ZAMBIA COLLEGE OF MEDICINE & SURGERY

Advancing Specialist Care & Professional Growth

Specialty Training Programme

Curriculum & learning guide

for

INTERNAL MEDICINE

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GENERAL INTRODUCTION

This Curriculum and Learning Guide describes the work-based competence-based professional training programme for the Specialty Training Programme (STP) in Internal Medicine (IM) in Zambia. The intended readership for the curriculum and guideline include the following:

- Trainees, host departments and managers of IM healthcare services;
- STP IM trainers, which includes all those involved in supervising, coordinating, assessing and delivering specialist education and training in Internal Medicine;
- Academic, administrative and professional staff within Higher Education Institutions (HEIs), the Higher Education Authority (HEA), and the Zambia Qualifications Authority (ZAQA);
- Strategic partners involved in supporting physician education and the training of healthcare practitioners in these related fields.

Zambia College of Medicine and Surgery (ZACOMS) advances professional training of medical specialists using the professional competence-based certification model beyond traditional university-based specialist training. It promotes specialist training as a vital pursuit for a successful professional medical career. The ZACOMS also promotes the increase of universal health coverage (UHC) by promoting equitable access to cost-effective quality specialist care as close to the family as possible for people in Zambia at all levels of socioeconomic status and geographical location. The ZACOMS certifies and admits members and/or fellows as specialists in a medical and/or surgical specialty in any of the various specializations of medicine and surgery.

The Zambia College of Medicine and Surgery (ZACOMS) oversees the training of Internal Medicine specialists working through the Zambia College of Physicians (ZACOPH).

Internal Medicine encompasses the diagnosis, assessment and medical management of a wide range of disorders of the human systems. The STP IM training provides specialist training in Internal Medicine. This is a relevant programme because of the critical shortage of specialists in Internal Medicine. The STP IM will equip trainees with core competencies reflecting the wide array of subspecialties within Internal Medicine. This will mean for every trainee who completes this programme, the population they serve will have gained access to various competencies relevant to Internal Medicine. Furthermore, the graduate of this programme will offer support to the various medical and surgical subspecialties, improving outcomes in the management of a broad spectrum of pathology.

Vision

Our vision is to be innovative in providing a teaching and support structure that will empower every trainee to excel in Internal Medicine knowledge, skills and research through internal and external collaboration.

Mission Statement

The mission of the STP IM training in Zambia is to train specialists who shall endeavor to improve the health care services to the adult population by providing safe, evidence based, humanistic specialist care in the field of Internal Medicine in an efficient and proficient manner to meet the needs of the Zambian community, and contribute to the field of medicine in the region and globally.

Values:

- Professional excellence
- Integrity
- Sensitivity to reproductive health needs
- Interdisciplinary, inter institutional collaboration
- Continuous professional development
- Innovation
- Academic excellence
- Self and peer review

RATIONALE FOR THE SPECIALTY TRAINING PROGRAMME IN INTERNAL MEDICINE

The STP IM aims to train specialists in Internal Medicine in order to prepare them for specialist service in the healthcare service.

The STP IM aims to bridge the critical shortage of specialists in internal Medicine by advancing professional training of Internal Medicine using the competence-based certification model beyond traditional university-based specialist training. Simply put, this model works on the principle that every health facility equipped well enough to support an Internal Medicine practice has the basic requirements to train a specialist in Internal Medicine. The STP IM curriculum is therefore informed by the training requirements of the Health Professions Council of Zambia (HPCZ) and the professional creed of the Zambia College of Physicians (ZACOPH) and is alive to the unique opportunities obtaining across the various training sites. The training programme encourages self-directed learning, life-long learning, and student-centered approaches while providing robust and structured guidance.

This curriculum provides a framework for the four-year postgraduate specialty training and educational curriculum in Internal Medicine. Trainees who successfully complete the

requirements and meet the minimum standards set out in this curriculum should be expected to demonstrate competence in Internal Medicine at specialist level.

The key outcomes are twofold as stipulated in outcome 1 and 2.

Outcome 1: Apply, at Mastery Level, Biomedical Sciences, Behavioural & Sociology, and Scientific Principles to the Practice of Internal Medicine

1. The graduate should be able to apply to Internal Medicine practice biomedical scientific principles, method and knowledge relating to anatomy, biochemistry, cell biology, genetics, immunology, microbiology, nutrition, pathology, pharmacology and physiology. The graduate should be able to:
    a) Explain normal human structure and function relevant to Internal Medicine.
    b) Explain the scientific bases for common diseases and conditions' signs, symptoms and treatment relevant to Internal Medicine.
    c) Justify and explain the scientific bases of common investigations for diseases and conditions relevant to Internal Medicine.
    d) Demonstrate knowledge of drugs, drug actions, side effects, and interactions relevant to Internal Medicine.

2. Apply Behavioral and Sociology Principles to the Practice of Internal Medicine
    a) Explain normal human behavior relevant to Internal Medicine.
    b) Discuss psychological and social concepts of health, illness and disease relevant to Internal Medicine.
    c) Apply theoretical frameworks of psychology and sociology to explain the varied responses of individuals, groups and societies to disease relevant to Internal Medicine.
    d) Explain psychological and social factors that contribute to illness, the course of the disease and the success of treatment relevant to Internal Medicine.

