic conditions (e.g. ectopic ACTH)

Clinical Science:

- Principles of oncogenesis and metastatic spread
- Apoptosis
- Principles of staging

- Principles of screening
- Pharmacology of major drug classes in palliative care: anti-emetics, opioids, NSAIDS, agents for neuropathic pain, bisphosphonates, laxatives, anxiolytics

THEME 14.3: PALLIATIVE AND END OF LIFE CARE

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Palliative Care

Competencies:

- Take an accurate pain history
- Recognize that the terminally ill often present with problems with multi-factorial causes
- Recognize associated psychological and social problems
- Recognize when palliative care opinion is needed
- Contribute to discussions on decisions not to resuscitate with patient, carers, family, and colleagues appropriately and sensitively ensuring patients interests are paramount
- Recognize the dying phase of illness
- Manage symptoms in dying patients appropriately
- Practice safe use of syringe drivers
- Recognize importance of hospital and community Palliative Care teams
- Recognize that referral to specialist palliative care is appropriate for patients with other life threatening illnesses as well as those with cancer

Common Problems:

- Pain: appropriate use analgesic ladder and their side effects
- Role of radiotherapy
- Constipation
- Breathlessness
- Nausea and vomiting
- Anxiety and depressed mood

Clinical Science:

- Pharmacology of major drug classes in palliative care: anti-emetics, opioids, NSAIDS
- Agents for neuropathic pain bisphosphonates, laxatives, and anxiolytics

THEME 14.4: CARDIOVASCULAR MEDICINE

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Cardiovascular Medicine

Competencies:

- Recognize when specialist cardiology opinion is indicated
- Outline risk factors for cardiovascular disease
- Counsel patients on risk factors for cardiovascular disease
- Outline methods of smoking cessation of proven efficacy (see below)

Common Problems:

- Arrhythmias:
    - Heart block
    - Resistant arrhythmia
- SVT, AF, VT, VF
- Cardiac arrest
- Pacemaker rhythms
- Misplacement of ECG leads
- Ischemic Heart Disease: acute coronary syndromes, stable angina, atherosclerosis
- Heart Failure (medical management and interventional therapy)
- Hypertension - including investigation and management of accelerated hypertension in pregnancy
- Valvular Heart Disease
- Endocarditis
- Aortic dissection
- Congenital heart disease (e.g. ASD)
- Pericarditis

- Cardiomyopathies
- Orthostatic hypotension
- Syncope
- Dyslipidemia

Clinical Science:

- Anatomy and function of cardiovascular system
- Physiological principles of cardiac cycle and cardiac conduction
- Homeostasis of the circulation
- Atherosclerosis
- Pharmacology of major drug classes: beta adrenoceptor blockers, alpha adrenoceptor blockers, ACE inhibitors, ARBs, anti-platelet agents, thrombolysis, inotropes, calcium channel antagonists, potassium channel activators, diuretics, anti-arrhythmics, anti-coagulants, lipid modifying drugs, nitrates, centrally acting anti-hypertensives

THEME 14.5: CLINICAL GENETICS

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Clinical Genetics

Competencies:

- Recognize the organization and role of Clinical Genetics and when to seek specialist advice
- Take and interpret a complete family history
- Recognize the anxiety caused to an individual and their family when investigating genetic susceptibility to disease
- Recognize the importance of skilled counselling in the investigation of genetic susceptibility to disease
- Recognize basic patterns of inheritance
- Recognize the differing attitudes and beliefs towards inheritance
- Understand the ethical implications of molecular testing and screening: confidentiality, screening children, pre-symptomatic testing
- Estimate risk for relatives of patients with Mendelian disease

Common Problems:

- Cystic Fibrosis

- Down's syndrome
- Familial cancer syndromes
- Familial cardiovascular disorders
- Hemochromatosis
- Hemophilia
- Huntington's disease
- Klinefelter syndrome
- Marfan's syndrome
- Polycystic kidney disease
- Sickle Cell disease
- Thalassemia
- Turner's syndrome
- Von Willeband's disease

Clinical Science:

- Structure and function of human cells, chromosomes, DNA, RNA, and cellular proteins
- Principles of inheritance: Mendelian, sex-linked, and mitochondrial
- Principles of pharmacogenetics
- Principles of mutation, polymorphism, and trinucleotide repeat disorders
- Principles of genetic testing including metabolite assays, clinical examination, and analysis of nucleic acid (e.g. PCR)

THEME 14.6: CLINICAL PHARMACOLOGY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Clinical Pharmacology

Competencies:

- Practice safe prescribing:
    - Effects of: renal or liver impairment; old age; pregnancy
    - Outline importance of drug interactions and role CYP450 isoenzymes
    - Outline drugs requiring therapeutic monitoring

- Use national and local guidelines on appropriate and safe prescribing
- Write a clear and unambiguous prescription
- Engage patients in discussions on drug choice, and side effects
- Recognize range of adverse drug reactions to commonly used drugs
- Liaise effectively with pharmacists
- Discuss therapeutic changes with patient and discuss with GP promptly and comprehensively
- Competently formulate management plan for poisoning and adverse drug reactions
- Demonstrate appropriate use of a toxicology database (e.g. Toxbase)

Common Problems:

- Corticosteroid treatment:
  - Short and long-term complications
  - Bone protection
  - Safe withdrawal of corticosteroids
  - Patient counselling regarding avoidance of adrenal crises
- Specific treatment of poisoning with:
  - Aspirin
  - Alcohol
  - Calcium channel blockers
  - Anticoagulants
  - Amphetamines
  - Drugs of misuse
  - Paracetamol
  - Tricyclics anti-depressants
  - Beta-adrenoceptor blockers
  - Carbon monoxide
  - Opiates and opioids
  - Digoxin
  - Benzodiazepines
  - SSRI

Clinical Science:
- Drug actions at receptor and intracellular level - Principles of absorption, distribution, metabolism, and excretion of drugs - Effects of genetics on drug metabolism - Pharmacological principles of drug interaction - Outline the effects on drug metabolism of: pregnancy, age, renal and liver impairment