3. Apply Population Health to the Practice of Internal Medicine
    a) Discuss population health principles related to determinants of health, health inequalities, health risks and surveillance relevant to Internal Medicine.
    b) Discuss the principles underlying the development of health and health service policy, including issues related to health financing, and clinical guidelines relevant to Internal Medicine.
    c) Evaluate and apply basic principles of infectious and non-communicable disease control at community and hospital level relevant to Internal Medicine.

d) Discuss and apply the principles of primary, secondary, and tertiary prevention of disease relevant to Internal Medicine.

4. Apply Scientific Method and Approaches to Internal Medicine Research.
   a) Evaluate research outcomes of qualitative and quantitative studies in the medical and scientific literature relevant to Internal Medicine.
   b) Formulate research questions, study designs or experiments to address the research questions relevant to Internal Medicine.
   c) Discuss and apply appropriate research ethics to a research study relevant to Internal Medicine.

Outcome 2: Competence, at Mastery Level, in Internal Medicine Clinical Practice

On successful completion of this work-based STP:

1. The trainees should have clinical and specialist expertise in Internal Medicine, underpinned by broader knowledge, skills, experience and professional attributes necessary for independent practice;
2. The trainees should be able to undertake complex clinical roles, defining and choosing investigative and clinical options, and making key judgments about complex facts and clinical situations.
3. The trainees should contribute to reduction of morbidity and mortality and improves health in the context of the national health priorities, by means of outstanding scientific research and application of safe, high quality, cost effective, evidence based practice within the Zambian health system.
4. The trainees should possess the essential knowledge, skills, experience and attributes required for their role and should demonstrate:
   - A systematic understanding of clinical and scientific knowledge, and a critical awareness of current problems, future developments, research and innovation in Internal Medicine practice, much of which is at, or informed by, the forefront of their professional practice in a healthcare environment;
   - Clinical and scientific practice that applies knowledge, skills and experience in a healthcare setting, places the patient and the public at the centre of care prioritizing patient safety and dignity and reflecting outstanding professional values and standards;
   - Clinical, scientific and professional practice that meets the professional standards defined by the Health Professions Council of Zambia (HPCZ);
   - Personal qualities that encompass self-management, self-awareness, acting with integrity and the ability to take responsibility for self-directed learning, reflection and action planning;

- The ability to analyze and solve problems, define and choose investigative and scientific and/or clinical options, and make key judgments about complex facts in a range of situations;
- The ability to deal with complex issues both systematically and creatively, make sound judgments in the absence of complete data, and to communicate their conclusions clearly to specialist and non-specialist audiences including patients and the public;
- The ability to be independent self-directed learners demonstrating originality in tackling and solving problems and acting autonomously in planning and implementing tasks at a professional level;
- A comprehensive understanding of the strengths, weaknesses and opportunities for further development of Internal Medicine as applicable to their own clinical practice, research, innovation and service development which either directly or indirectly leads to improvements in clinical outcomes and scientific practice;
- Conceptual understanding and advanced scholarship in their specialism that enables the graduate to critically evaluate current research and innovation methodologies and develop critiques of them and, where appropriate, propose new research questions and hypotheses;
- Scientific and clinical leadership based on the continual advancement of their knowledge, skills and understanding through the independent learning required for continuing professional development.

5. Once registered as a specialist in Internal Medicine, a range of career development options will be available including sub-specialist training. Alternatively, others may opt to undertake further career development in post, as specialist, through structured Continuing Professional Development (CPD), provided by Accredited CPD providers. Internal Medicine specialists who have successfully completed the STP IM will be eligible to compete for available Consultant positions in Internal Medicine.

The outcomes of the STP IM training are affiliated to the following curriculum outcome categories:

Curriculum Outcomes Categories

Category I: Scientific Foundations

Goal 1: Understand the normal structure and function of the human body, at levels from molecules to cells to organs, to the whole organism.

Goal 2: Understand the major pathological processes and their biological alterations.

Goal 3: Analyze the relationship between social determinants of health and population health as the basis of understating Internal Medicine.

Goal 4: Understand how the major pathologic processes affect the organ systems.

Goal 5: Integrate basic science and epidemiological knowledge with clinical reasoning.

Goal 6: Understand the principles of scientific method and evidence-based medicine including critical thinking.

Category II: Clinical Skills

Goal 7: Obtain a sensitive, thorough medical history.

Goal 8: Perform a sensitive and accurate physical exam including mental state examination.

Goal 9: Establish and maintain appropriate therapeutic relationships with patients.

Category III: Communication and Interpersonal Skills

Goal 10: Develop the knowledge, skills, and attitudes needed for culturally-competent care.

Goal 11: Participate in discussion and decision-making with patients and families.

Goal 12: Work effectively with other providers in the health system.

Goal 13: Create and sustain a professionally and ethically sound relationship with communities in which one operates.

Goal 14: Clearly communicate medical information in spoken and written form.

Category IV: Prevention

Goal 15: Develop knowledge, skills, and attitudes to practice the basic principles of prevention.

Goal 16: Practice personalized health planning for long-range goals.

Goal 17: Understand the planning for communities and populations.

Category V: Diagnosis

Goal 18: Elicit and correctly interpret symptoms and signs of Internal Medicine conditions.