THEME 14.7: DERMATOLOGY
Learning Objectives:
- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Dermatology
Competencies:
- Recognize when specialist Dermatology opinion is indicated - Accurately describe skin lesions following assessment - Outline the clinical features and presentation of melanoma, squamous cell carcinoma, and basal cell carcinoma - List diagnostic features for the early detection of malignant melanoma - Recognize and manage suspected skin tumours when they may be an incidental finding - Recognize the association between timely biopsy/excision of melanoma and survival - Arrange prompt skin biopsy when appropriate - Counsel patients on preventative strategies for skin tumours (e.g. avoiding excess UV exposure) and the diagnostic features for the early detection of malignant melanoma - Recognize when a patient's presentation heralds a systemic disease
Common Problems:
- Psoriasis - Eczema - Skin tumours (see competencies column) - Skin failure (e.g. erthryoderma, toxic epidermal necrolysis) - Urticaria and angio-edema

- Cutaneous vasculitis
- Dermatomyositis
- Scleroderma
- Cellulitis
- Viral infections (e.g. herpes zoster and herpes simplex infections)
- Bacterial infections (e.g. impetigo)
- Fungal infections (e.g. tinea)
- Ulcers
- Bullous disorders
- Skin infestations
- Cutaneous drug reactions
- Lymphoedema
- Skin manifestations of systematic disorder

Clinical Science:

- Structure and function of skin, hair, and nails
- Pharmacology of major drug classes: topical corticosteroids, immunosuppressants

THEME 14.8: DIABETES AND ENDOCRINOLOGY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Diabetes and Endocrinology

Competencies:

- Elucidate a full diabetic medical history
- Recall diagnostic criteria for diabetes mellitus
- Assess diabetic patient to detect long term complications
- Formulate an appropriate management plan, including newly diagnosed and established diabetic patients to prevent short and long term complications
- Outline common insulin regimens for type 1 diabetes mellitus
- Outline drug management of type 2 diabetes mellitus: oral hypoglycemics, glitazones, primary and secondary vascular preventative

agents
- Recognize vital importance of patient education and a multidisciplinary approach for the successful long-term care of diabetes
- Recognize when specialist endocrine or diabetes opinion is indicated

Common Problems:

- Diabetic ketoacidosis
- Non-acidotic hyperosmolar coma/severe hyperglycemia
- Hypoglycemia
- Care of the acutely-ill diabetic
- Peri-operative diabetes care
- Hyper/Hypocalcemia
- Adrenocortical insufficiency
- Hyper/Hyponatremia
- Thyroid dysfunction
- Dyslipidemia
- Endocrine emergencies: myxoedema coma, thyrotoxic crisis, Addisonian crisis, hypopituitary coma, pheochromocytoma crisis
- Polycystic ovarian syndrome
- Amenorrhea
- Diabetes insipidus
- Cushing's syndrome
- Pituitary tumours egprolactinoma, acromegaly and their complications (e.g. SIADH)
- Turner's syndrome
- Bone disease: osteoporosis and osteomalcia

Clinical Science:

- Structure and function of hypothalamus, pituitary, thyroid, adrenals, gonads, parathyroids, pancreas
- Outline the structure and function of hormones
- Principles of hormone receptors, action, secondary messengers and feedback
- Pharmacology of major drug classes: insulin, oral antidiabetics, thyroxine, anti-thyroid drugs, corticosteroids, sex hormones, drugs affecting bone metabolism

THEME 14.9: GASTROENTEROLOGY AND HEPATOLOGY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Gastroenterology and Hepatology

Competencies:

- Understand the role of specialized diagnostic and therapeutic endoscopic procedures
- Recognize when specialist Gastroenterology or Hepatology opinion is indicated
- Recognize when a patient's presentation heralds a surgical cause and refer appropriately
- Perform a nutritional assessment and address nutritional requirements in management plan
- Outline role of specialist multi-disciplinary nutrition team

Common Problems:

- Peptic Ulceration and Gastritis
- Gastroenteritis
- GI malignancy (esophagus, gastric, hepatic, pancreatic, colonic)
- Inflammatory bowel disease
- Iron deficiency anemia
- Acute GI bleeding
- Acute abdominal pathologies: pancreatitis, cholecystitis, appendicitis, leaking abdominal B aortic aneurysm
- Functional disease: irritable bowel syndrome, non-ulcer dyspepsia
- Celiac disease
- Alcoholic liver disease
- Alcohol withdrawal syndrome
- Acute liver dysfunction: jaundice, ascites, encephalopathy
- Liver cirrhosis
- Gastro-esophageal reflux disease
- Nutrition: indications, contraindications and ethical dilemmas of nasogastric feeding and PEG tubes, IV nutrition, re-feeding syndrome
- Parenteral feeding
- Gall stones

- Viral hepatitis
- Auto-immune liver disease
- Pancreatic cancer
- Malabsorption

Clinical Science:

- Structure and function of salivary glands, esophagus, stomach, small bowel, colon, rectum, liver, biliary system, pancreas
- Principles of the physiology of alimentary tract: motility, secretion, digestion, absorption
- Bile metabolism
- Principles of action of liver
- Laboratory markers of liver, pancreas and gut dysfunction
- Pharmacology of major drug classes: acid suppressants, anti-spasmodics, laxatives, anti-diarrhea drugs, aminosalicylates, corticosteroids, immunosuppressants, infliximab, pancreatic enzyme supplements

THEME 14.10: HEMATOLOGY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Hematology

Competencies:

- Recognize when specialist hematology opinion is indicated
- Practice safe prescribing of blood products, including appropriate patient counselling
- Outline indications, contraindications, side effects, and therapeutic monitoring of anticoagulant medications

Common Problems:

- Bone marrow failure: causes and complications
- Bleeding disorders: DIC, haemophilia
- Thrombocytopenia
- Anticoagulation treatment: indications, monitoring, management of over-treatment
- Transfusion reactions
- Anemia: iron deficient, megaloblastic, hemolysis, sickle cell
- Thrombophilia: classification, indications and implications of screening

- Hemolytic disease
- Myelodysplastic syndromes
- Leukemia
- Lymphoma
- Myeloma
- Myeloproliferative disease
- Inherited disorders of hemoglobin (sickle cell disease, thalassemia)
- Amyloid
- Principles of hematopoietic stem cell transplantation

Clinical Science:

- Structure and function of blood, reticuloendothelial system, erythropoietic tissues
- Hemoglobin structure and function
- Hemopoiesis
- Metabolism of iron, B12 and folate
- Coagulation

THEME 14.11: IMMUNOLOGY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Immunology