Goal 19: Diagnose and demonstrate basic understanding of common disease and conditions.

Goal 20: Appropriately use testing to help guide diagnostic and therapeutic decisions.

Goal 21: Demonstrate sound clinical reasoning.

Category VI: Treatment, Acute and Chronic

Goal 22: Understand therapeutic options and participate in the multidisciplinary care of patients with complex problems.

Goal 23: Recognize acute life-threatening medical problems and initiate appropriate care

Goal 24: Acquire the knowledge and skills necessary to assist in the management and rehabilitation of chronic diseases.

Goal 25: Participate in care in a variety of settings; including knowledge about palliative care.

Category VII: Patient Safety

Goal 26: Identify and remove common sources of medical errors.

Goal 27: Understand and apply models of Quality Improvement.

Goal 28: Appreciate the challenges associated with reporting and disclosure.

Category VIII: Information Management

Goal 29: Use information and educational technology to facilitate research, education, and patient care.

Category IX: Ethics, Humanities, and the Law

Goal 30: Develop a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

Goal 31: Develop a critical understanding of the multiple factors that affect the practice of medicine, public health and research.

Goal 32: Incorporate ethical principles in clinical practice and research.

Category X: Professionalism

Goal 33: Develop healthy self-care behaviours and coping skills.

Goal 34: Model service to patients and community.

Category XI: Leadership & Management

Goal 35: Develop interpersonal and communication skills that result in leadership in patient health service delivery and health human resource management.

ADMISSION CRITERIA TO THE SPECIALTY TRAINING PROGRAMME IN INTERNAL MEDICINE

Applicants to the STP IM must possess a primary qualification in medicine, that is, Bachelor of Medicine and Bachelor of Surgery (MB ChB) or equivalent, from a recognized university. Additionally, they must have completed internship and retain full registration and a practising licence issued by the Health Professions Council of Zambia. Other Ministry of Health policies and directives, for example, completion of rural posting, may apply.

CURRICULUM DESIGN/MODEL OF THE SPECIALTY TRAINING PROGRAMME IN INTERNAL MEDICINE

The STP IM Curriculum is a work-based professional competence-based training situated in an accredited training facility managed by specialists in Internal Medicine with oversight by the Zambia College of Medicine and Surgery (ZACOMS) working through ZACOPH. This curriculum is based on a process model of curriculum and is designed to be flexible and open ended rather than predetermined; maximizing the potential for growth and development.

During the STP IM programme the specialty registrar is an integral member of the clinical work of the department in which they are training to gain the required clinical experience and competence. The STP IM programme is a work based professional competence-based training leading to the award of the Certificate of Completion of Specialty Training (CCST) by the Zambia College of Medicine and Surgery (ZACOMS). Graduates are then eligible to apply to the Health Professions Council of Zambia to enter the Specialist Register in Internal Medicine.

TEACHING METHODS IN THE SPECIALTY TRAINING PROGRAMME IN INTERNAL MEDICINE

The STP IM training is a work-based professional competence-based programme and should encompass diverse teaching and learning approaches that are appropriate for the target educational domain, i.e., cognitive (knowledge), psychomotor (practical), or affective (attitude) domain. The teaching methods may include, but not limited to, the following: expository lectures, tutorials, seminars, practical classes, skills laboratories, clinical demonstrations, clinical clerkships (bedside teaching, ward rounds, ambulatory care teaching, operating theatre experience, post-mortem, and on-call duties), field and community based learning, and ICT supported learning experiences.

Certain concepts and skills are taught every year, from early years of undergraduate training to final and then through several years of STP training. However, the subject is taught in an upward spiral of difficulty and complexity, such that the competency of the practitioner becomes demonstrably more proficient.

The Health Professions Council of Zambia Specialty Training Guidelines and the Zambia College of Medicine and Surgery Society Objectives and By-Laws provide detailed guidance to the trainee about the STP and ZACOMS, respectively.

SPECIALTY TRAINING PROGRAMME IN INTERNAL MEDICINE CURRICULUM STRUCTURE AND MAP

Curriculum Map for the STP IM Programme

STP YEAR 1 MED 1030	ZACOMS PT 1 ARCP	**STP YEAR 2** MED 2030	ARCP	**STP YEAR 3** MED 3030	ARCP	**STP YEAR 4** MED 4030	ZACOMS CCST Exams
Basic Sciences in IM (4 months)		Principles of Clinical IM II (3 months)		Management in Clinical IM (3 months)		Research methods (3 months)	
Principles of Clinical IM (4 months)		IM Relevant Rotation 1 (3 months)		Research Project (3 months)		Health systems management (3 months)	
Ongoing Clinical Management Practice (4 months)		IM Relevant Rotation 2 (3 months)		Elective Rotation (3 months)		Global Rotation (3 months)	
		IM Relevant Rotation 3 (3 months)		Specialist IM Rotation (3 months)		Leadership & Management (3 months)	
Part 1: Generic Education & Training (1 year)		Part 2: Themed & Specialist Education & Training (3 years)					

N.B. The total number of years, in particular, the themed specialist education and training may vary between different specialties.