Competencies:

- Recognize the role of the Clinical Immunologist

Common Problems:

- Anaphylaxis (see also "Allergy")
- Immunodeficiencies (e.g. hypogammaglobulinemia, common variable immune deficiency)

Clinical Science:

- Structure and function of reticuloendothelial system
- Innate and adaptive immune responses
- The Complement System: structure and function

- Principles of hypersensitivity
- Principles of transplantation

THEME 14.12: INFECTIOUS DISEASES

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Infectious Diseases

Competencies:

- Elucidate risk factors for the development of an infectious disease including contacts, travel, animal contact and sexual history
- Recognize when specialist microbiology or infectious diseases opinions are indicated
- Recognize when a patient is critically ill with sepsis, promptly initiate treatment, and liaise with critical care and senior colleagues
- Outline spectrum of cover of common anti-microbials, recognizing complications of inappropriate use
- Use local anti-microbial prescribing guidelines, including therapeutic drug monitoring when indicated
- Recognize importance of immunization and public health in infection control, including reporting notifiable diseases
- Outline principles of prophylaxis (e.g. anti-malarials)

Common Problems:

- Fever of unknown origin
- Complications of sepsis: shock, DIC, ARDSB
- Common community acquired infection: LRTI, UTI, skin and soft tissue infections, viral Cexanthema, gastroenteritis
- CNS infection: meningitis, encephalitis, brain abscess
- Fever in the returning traveller
- HIV and AIDS including ethical considerations of testing
- Infections in immuno-compromised host
- Tuberculosis
- Anti-microbial drug monitoring
- Endocarditis
- Common genito-urinary conditions: non-gonococcal urethritis, gonorrhea, syphilis
- Fungal infections (e.g. aspergillus, pneumocystis jirovecii infection)
- Lyme disease

- Viral infections (e.g. erythrovirus, infectious mononucleosis, erythrovirus infection, herpes virus infections)

Clinical Science:

- Mechanisms of organism pathogenesis
- Host response to infection
- Principles of vaccination
- Pharmacology of major drug classes: penicillins, cephalosporins, tetracyclines, aminoglycosides, macrolides, sulphonamides, quinolones, metronidazole, anti-tuberculous drugs, anti-fungals, anti-malarials, anti-helmintics, anti-virals

THEME 14.13: ELDERLY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in the Elderly

Competencies:

- Elucidate in older patients co-morbidities, activities of daily living, social support, drug history, and living environment
- Assess mental state and tests of cognitive function
- Recognize when specialist medicine in the elderly opinion is indicated
- Recognize importance of multi-disciplinary assessment
- Contribute to effective multi-disciplinary discharge planning
- Perform a nutritional assessment and address nutritional requirements in management plan
- Set realistic rehabilitation targets
- Rationalize individual drug regimens to avoid unnecessary poly-pharmacy
- Contribute to discussions on decisions not to resuscitate with patient, carers, family, and colleagues appropriately, and sensitively ensure patient's interests are paramount
- Recognize the role of intermediate care, and practice prompt effective communication with these facilities
- Recognize the often multi-factorial causes for clinical presentation in the elderly and outline preventative approaches
- Recognize that older patients often present with multiple problems (e.g. falls and confusion, immobility and incontinence)
-

Common Problems:
- Deterioration in mobility - Acute confusion - Stroke and transient ischemic attack - Falls - Age related pharmacology - Hypothermia - Continence problems - Dementia - Movement diseases including Parkinson's disease - Depression in the elderly - Osteoporosis - Malnutrition - Osteoarthritis - Ulcers: leg and pressure areas
Clinical Science:
- Effects of aging on the major organ systems - Normal laboratory values in older people

THEME 14.14: MUSCULOSKELETAL
Learning Objectives:
- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Musculoskeletal
Competencies:
- Accurately describe the examination features of musculoskeletal disease following full assessment - Recognize when specialist rheumatology opinion is indicated - Outline the indications, contraindications, and side effects of the major immunosuppressive drugs used in rheumatology including corticosteroids - Recognize the need for long term review in many cases of rheumatological disease and their treatments

- Recognize importance of multidisciplinary approach to rheumatological disease including physio, OT
- Use local/national guidelines appropriately (e.g. osteoporosis)

Common Problems:

- Septic arthritis
- Rheumatoid arthritis
- Osteoarthritis
- Seronegative arthritides
- Crystal arthropathy
- Osteoporosis – risk factors, and primary and secondary prevention of complications of osteoporosis
- Polymyalgia and temporal arteritis
- Acute connective tissue disease: systemic lupus erythematosus, scleroderma, poly- and dermatomyositis, Sjogren's syndrome, vasculitides
- Paget's disease
- Osteomyelitis
- Avascular necrosis

Clinical Science:

- Structure and function of muscle, bone, joints, synovium
- Bone metabolism
- Pharmacology of major drug classes: NSAIDS, corticosteroids, immunosuppressants, colchicines, allopurinol, bisphosphonates

THEME 14.15: NEUROLOGY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Neurology

Competencies:

- Define the likely site of a lesion within the nervous system following full assessment
- Recognize when specialist neurology opinion is indicated
- Recognize when a patient's presentation heralds a neurosurgical emergency and refer appropriately

Common Problems:

- Acute new headache

- Stroke and transient ischemic attack
- Sub-arachnoid haemorrhage
- Coma
- Central nervous system infection: encephalitis, meningitis, brain abscess
- Raised intra-cranial pressure
- Sudden loss of consciousness including seizure disorders (see also syncope)
- Acute paralysis: Guilian Barre, myasthenia gravis, spinal cord lesion
- Multiple sclerosis
- Motor neurone disease
- Confusional states: Wernicke's encephalophy
- Dementia
- Movement disorders: Parkinson's disease, essential tremor
- Myoclonus
- Vertigo
- Sleep disorders
- Neuropathies: peripheral an cranial
- CNS tumours: cerebral metastases, pituitary tumours
- Retinopathy: diabetes mellitus , retinitis pigmentosa, retinal ischemia or haemorrhage
- Visual disturbance

Clinical Science:

- Structure and function of the central, peripheral, and sympathetic nervous systems
- Physiology of nerve conduction
- Principles of neurotransmitters
- Structure and physiology of visual, auditory, and balance systems
- Cerebral automaticity
- Anatomy or cerebral blood supply
- Brain death
- Pathophysiology of pain
- Speech and language
- Pharmacology of major drug classes: anxiolytics, hypnotics including benzodiazepines, anti-epileptics, anti-parkinson drugs (anti-

muscarinics, dopaminergics)