1. ARCP = Annual Review of Competence Progression
2. CCST = Certificate of Completion of Specialty Training Examination;
3. STP = Specialty Training Programme;
4. ZACOMS PT 1 = Zambia College of Medicine and Surgery Part 1 Examinations in Basic Sciences, Behavioural Sciences, Health Population Studies, and Professionalism & Ethics;
5. ZACOMS CCST Examinations = Certificate of Completion of Specialist Training in Medicals & Child Health Examinations

ASSESSMENT IN THE SPECIALTY TRAINING PROGRAMME IN INTERNAL MEDICINE

Progression to the next level of training is NOT automatic and is dependent on the trainee satisfying all the competency requirements of each defined level as per this curriculum and learning guide. The assessment framework is designed to provide a coherent system of assessing both formative and summative assessment which are workplace based and in examination settings.

Each training site must ensure that they use valid, reliable and appropriate methods for assessing the knowledge, clinical skills and attitude domains. The continuous assessments and final annual assessments are weighted at 40% and 60% of the final mark of Annual Review of Competence Progression, respectively. Assessment methods may include, but are not limited to, the following: Log of experiences and procedures completed, case reports, portfolios, project reports, multiple choice questions, essay questions, short answer questions, modified essay questions, short and long cases, objective structured clinical examinations (OSCE), practical examinations, objective structured practical examinations (OSPE), Mini-clinical Examination (MiniCEX), Viva Voce, etc.

It is emphasized that marks from theory examinations **MAY NOT** compensate for poor scores in the clinical examinations; Students **MUST** pass the clinical examinations in order to progress to the next stage of training or completion.

Assessment	Knowledge, Skill and Attitude Domain	Examining Body
Formative Workplace Based Assessments	Outcome 1 & 2	Training Site
Annual Review of Competence Progression	Outcome 1 & 2	Training Site in conjunction with ZACOMS
ZACOMS Part 1 Examination	Outcome 1	ZACOMS working through ZACOPH
ZACOMS Certificate of Completion of Specialist Registration Examinations	Outcome 2	ZACOMS working through ZACOPH

A candidate shall be allowed a maximum of three attempts for ZACOMS Part 1 and/or Part 2 Examinations. Candidates must have submitted a completed log book to be eligible to attempt the ZACOMS Part 2 Examination.

For ease of tracking progress and planning for Internal Medicine care, all STP IM trainees will be registered with ZACOMS and ZACOPH for the duration of their training.

Grading Scheme

The STP IM Curriculum and Guide are the basis for all specialty training which contextualize the standards of proficiency set down by the Zambia College of Medicine and Surgery (ZACOMS) in consultation with the Zambia College of Physicians (ZACOPH) in a way that is accessible to the profession and the public. The Certificate of Completion of Specialist Training (CCST) is not graded. Separate assessments and examinations may be graded to show the level of achievement of the trainee in a particular course or assignment.

Assessment of Attainment of Competence in an Academic Subject

Status & Level	Description of Competence Features	% Range
Outright Fail [D]	Has poor and inaccurate command of the subject vocabulary Has poor and inaccurate command of the concepts (knowledge, skills and attitudes) of the subject across a broad range of topics.	44.9% & Below

Bare Fail [D+]	Has the basics of subject vocabulary Has the basics of concepts (knowledge, skills and attitudes) of the subject across a broad range of topics Unable to transfer and apply knowledge, skills and attitudes of the subject in a range of situations. Unable to exercise independent judgement in a range of situations	45 – 49.9
Clear Pass [C]	• Has sound command of subject vocabulary • Has sound command of concepts (knowledge, skills and attitudes) of the subject across a broad range of topics • Able to formulate responses and demonstrate skill and exhibit appropriate attitude in well-defined and abstract problems/professional settings across a broad range of topics of the subject	50 – 64.9
Meritorious Pass [B]	All of above in level 3 and: Able to transfer and apply knowledge, skills and attitudes and exercise significant independent judgement in a broad range of topics of the subject	65 – 74.9
Distinction Pass [A]	All of the above in level 4 and: Displays masterly of complex and specialised areas of knowledge, skills and attitudes in a broad range of topics of the subject.	75% & Above

PART 1: COURSES FOR INTERNAL MEDICINE SPECIALTY TRAINING PROGRAM

Basic & Biomedical Sciences Applied to Practice of Internal Medicine

Course Name Code ***STP IM 1***	***Basic & Biomedical Sciences Applied to Practice of Internal Medicine***
Aim/Purpose:	This Course aims at consolidating the applied basic scientific principles underlying the clinical practice of Internal Medicine. The course is taken concurrent with regular duty while attached to an Internal Medicine department, including coordinating acute medical admissions as part of multidisciplinary team; recognition and active management of patient in relation to illness severity including monitoring response to intervention; develop safe out-patient 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.
Learning Outcomes:	At the completion of the course students will be able to: 1. To explain and integrate relevant principles of physiology, anatomy, pharmacology and pathology to the care of patients and diseases. 2. To demonstrate advanced skills in history taking and clinical examination of the adult patient. 3. To demonstrate a solid basis in knowledge of the principles and practice of common Internal Medicine disease conditions, problem solving skills and health education and counselling skills. 4. To identify, initiate as well as interpret laboratory and bedside investigations required to make a diagnosis and manage the medical conditions. 5. To demonstrate the skills and attitudes appropriate for the care of adults including communication with patients, their family and colleagues. 6. To appreciate and apply evidence-based clinical Internal Medicine practice and basic technical skills. 7. To demonstrate basic practical clinical skills in Internal Medicine. 8. Demonstrate leadership and role modelling to junior doctors and medical trainees.

	9. To function as senior house officers (SHO) within the department with clinical duties including: ▪ Participation in daily ward work ▪ Participating in outpatient clinics ▪ Taking on-calls at SHO level ▪ Supervision of interns and other junior health workers ▪ Teaching of undergraduates, interns and junior health workers ▪ To take a part in all academic activities in the department and also to join in postgraduate activities of the department such as Journal Club, clinical meetings and respective departmental unit's Grand Rounds 10. To portrait as a role model and demonstrate professional behaviors', including understanding one's professional limitations. 11. To understand the importance and principles of scientific research skills and to emphasize the importance of an evidence-base for contemporary medical practice. 12. To access and analyze scientific publications and research in the field of Internal Medicine. 13. To present the developed research Project proposal with an appropriate topic in the field of Internal Medicine relevant to Zambia.

Course Content	• Cellular features associated with damage, particularly those associated with ionizing radiation, inflammation and trauma (e.g. surgical) **4. Essential of Biostatistics (**Essentials of biostatistics, epidemiology and behavioural sciences). • Basic biostatistical techniques. One should understand terms such as mean, median, mode, standard deviation and normal distribution, etc., their use and interpretation. • The principles of using tests of significance, relative risk, odds ratio, and the levels of probability which are normally accepted as demonstrating differences between groups of populations. • The different data analysis packages, techniques and when to use which. • General principles of identifying a topic for a research study and understand the various types of study designs, when and how to use which, the general principles of conducting research studies, analyzing data, interpreting the results, and how such results can be presented, e.g. for publication, conference presentations, or dissertation/thesis. • Essential principles of human disease and factors which influence them. • Medical Sociology, cultural influence on health seeking behaviours. • Ethics as they relate to research on human subjects **5. Immunology** • The principles of immunology; properties of antigens, and antibodies; their reactions, and effects (results) thereof. • The development of immunity to infection, etc. – (active and passive). • The immunology of reproduction and pregnancy: the principles and types, including immunological pregnancy tests. • Rhesus and ABO incompatibility: their aetiology, effects and prevention. • Auto-immune diseases. **6. Endocrinology** • The hypothalamus and pituitary. The hormones of the hypothalamus: their nature and secretory control. Hormones of the anterior and posterior pituitary: their nature and control of secretion. The physiological functions and effects of these hormones.

	• Ovarian Hormones: Production and actions of ovarian steroidal hormones. An understanding of the basic pathways **7. Pathology** • The general pathological and histological patterns of trauma, inflammation, neoplasia and degeneration. • The principles of human tissue response to various trauma, infection, surgery, etc., and factors influencing it. • The normal process of wound healing and factors influencing it. • Pathological features of wound healing and wound infection and predisposing factors. • The pathogenesis and pathophysiology of medical neoplasia both benign and malignant, and other common disease conditions.

8. Pharmacology

- The principles underlying the mode of action and side effects of the following groups of drugs:
  - Anaesthetics, analgesics and sedatives, tranquillisers, anticonvulsants.
  - Chemotherapeutic agents: antibiotics, antiphrastic, antifungal and antivirals.
  - Cytotoxic agents
  - Drugs acting upon the sympathetic and parasympathetic nervous system
- The principles underlying the metabolism, distribution and excretion of drugs and the changes in pregnancy and lactation
- The teratogenic dangers of drugs and other effects on the foetus, neonate and pregnant woman.
- The pharmacology of drugs acting upon the body systems.

10. Physiology

- Reproduction: All aspects of systemic physiology, much of which is covered under other headings within this syllabus.
- Electrolyte and water metabolism.
- Acid –base balance
- Normal renal function.
- The cardiovascular system including knowledge of the control of blood pressure, heart rate and regional blood flow.
- Respiration, oxygen and carbon dioxide transport mechanisms.
- The working and arrangement of somatic and autonomic nervous system including the chemical transmission of nerve impulses.
- Digestive tract including absorption of different food substances
- Carbohydrate, lipid and protein metabolism.

11. Nutrition:-

- The general principles of dietetics

	• The constitution of a normal diet • Maternal nutritional disorders: impact on fetal outcome. • Nutritional disorders; vitamins and minerals – normal requirements, sources, its role and deficiencies. • Trace elements of nutritional importance. • Enteral nutrition. • Nutritional management in diarrhoea. • Parenteral nutrition. • Obesity and adolescent and adult nutrition. **12. Elementary biophysics** The basic principles of: • Ionising radiation • Diagnostic radiology • Ultrasonography • CT Scan • Radiotherapy. **13. Health Care Ethics and Professionalism** • Philosophical bases of healthcare ethics • Principles and values in healthcare ethics • International and national ethical codes.
Contact Hours:	Lectures 1hr/ week Tutorial 1hr/ week Self-Directed Student-Centred Leaning Activity 6 hr/ week Clerkship Rotations (as per department's work schedule).
Teaching Methods:	The teaching methods may include, but not limited to, the following: expository lectures, tutorials, seminars, practical classes, skills laboratories, clinical demonstrations, clinical clerkships (bedside teaching, ward rounds, ambulatory care teaching, operating theatre experience, post-mortem, and on-call duties), field and community based learning, and ICT supported learning experiences