THEME 14.16: PSYCHIATRY

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Psychiatry

Competencies:

- Be able to take a full medical and relevant psychiatric history
- Be able to perform a mental state examination
- Recognize when specialist psychiatric opinion is indicated
- Recognize when a patient's presentation heralds organic illness and manage appropriately
- Recognize role of community mental health care teams

Common Problems:

- Suicide and parasuicide
- Acute psychosis
- Substance dependence
- Depression
- Delirium
- Alcohol syndromes: alcohol dependence, alcohol withdrawal
- Anxiety and panic disorders
- Phobias
- Stress disorders

Clinical Science:

- Structure and function of limbic system and hippocampus
- Principles of substance addiction and tolerance
- Physiology of neurotransmitters
- Pharmacology of major drug classes: anti-psychotics, lithium, tricyclics, antidepressants, mono-amine oxidase inhibitors, SSRIs, venlafaxine, donepezil, drugs used for addiction (bupropion, disulpharam, acamprosate, methadone)

THEME 14.17: RENAL MEDICINE

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Renal Medicine

Competencies:

- Recognize predisposing factors that precipitate acute kidney injury and develop management plans to avoid it's further development
- Formulate a differential diagnosis of renal pathology for the patient following assessment
- Formulate an appropriate management plan
- Discuss with patient likely outcomes and prognosis of condition and requirement for long term review
- Differentiate pre-renal failure, renal failure and urinary obstruction
- Recognize when specialist Nephrology or Urology opinion is indicated
- Identify patients who are at high risk of renal dysfunction in event of illness or surgery, and institute preventative measures

Common Problems:

- Acute kidney injury
- Chronic renal failure
- Glomerulonephritis
- Nephrotic syndrome
- Urinary tract infections
- Urinary calculus
- Renal replacement therapy
- Disturbances of potassium, acid/base, and fluid balance (and appropriate acute interventions)
- Polycystic kidney disease

Clinical Science:

- Structure and function of the renal and urinary tract
- Homeostasis of fluid, electrolytes, and acid base
- Urine composition
- Measurement of renal function
- Metabolic perturbations of acute, chronic, and end-stage renal failure and associated treatments

THEME 14.18: RESPIRATORY MEDICINE

Learning Objectives:

- To acquire the defined knowledge base of clinical science and common problems with applied competencies in Respiratory Medicine

Competencies:

- Recognize when specialist respiratory opinion is indicated
- Safe oxygen prescribing
- Principles of short and long term oxygen therapy
- Outline the different delivery systems for respiratory medications
- Outline methods of smoking cessation of proven efficacy
- Counsel patients in smoking cessation appropriately
- Take a thorough occupational history to identify risk factors for lung disease

Common Problems:

- COPD
- Asthma
- Pneumonia
- Pleural disease: pneumothorax, pleural effusion, mesothelioma
- Lung cancer
- Respiratory failure and methods of respiratory support
- Pulmonary embolism and DVT
- Tuberculosis
- Interstitial lung disease
- Obstructive sleep apnea
- Cystic fibrosis
- Bronchiectasis
- Respiratory failure and cor pulmonale
- Pulmonary hypertension

Clinical Science:

- Anatomy and function of respiratory system (airways, lungs, chest wall)
- Physiology of gas exchange: ventilation, perfusion, ventilation and perfusion matching

- Acid-base homeostasis
- Principles of lung function measurement
- Pharmacology of major drug classes: bronchodilators, inhaled corticosteroids, leukotriene receptor antagonists, immunosuppressants

THEME 14.19: PUBLIC HEALTH AND HEALTH PROMOTION

Learning Objectives:

- Internal Medicine must recognize the public health issues that can impact an individual patient's well-being and often contribute to the patient's acute presentation. Opportunities must be taken for health promotion with patient population that presents acutely to hospital, and the acute physician must be part of the team that takes this opportunity

Competencies:

- Smoking
    - Outline the effects of smoking on health
    - Promote smoking cessation
    - Recognize the need for support during cessation attempts
    - Recognize and utilize specific smoking cessation health professionals
- Alcohol
    - Recall safe drinking levels
    - Recognize the health and psychosocial effects of alcohol
    - Recommend support networks for problem drinkers
    - Outline appropriate detoxification program and methods to retain abstinence
- Obesity
    - Recognize medical impact of obesity
    - Outline good dietary practices
    - Promote regular exercise
    - Recommend specialist dietician input as appropriate
    - Define principles of therapeutic interventions in morbid obesity

- Nutrition
    - Recognize the public health problem of poor nutrition
    - Perform basic nutritional assessment
    - Identify patients with malnutrition and instigate appropriate management
    - Recognize importance of dietician input and follow-up
    - Define principles of enteral and parenteral feeding
    - Outline the ethical issues associated with nutrition
- Sexual behavior
    - Promote safe sexual practices
- Substance abuse
    - Recognize the health and psychosocial effects of substance abuse
    - Recommend support networks
- Social deprivation
    - Be able to define the levels of social deprivation in the community
    - Recognize the impact of social deprivation on health
- Occupation
    - Recognize the impact of occupation on health
    - Outline the role of occupational health consultants
- Exercise
    - Define the health benefits of regular exercise
    - Promote regular exercise
- Mental health
    - Recognize the interaction of mental and physical health
    - Recommend appropriate treatment and support facilities

EVIDENCE BASED MEDICINE

DOMAIN 15: EVIDENCE-BASED MEDICINE

THEME 15.1: INTEGRATING EVIDENCE AND KNOWLEDGE IN PROVIDING OPTIMAL CARE TO INDIVIDUAL PATIENTS AND FOR PATIENT POPULATIONS
Learning Objectives:
- To define and utilize care systems for individual patients
Knowledge:
- Justify uses and explain limitations of care plans/pathways - Explain ways in which time can be efficiently used in coordinating the care of individual patients - Describe the place of clinical uncertainty in decision making and the balancing of benefits and risks of treatments - Identify examples of patient harm or suboptimal care as a result of dogma, unquestioned authoritative opinion, and failure to apply evidence- based approaches
Skills:
- Use care pathways effectively, including identifying reasons for variations in care - Demonstrate efficient use of time in the planning of coordinated care for individual patients - Apply a skeptical approach to opinions that are not supported by evidence - Apply a self-questioning, reflective approach to clinical reasoning - Apply methods for recalling and solving clinical cases that elicited doubt or uncertainty - Demonstrate an awareness of the range of certainty around the accuracy of diagnostic tests and the efficacy of treatments which may limit their applicability in clinical practice