Assessment Methods and Weighting	Log of experiences and procedures completed, case reports, portfolios, project reports, multiple choice questions, essay questions, short answer questions, modified essay questions, short and long cases, objective structured clinical examinations (OSCE), practical examinations, objective structured practical examinations (OSPE), Mini-clinical Examination (MiniCEX), Viva Voce, **Annual Review of Competence Progression** (a) Continuous Assessment - 40% (b) Final Examinations - 60% **ZACOMS Administered Examinations** Taken according to ZACOMS Examinations Schedule

Course Name Code ***STP IM 3***	***GENERAL & THEMED CLINICAL INTERNAL MEDICINE***
Aim/Purpose:	This Course aims at consolidating the clinical care and leadership skills in Internal Medicine in the trainees. This course aims providing a firm foundation in the practice of Internal Medicine as a basis for the development of specialist attributes.
Learning Outcomes:	At the completion of the course students will be able to: 1. To function as senior registrars within the department with clinical duties including: ▪ Participation in daily ward work ▪ participating in outpatient clinics ▪ Taking on-calls at senior registrar level ▪ Supervision of interns and other junior health workers ▪ Teaching of undergraduates, interns and junior health workers 2. To take a full part in all academic activities in the department and also to join in postgraduate activities of the department such as Journal Club, clinical meetings and respective departmental units Grand Rounds. 3. To portrait as a role model and demonstrate professional behaviours. 4. To contribute to evidence-base knowledge for child health practice and improve the Health Systems in Zambia with regards to new-born and children's holistic health care standards, including prevention and health promotion. 5. To collect and analyse scientific research data for their research project in the field of Internal Medicine health care

Course Content	**1. Common Competencies:** **1.1 History taking** **Knowledge base** • Recognise the importance of different elements of history. • Recognise the importance of clinical (particularly cognitive impairment), psychological, social, cultural and nutritional factors particularly those relating to ethnicity, race, cultural or religious beliefs and preferences, sexual orientation, gender and disability • Recognise that patients do not present history in structured fashion and that the history may be influenced by the presence of acute and chronic medical conditions • Know likely causes and risk factors for conditions relevant to mode of presentation • Recognise that history should inform examination, investigation and management • Recognise normal adolescent biological, psychological and social development and its impact upon health and illness, particularly, key determinants of adolescent or young adult health such as deprivation and the importance of adolescent health for adult health **Skills base** • Identify and overcome possible barriers (e.g. cognitive impairment) to effective communication. • Manage time and draw consultation to a close appropriately • Supplement history with standardised instruments or questionnaires when relevant • Manage alternative and conflicting views from family, carers and friends • Assimilate history from the available information from patient and other sources • Recognise and interpret the use of non-verbal communication from patients and carers • Focus on relevant aspects of history **Level of Attainment** **Measurable Activity for the Level** 1. Obtains, records and presents accurate clinical history relevant to the clinical Elicits most important positive and negative indicators of diagnosis. Starts to ignore irrelevant information 2. Demonstrates ability to obtain relevant focused clinical history in the context time e.g. outpatients, ward referral Demonstrates ability to target history to discriminate between likely clinical diagnoses

	Records information in most informative fashion 3. Demonstrates ability to rapidly obtain relevant history in context of severely Demonstrates ability to obtain history in difficult circumstances e.g. from distressed patient / relatives Demonstrates ability to keep interview focused on most important clinical issues 4. Able to quickly focus questioning to establish working diagnosis and relate to examination, investigation and management plan in most acute and common conditions in almost any environment **1.2 Clinical examination** **Knowledge base** • 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. • Understand the need for a valid clinical examination. • Understand the basis for clinical signs and the relevance of positive and negative physical signs. • Recognise constraints to performing physical examination and strategies that may be used to overcome them. • Recognise the limitations of physical examination and the need for adjunctive forms of assessment to confirm diagnosis **Skills base** • Perform an examination relevant to the presentation and risk factors that is valid, targeted and time efficient. • Recognise the possibility of a notifiable communicable disease, and take the appropriate steps. • 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 including cognitive examination such as Mini Mental state Examination (MMSE) and Abbreviated Mental Test Score (AMTS) Level of Measurable Activity for the Level Attainment 1. Performs, accurately records and describes findings from basic physical examination Elicits most important physical signs

	Uses and interprets findings adjuncts to basic examination e.g. internal blood pressure measurement, pulse oximetry, peak flow 2. Performs focused clinical examination directed to presenting complaint cardiorespiratory, abdominal pain Actively seeks and elicits relevant positive and negative signs Uses and interprets findings adjuncts to basic examination e.g. electrocardiography, spirometry, ankle brachial pressure index, fundoscopy 3. Performs and interprets relevance advanced focused clinical examination e.g. of less common joints, neurological examination Elicits subtle findings Uses and interprets findings of advanced adjuncts to basic examination sigmoidoscopy, FAST ultrasound, echocardiography Rapidly and accurately performs and interprets focused clinical examination challenging circumstances e.g. acute medical or surgical

1.3 Decision making and clinical reasoning

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 prioritise the diagnostic and therapeutic plan
To be able to communicate the diagnostic and therapeutic plan appropriately

Knowledge base

- Define the steps of diagnostic reasoning:
- Interpret history and clinical signs
- Formulate the clinical problem
- Apply an appropriate diagnostic framework to formulate and evaluate differential diagnoses
- Test, refine and verify hypotheses within context of clinical likelihood
- Demonstrate good judgment of relative likelihood/importance of different differential diagnoses
- Develop problem list and action plan
- Generate a problem oriented medical record
- Recognise how to use expert advice, clinical guidelines and algorithms
- Recognises the need to determine the best value and most effective treatment both for the individual patient and for a patient cohort
- Define the concepts of disease natural history and assessment of risk
- Recall methods and associated problems of quantifying risk e.g. cohort studies.
- Outline the concepts and drawbacks of quantitative assessment of risk or benefit e.g. numbers needed to treat
- Describe commonly used statistical methodology
- Know how relative and absolute risks are derived and the meaning of the terms predictive value, sensitivity and specificity in relation to diagnostic tests
- Knows how to use expert advice, clinical guidelines and algorithms and is aware that patients may also use non-medical information sources

Skills Base

- Interpret clinical features, their reliability and relevance to clinical scenarios including recognition of the breadth of presentation of common disorders

	• Recognise critical illness and respond with due urgency • Generate plausible hypothesis(es) following patient assessment • Construct a concise and applicable problem list using available information • Interpret clinical features, their reliability and relevance to clinical scenarios including recognition of the breadth of presentation of common disorders • Recognise critical illness and respond with due urgency • Generate plausible hypothesis(es) following patient assessment • Construct a concise and applicable problem list using available information • Construct an appropriate management plan and communicate this effectively to the patient, parents and carers where relevant • Define the relevance of an estimated risk of a future event to an individual patient • Use risk calculators appropriately • Apply quantitative data of risks and benefits of therapeutic intervention to an individual patient •

1.4 Therapeutics and safe prescribing

To progressively develop your ability to prescribe, review and monitor appropriate medication relevant to clinical practice including therapeutic and preventative indications

Knowledge base

- 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.
- Recognise the roles of regulatory agencies involved in drug use, monitoring and licensing (e.g. Medicines Regulatory Authorities) and National and hospital formulary and Essential drug lists.

Skills Base

- Review the continuing need for long term medications relevant to clinical practice
- Anticipate and avoid defined drug interactions, including complementary medicines
- Advise patients (and carers) about important interactions and

	adverse drug effects • Seek recognized side effects of commonly used side effects • Make appropriate dose adjustments following therapeutic drug monitoring, or physiological change (e.g. deteriorating renal function) • Employ validated methods to improve patient concordance with prescribed medication, and recognise when a pre-existing medical condition such as cognitive impairment affects compliance • Provide comprehensible explanations to the patient, and carers when relevant, for the use of medicines **1.5 The patient as central focus of care** Prioritises the patient's wishes encompassing their beliefs, concerns expectations and needs **Knowledge base** • Recall health needs of particular populations e.g. adolescents / young adults, ethnic minorities and recognise the impact of culture and ethnicity in presentations of physical and psychological conditions **Skills base** • 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, taking into account any previously expressed wishes in Advance Care Directives (or equivalent) in partnership with the patient and / or their advocate. • 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 on line, have undertaken any form of 'direct to consumer' medical testing, or purchased pharmaceuticals on line. **1.6 Prioritisation of patient safety in clinical practice** To understand that patient safety depends on the organisation 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 Ensure that all staff are aware of risks and work together to minimise risk **Knowledge base** • 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 organisational 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 base** • Recognise when a patient is not responding to treatment, reassess the situation, and encourage others to do so • Ensure the correct and safe use of medical equipment, ensuring faulty equipment is reported appropriately • 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 • Recognise 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 **1.7 Team working and patient safety** 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 **Knowledge base** • 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 these

Skills base

- Practise 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 plan
- Detailed hand over between shifts and areas of care
- Demonstrate leadership and management in the following areas: o 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

1.8 Principles of quality and safety improvement

To recognise the desirability of monitoring performance, learning from mistakes and adopting no blame culture in order to ensure high standards of care and optimise patient safety

Knowledge base

- Understand the elements of clinical governance
- Recognise 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
- Recognise 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 trainees clinical specialty
- Keep abreast of national patient safety initiatives reports, NICE guidelines etc

Skills base

- Adopt strategies to reduce risk e.g. surgical pause Contribute to quality improvement processes e.g.
- 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 your medical practice
- Reflect regularly on your standards of medical practice in accordance with GMC guidance on licensing and revalidation

1.9 Infection control

To develop the ability to manage and control infection in patients. Including controlling the risk of cross-infection, appropriately managing infection in individual patients, and working appropriately within the wider community to manage the risk posed by communicable diseases

Knowledge base

- Understand the principles of infection control as defined by a recognized approved authority
- 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 trainee's country and identify the principle notifiable diseases for the country and international purposes
- Understand the role of the national Health Protection Agency
- Understand the role of the local authority in relation to infection control

Skills base

- Recognise 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
- Recognise potential for cross-infection in clinical settings
- Practice aseptic technique whenever relevant