THEME 15.2: INTEGRATING EVIDENCE AND KNOWLEDGE THROUGH CLINICAL INFORMATION SYSTEMS
Learning Objectives:
- To use clinical information technology systems in patient care
Knowledge:
- Explain the role of information technology in improving patient information flow - Describe the concept of decision support - Identify current trends in use of IT systems within health
Skills:
- Use clinical information systems within the workplace to provide effective information transfers

THEME 15.4: ENHANCE RESEARCH EVIDENCE FROM MULTIPLE EVIDENCE SOURCES AND DATABASES
Learning Objectives:
- To seek, obtain, critically appraise, and apply information from a range of evidence sources
Knowledge:
- Explain interfaces between research evidence, clinical expertise and judgement, patient values and preferences, and societal expectations - Describe clinical practices that are based on poor or no evidence - Explain how study design may affect validity and generalizability of study results - Rate the quality of evidence according to methodological rigour - Compare the role of expert opinion and observational evidence
Skills:
- Use evidence to inform decision making whenever feasible - Rank evidence according to its consistency and freedom from bias - Make decisions based on clinical judgement in circumstances where evidence is lacking or conflicting - Reconcile evidence with contrary patient values and preferences - Reconcile dissonant expert opinion with research evidence

THEME 15.5: INTEGRATING EVIDENCE AND KNOWLEDGE TO CRITICALLY APPRAISE PUBLICATIONS AND RECOMMENDATIONS

Learning Objectives:

- To present succinct synopses of relevant critically-appraised publications, with recommendations, to patients and their carers and families, and to clinicians and others in the health system

Knowledge:

- Explain relative and absolute measures of benefit and risk of clinical interventions
- Explain how framing may affect how information on treatment-related outcomes is presented
- Describe interactions, effect modification, and competing risks of multiple treatments aimed at multiple illnesses in individual patients
- Explain the grading of clinical recommendations according to strength and consistency of research evidence
- Outline decision aids that can assist patients to conceptualize treatment benefit and harm prior to their making a decision about recommended care
- Explain ways of sharing information with patients and eliciting their attitudes and priorities
- Describe variation between patients in the extent to which they wish to be involved in decision making, and factors that predict such variation

Skills:

- Estimate and express benefit and risks of clinical interventions as applied to the circumstances of individual patients in ways that minimize framing bias
- Indicate the extent to which intervention effects are altered by concomitant therapies, comorbidities, and other aspects of clinical context
- Translate measures of harm and risk into meaningful concepts for patients
- Communicate numeric estimates of benefit and harm to patients in a manner they can understand and act upon
- Elicit patients' understanding of their disease and its management and what they perceive as the most desirable goals of care
- Determine the level of health literacy of individual patients and their willingness to assume responsibility for care decisions
- Determine level of understanding of, and commitment to, an agreed care decision

THEME 15.6: CRITICALLY APPRAISE CLINICAL REASONING AND DECISION MAKING THROUGH KNOWN HEURISTICS

Learning Objectives:

- To revise clinical heuristics ('rules of thumb') and accepted clinical practices in the light of new evidence challenging their validity

Knowledge:

- Explain origins and forms of clinical heuristics and how they affect clinical reasoning
- Describe dissonance between clinical heuristics and evidence-based medicine
- Outline ways of detecting and correcting heuristic related bias in decision making
- Describe psychological defences against cognitive error in clinical reasoning
- Explain the epistemological basis of clinical science
- Describe methods for updating clinical beliefs and practices as new valid evidence becomes available ('push' strategies: new evidence actively disseminated to clinical users; 'pull' strategies: clinicians actively seek evidence as the need arises)

Skills:

- Reflect on cases where heuristics have led to incorrect clinical decisions
- Characterize one's own reasoning style and determine its alignment with normative, evidence-based approaches
- Determine personal thresholds for questioning the validity of current practice in response to new evidence and changing behavior and practice
- Implement methods for becoming aware, in a timely fashion, of important new evidence that may warrant change in current practice
- Evaluate the relative efficacy of 'push' and 'pull' strategies in continuing professional development, and adopt those most suited to personal needs

THEME 15.7: ESTABLISH INITIATIVES TO SEEK MORE EVIDENCE FOR CLINICAL DECISIONS

Learning Objectives:

- To identify where important evidence is lacking and contribute to initiatives to obtain more evidence, through further literature searches or research

Knowledge:

- Analyze why certain areas of clinical practice lack evidence or are associated with poor quality evidence

- Describe methods for searching out potentially useful evidence from 'grey' literature (reports not published in peer-reviewed clinical journals), commentaries, and narrative reviews
- Outline barriers to conducting rigorous studies in specific clinical domains:
    - Scientific method
    - Sponsorship and financing
    - Professional or cultural factors
    - Other logistical issues
- Explain research methods (experimental or observational, quantitative or qualitative) that can be applied in generating evidence in routine clinical settings
- Outline principles of designing and leading clinical studies

Skills:

- Conduct search for evidence around clinical questions that are known or are considered likely not to have been subject to extensive or high-quality research
- Synthesize evidence from disparate sources around obscure or unusual clinical questions
- Facilitate clinical studies that may help to reduce evidence gaps in clinical practice
- Foster both questioning and research among colleagues and subordinates in response to unanswered clinical questions
- Recruit patients into relevant trials if there is uncertainty about effects of proposed clinical interventions

LEADERSHIP AND MULTIDISCIPLINARY TEAM MANAGEMENT

DOMAIN 16: LEARDERSHIP AND MULTIDISCIPLINARY TEAM MANAGEMENT

THEME 16.1: LEADERSHIP AND BUILDING EFFECTIVE TEAMS

Learning Objectives:

- To demonstrate excellent interpersonal communication skills to facilitate the function of multidisciplinary teams

Knowledge:

- Understand methods to describe purpose and vision of change initiatives
- Understand the factors required to build an effective team

Skills:

- Communicate goals of projects and engage others in projects as appropriate
- Lead a team through providing engagement and inspiration
- Maintain an outcome focus
- Facilitate communication within meetings so as to respect values, encourage involvement, and engage all participants in decision-making
- Resolve conflicts within team
- Constructively manage performance of individuals within teams

THEME 16.2: LEADERSHIP IN MENTORING AND TRAINING EFFECTIVE TEAMS

Learning Objectives:

- To display the ability to mentor and to train others in order to enhance team and individual effectiveness

Knowledge:

- Understand the key factors affecting effective adult education

Skills:

- Demonstrate effective supervision skills
- Demonstrate effective teaching methods adapted to the context of the training
- Provide constructive feedback to others to contribute to improvements in the individual's skills

THEME 16.3: LEADERSHIP IN CREATING A POSITIVE CULTURE IN EFFECTIVE TEAMS
Learning Objectives:
- To display the ability to mentor and to train others in order to enhance team and individual effectiveness
Knowledge:
- Understand the key factors affecting effective adult education - Understand key factors that contribute to a positive healthcare culture
Skills:
- Model personal integrity and honesty - Encourage an environment of openness and respect in order to lead an effective team

THEME 16.4: LEADERSHIP IN INTEGRATING CULTURAL AND SKILL DIVERSITY IN EFFECTIVE TEAMS
Learning Objectives:
- To provide effective human resource management in leading multidisciplinary teams
Knowledge:
- List factors essential to effective human resource management of teams - Provide effective rostering of team members to ensure safe patient care
Skills:
- Take into account cultural, ethical, and religious values and beliefs in leading teams - Demonstrate knowledge of contemporary industrial rights and responsibilities of a team leader in working with the healthcare team - Use multiple performance review tools

THEME 16.5: LEADERSHIP IN PROVIDING EFFECTIVE, HIGH QUALITY AND SAFE HEALTH SYSTEMS
Learning Objectives:
- To apply concepts of quality and safety to clinical practice

Knowledge:
- Explain factors that influence quality and safety in healthcare including human factors, and error theory - Differentiate between quality assurance and quality improvement - Describe the dimensions of healthcare quality - Outline metrics for quality - Outline the organization of quality within health systems - Explain epidemiology, theories, and determinants of unsafe or suboptimal care - Describe the scope, cost, and implications of healthcare related adverse outcomes - Explain the role of reasoning error, system error, and patient non-adherence in the causation of adverse events - Describe principles and methods of quality and safety improvement science, clinical audits, and health services research - Describe the role of clinician leadership and advocacy in appraising and redesigning systems of care that lead to better patient outcomes - Explain the effects of self-audit and sentinel event analysis in personal practice - Explain human factors affecting safety and describe strategies to prevent human error
Skills:
- Evaluate quality of processes through well designed audit - Encourage patients and carers to take an active role in advocating for their own safety and reporting concerns to attending clinicians - Evaluate the quality and safety systems implemented within the workplace and identify gaps in the structure of these systems - Use concepts of quality and safety in participating in quality committees

THEME 16.6: LEADERSHIP IN EVALUATING HIGH QUALITY AND SAFE HEALTH SYSTEMS
Learning Objectives:
- To apply an evidence based approach to evaluate healthcare quality, and identify opportunities for improvement
Knowledge:
- Establish data systems that enable regular auditing and review of processes of care and patient outcomes for specific patient populations - Use clinical guidelines to develop clinical quality indicators - Evaluate the quality of healthcare in practice and to identify evidence-based practice gaps using clinical indicator measurement - Foster a critical, data driven, evidence-based, multidisciplinary, systems-orientated approach to quality and safety issues on the part of

colleagues and staff
- Identify factors that adversely affect provision of healthcare within the clinical environment
- Conduct retrospective and prospective clinical audits using a variety of techniques
- Analyze adverse incidents to identify system failures and contributing factors

THEME 16.7: LEADERSHIP IN EMBEDDING STRATEGIES FOR HIGH QUALITY AND SAFE HEALTH SYSTEMS

Learning Objectives:

- To develop, implement, and evaluate strategies for improvements in healthcare provision

Knowledge:

- Develop quality improvement strategies that lead to better quality of health services
- List factors that influence the choice of strategies to improve health care

Skills:

- Devise and implement quality improvement strategies, such as clinical guidelines, reminders, academic detailing, and decision support at the local level
- Develop improvement plans that integrate local and system contexts and, where possible, are based on evidence
- Establish data systems that enable regular auditing and review of processes of care and patient outcomes for specific patient populations
- Develop policies informed by clinical practice
- Objectively evaluate improvement initiatives for outcomes and sustainability

THEME 16.8: LEADERSHIP IN CREATING INNOVATIVE, HIGH QUALITY, AND SAFE HEALTH SYSTEMS

Learning Objectives:

- To coordinate and encourage innovation for improvement

Knowledge:

- Discuss the importance of innovation
- Identify the systemic factors that will drive health system change currently and into the future

Skills:
- Display flexibility in organizing healthcare provision in the face of external change - Anticipate and plan for changes that ensure healthcare standards are not adversely affected

THEME 16.9: LEADERSHIP IN CRITICALLY APPRAISING, HIGH QUALITY, AND SAFE HEALTH SYSTEMS
Learning Objectives:
- To provide strategic planning of change in order to maximize its effectiveness
Knowledge:
- Outline methodology for providing change of systems and processes within health - Describe methods for measuring improvement - Describe strategies for sustaining improvement in care
Skills:
- Develop project plans that identify enablers and barriers, stakeholders, and risks - Develop project plans that include implementation methods

THEME 16.10: LEADERSHIP TO MAXIMIZE EFFICIENT USE OF RESOURCES FOR HIGH QUALITY AND SAFE HEALTH SYSTEMS
Learning Objectives:
- To leverage a considered and rational approach to use of resources (e.g. money, staff, space, interventions) in project implementation
Knowledge:
- Outline the costs and resource requirements of projects and change initiatives
Skills:
- Provide a budget and resource plan for projects and change initiatives - Establish realistic goals and performance targets - Use resources responsibly and balance costs against outcomes - Show capacity to control the scope of projects

THEME 16.11: LEADERSHIP IN COORDINATION OF CARE OF PATIENTS
Learning Objectives:
- To facilitate the coordinated care of patients across multiple specialties
Skills:
- Negotiate with other specialties for an integrated approach to individual patient care so that conflicting care choices are balanced in the best interests of the patient - Identify situations where integrated care is in the best interests of individual patients

INTERNAL MEDICINE INVESTIGATION COMPETENCIES

DOMAIN 17: INTERNAL MEDICINE INVESTIGATION COMPETENCIES

THEME 17.1: BIOCHEMISTRY	
Learning Objectives:	
- To outline the indications for and interpret biochemistry investigations	
Competencies:	
Years 1 and 2	**Years 3 and 4**
- Basic blood biochemistry: urea and electrolytes, liver function tests, bone biochemistry, glucose, magnesium - Cardiac biomarkers and cardiac-specific troponin - Creatine kinase - Thyroid function tests - Inflammatory markers: CRP/ESR - Arterial blood gas analysis - Cortisol and short synacthen test - HbA1C - Lipid profile	- Urine catecholamines - Sex hormones (FSH, LH, testosterone, estrogen and progesterone) and Prolactin - Specialist endocrine suppression or stimulation tests (dexamethasone suppression test, insulin tolerance test, water deprivation test, glucose tolerance test, and growth hormone)

- Amylase - Drug levels: paracetamol, salicylate, digoxin, antibiotics, anti-convulsants	

THEME 17.2: HEMATOLOGY
Learning Objectives:
- To outline the indications for and interpret hematology investigations
Knowledge:
- Full blood count - Coagulation screen - Hemolysis screen - D dimer - Blood film report - Hematinics

THEME 17.3: MICROBIOLOGY/IMMUNOLOGY	
Learning Objectives:	
- To outline the indications for and interpret microbiological and immunological investigations	
Competencies:	
Years 1 and 2	**Years 3 and 4**
- Blood/sputum/urine culture - Fluid analysis: pleural, cerebro-spinal fluid, ascitic - Urinalysis and urine microscopy - Auto-antibodies - H. Pylori testing	- Celiac serology screening - Viral hepatitis serology - Myeloma screen - Stool testing - HIV testing

THEME 17.4: RADIOLOGY	
Learning Objectives:	
- To outline the indications for and interpret radiology investigations	
Competencies:	
Years 1 and 2	**Years 3 and 4**
- Chest radiograph - Abdominal radiograph - Joint radiographs (knee, hip, hands, shoulder, elbow, dorsal spine, ankle)	- Ultrasound - Detailed imaging: Barium studies, CT, CT pulmonary angiography, high resolution CT, MRI - Imaging in endocrinology (thyroid, pituitary, adrenal) - Renal imaging: ultrasound, KUB, IVU, CT

THEME 17.5: PHYSIOLOGICAL STUDIES	
Learning Objectives:	
- To outline the indications for and interpret physiological investigations	
Competencies:	
Years 1 and 2	**Years 3 and 4**
- ECG - Peak flow tests - Full lung function tests - Bone densitometry - Scintigraphy in endocrinology - V/Q scanning	- Echocardiogram - 24 hour ECG monitoring - Ambulatory blood pressure monitoring - Exercise tolerance test - Cardiac perfusion scintigraphy - Tilt testing - Neurophysiological studies: EMG, nerve conduction studies, visual and auditory evoked potentials

THEME 17.6: ENDOSCOPIC EXAMINATIONS
Learning Objectives:
- To outline the indications for and interpret endoscopic examinations
Knowledge:
- Bronchoscopy - Upper and lower GI endoscopy - ERCP
THEME 17.7: PATHOLOGY
Learning Objectives:
- To outline the indications for and interpret pathology results
Knowledge:
- Liver biopsy - Renal biopsy - Bone marrow and lymph node biopsy - Cytology: pleural fluid, ascitic fluid, cerebro-spinal fluid, sputum

THEME 17.8: MEDICAL PHYSICS
Learning Objectives:
- To outline the indications and interpret the results of the following procedures
Knowledge:
- Bone scan - Bone densitometry - Scintigraphy in endocrinology - V/Q scanning

INTERNAL MEDICINE PROCEDURAL COMPETENCIES

DOMAIN 18: INTERNAL MEDICINE PROCEDURAL COMPETENCIES

THEME 18.1: ESSENTIAL CLINICAL INDEPENDENCE PROCEDURES YEARS 1-2
Learning Objectives:
- To become competent in undertaking the following procedures within the first two years of the program
Knowledge:
- Central venous cannulation (by neck or femoral) with U/S guidance where appropriate - DC cardioversion - Knee aspiration - Abdominal paracentesis - Pleural aspiration or insertion intercostal drain for pneumothorax

THEME 18.2: CLINICAL INDEPENDENCE IN DOING PROCEDURES BY END OF YEAR 2
Learning Objectives:
- To become competent in undertaking the following procedures by mid-rotation
Knowledge:
- Intercostal drain insertion using Seldinger technique with U/S guidance (excepting pneumothorax where ultrasound guidance is not normally required) - Arterial lines

THEME 18.3: CLINICAL INDEPENDENCE IN DOING PROCEDURES BY END OF TRAINING
Learning Objectives:
- To become competent in undertaking the following procedures by end of the program

Knowledge:
- Temporary cardiac pacing via transvenous route - Sengstaken-Blakemore tube insertion (skills lab competent by CCT)

SECTION 8: EDUCATIONAL AND CLINICAL SUPERVISORS AND APPRAISAL PROCESS

The responsibilities and the roles of the educational and clinical supervisors are defined below:

Educational Supervisor

The Educational Supervisor is a trainer who is selected and appropriately trained to be responsible for the overall supervision and management of a specified trainee's educational progress during a training placement or series of placements. The Educational Supervisor is responsible for the trainee's Educational Agreement.

When meeting with the trainee, the Educational Supervisor should discuss issues of clinical governance, risk management, and any report of any untoward clinical incidents involving the trainee. The Educational Supervisor should be part of the clinical specialty team. Thus, if the clinical directorate (clinical director) has any concerns about the performance of the trainee, or if there are issues of doctor or patient safety, these could be discussed with the Educational Supervisor. These processes, which are integral to trainee development, must not detract from the statutory duty of the hospital to deliver effective clinical governance through its management systems.

Opportunities for feedback to trainees about their performance will arise through the use of the workplace-based assessments, regular appraisal meetings with supervisors, other meetings and discussions with supervisors and colleagues. Frequent and timely feedback on performance is essential for successful work-based experiential learning. To train as a physician, a doctor must develop the ability to seek and respond to feedback and clinical practice from a range of individuals to meet the feedback requirements.

Clinical Supervisor

The Clinical Supervisor is a trainer who is selected and appropriately trained to be responsible for overseeing a specified trainee's clinical work and providing constructive feedback during a training placement. Some training schemes appoint an Educational Supervisor for each placement. The roles of Clinical and Educational Supervisor may then be merged.

Appraisal

A formal process of appraisals and reviews underpins training. This process ensures adequate supervision during training, provides continuity between posts and different supervisors, and is one of the main ways of providing feedback to trainees. All appraisals should be recorded in the Training Portfolio.

Induction Appraisal

The trainee and educational supervisor should have an appraisal meeting at the beginning of each post to review the trainee's progress, agree on learning objectives for the post ahead, and identify the learning opportunities presented by the post. Reviewing progress through the curriculum will help trainees compile an effective personal development plan (PDP) of objectives for the upcoming post. This PDP should be agreed upon during the induction appraisal. The trainee and supervisor should also both sign the educational agreement in the e-portfolio at this time, recording their commitment to the training process.

Mid-point Review

This meeting is not mandatory but is encouraged, particularly if either the trainee or educational supervisor has training concerns. At this meeting, trainees should review their PDP with their supervisor using evidence from the training portfolio. Workplace-based assessments and progress through the curriculum can be reviewed to ensure trainees are proceeding satisfactorily. Attendance at educational events should also be reviewed. The PDP can be amended at this review.

End of Attachment Appraisal

Trainees should review the PDP and curriculum progress with their educational supervisor using evidence from the training portfolio. Specific concerns may be highlighted from this appraisal. The end of attachment appraisal form should record the areas where further work is required

to overcome any shortcomings. Further evidence of competence in certain areas may be needed, such as planned workplace-based assessments. This evidence should be recorded. If there are significant concerns following the end of attachment appraisal, the program director should be informed.

Evaluation of the Curriculum

The curriculum is a living document which should be regularly reviewed by the curriculum committee and gather input from the training program director, educational and clinical supervisors, and the trainees.
Evaluation of the curriculum will seek to ascertain:

- Learner response to the curriculum
- Modification of attitudes and perceptions
- Learner acquisition of knowledge and skills
- Learner's behavioral change
- Change in organizational practice

Technical clarifications and minor revisions to this Curriculum may be issued periodically by the Palestine Medical Council. Every five years, the IM Scientific Committee of the Medical Council will initiate a comprehensive review of the Curriculum's technical content, involving local stakeholders and possibly external experts. Updates to the Curriculum will be made in line with the latest scientific information and evidence-based updates in the field, as well as any updates to the Arab Board guidelines.

On-going assessment of the program will be done by the IM Scientific Committee following the interviews with residents in years 2 and 4 of training. The information gathered in these interviews will allow the Committee to summarize trends based on residents' experiences, identify strengths and areas for improvement, and identify actions to follow-up.

The IM Scientific Committee will also conduct a yearly meeting with stakeholders from the teaching institutions to get their comments and feedback on strengths and challenges of the program, and take appropriate action.

Evaluation Methods

All programs or placements should be evaluated yearly in a systematic and comprehensive manner to determine their value and merit so that they can be improved. There are three key areas to incorporate; the delivery of the curriculum (the teaching), the trainee experience, and the learning environment. To achieve this, data has to be collected from the trainees, as well as educational and clinical supervisors. This role is carried out by the program director.

Trainee questionnaire

- Program director questionnaire
- Focused discussions with educational and clinical supervisors, trainees, and program directors
- Monitoring by the program directors within the local faculties for education
- Trainee involvement in curriculum review facilitated through involvement of trainees in local faculties of education

SECTION 9: REFERENCES

A work of this magnitude requires exploration and reference to other international curricula and the adoption of best practices tailored to local needs. The generic curricula tend to be similar, but modern curricula emphasize learning outcomes and give more guidance to faculty about the behaviors that need to be understood in the role of a physician. This is important as the patient has to be the center of care, and patient safety is the highest priority.

The curriculum development committee would like to acknowledge the curricula of internal medicine from the following organizations:

- The Joint Royal Colleges of Physicians Training Board UK
- The Royal College of Physicians and Surgeons of Canada – CANMEDS
- The Royal Australasian College of Physicians
- The Saudi Board Internal Medicine Curricula
- The Royal College of Surgeons in Ireland

SECTION 10: APPENDIX 1 – SUMMARY OF PROCEDURAL SKILLS

By the end of Year 2, the trainees should be able to perform the following procedures competently.

• Venepuncture and cannulation • Blood cultures from peripheral and central sites • Setting up a complete drip set and burette • ECG recording • Arterial blood sampling • Injection – subcutaneous, intradermal, intramuscular and intravenous • Urethral catheterization – male and female • Application of oxygen administration devices • Minor suturing and debridement of wounds • Dipstick urinalysis • Blood glucose determination using capillary blood	• Airway assessment and management including jaw thrust, chin lift, and insertion of an oral airway • Intubations in straightforward situations • Bag and mask ventilation of unintubated patients • Spirometry and peak expiratory flow rate determination • Throat/pus/wound swabs • Cervical smear and swabs • Nasogastric tube insertion • Ankle – brachial BP index determination • Bladder scanning to determine post void residual • The trainee must keep their advance life support (CPR) skills up to date each year

By the end of Year 3, the trainees should be able to perform the following procedures competently.

• DC cardioversion – emergency and elective • Intercostal drain insertion and management • Knee joint aspiration • Lumbar puncture • Pleural and ascitic fluid aspiration	• Nasal support ventilation (CPAP, BiPaP) • Tracheostomy care and immediate complication management • Pressure measurement and care of central venous lines

By the end of Year 4, the trainees should be able to perform the following procedures competently.

• Use of a temporary pacing box and external pacing machine • Supervision of exercise ECG testing • Insert arterial line • Aspiration of shoulder joint, and other joints • Bone marrow biopsy • Echocardiography • Insertion of catheters directly into central veins	• Sigmoidoscopy • Skin biopsy • Rectal biopsy • Gastroscopy • Colonoscopy • Pleural biopsy • Catheter aspiration of pneumothorax • Liver biopsy