1.10 Managing long term conditions and promoting patient self-care

Knowledge Base

- 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 National legislation and Constitution with reference to disability discrimination) and how developmental stage may impact on self-management **Skills base** • Develop and agree a management plan with the patient (and carers), ensuring comprehension to maximise 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 multidisciplinary 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 • Contribute to the team working in partnership with adolescents and young adult and their parent/carers to facilitate transition from paediatric to adult care for adolescents and young adults with long term conditions and /or disability • Contribute to the team working in partnership with adolescents and young adults and their parent/carers to facilitate transition from paediatric to adult care for adolescents and young adults with long term conditions and/or disability **1.11 Relationships with patients and communication within a consultation** Communicate effectively and sensitively with patients, relatives and carers **Knowledge base** • 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 base** • 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 (eg 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 **1.12 Complaints and medical error** **Knowledge base** • Basic consultation techniques and skills described for Foundation programme and to include: • Define the local complaints procedure • Recognise factors likely to lead to complaints (poor communication, dishonesty etc) • Adopt behaviour likely to prevent complaints • Dealing with dissatisfied patients or relatives • Recognise when something has gone wrong and identify appropriate staff to communicate this 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 base**

- 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

1.13 Communication with colleagues and cooperation

Recognise and accept the responsibilities and role of the doctor in relation to other healthcare professionals. Communicate succinctly and effectively with other professionals as appropriate

Knowledge base

- Understand in particular: o 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 optimise patient, or population, care

Skills base

- 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
- Utilise 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 organisations
- Employ behavioural management skills with colleagues to prevent and resolve conflict

1.14 Breaking bad news

To recognise 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 base

- Recognise that the way in which bad news is delivered irretrievably affects the subsequent relationship with the patient
- Recognise that every patient may desire different levels of

	explanation and have different responses to bad news
	- Recognise that bad news is confidential but the patient may wish to be accompanied
	- Recognise that breaking bad news can be extremely stressful for the doctor or professional involved
	- Understand that the interview may be an educational opportunity
	- Recog ise the importance of preparation when breaking bad news by: o
	  o Setting aside sufficient uninterrupted time
	  o Choosing an appropriate private environment
	  o Having sufficient information regarding prognosis and treatment
	  o Structuring the interview
	  o Being honest, factual, realistic and empathic
	  o Being aware of relevant guidance documents
	  o Understand that “bad news” may be expected or unexpected
	- Recognise 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 base • 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 e.g. • Set the scene • Establish understanding • Discuss; diagnosis, implications, treatment, prognosis and subsequent care **1.15 Health promotion and public health** To progressively develop the ability to work with individuals and communities to reduce levels of ill health, remove inequalities in healthcare provision and improve the general health of a community. **Knowledge base**

	• Understand the factors which influence the incidence of and prevalence of common conditions • Understand the factors which 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 programmes and know in outline the common programmes available within the trainee's country • 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 third world • Outline the major causes of global morbidity and mortality and effective, affordable interventions to reduce these • Recall the effect of addictive behaviours, especially substance misuse and gambling, on health and poverty • Recognise 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 • Understand the relationship between adolescent exploratory and risk behaviours to adolescent development and the potential benefits of health promotion in adolescents and young adults for adult health **Skills base** • Identify opportunities to prevent ill health and disease in patients • Identify the interaction between mental, physical and social wellbeing in relation to health • Counsel patients appropriately on the benefits and risks of screening • 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 offering encouragement that they should do so whenever possible • Engage with local or regional initiatives to support patients remaining at or returning to work **1.16 Legal framework for practice** To understand the legal framework within which healthcare is provided in the UK in order to ensure that personal clinical practice is always provided in line with this legal framework **Knowledge base** • All decisions and actions must be in the best interests of the patient • Understand the legislative framework within which healthcare is provided within the trainee's country – in particular death certification and the role of the Coroner/Procurator Fiscal; child protection legislation; disciplinary processes, practice control,mental health legislation (including powers to detain a patient and giving emergency treatment against a patient's will under common law); advance care directives, advanced decision to refuse treatment 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; Data Protection and Freedom of Information Acts; provision of continuing care and community nursing care by a local authorities • Understand the provisions of regional regulatory 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 base** • 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, Procurator Fiscal, Fatal

Accident Inquiry and 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

1.17 Evidence-based practice and guidelines

To progressively develop the ability to make the optimal use of current best evidence in making decisions about the care of patients
To progressively develop the ability to construct evidence based guidelines in relation to medical practise

Knowledge base

- Understands of the application of statistics in scientific medical practice
- Understand the advantages and disadvantages of different study methodologies (randomised 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 (e.g. NICE and SIGN)

Skills base

- 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

1.18 Quality Improvement (including Audit)

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

Knowledge base

- Understand the principles and fundamental concepts of improvement methodology and its implementation in healthcare
- Understand the differences between audit and quality improvement
- Understand steps involved in completing a quality improvement

project (which may include audit)

- Understand steps involved in completing the audit cycle
- Understand working and uses of national and local databases used for audit such as specialty data collection systems, cancer registries.
- Understand working and uses of local and national systems available for reporting and learning from clinical incidents and near misses reporting in the relevant country
- Understand and demonstrates importance of safety, team work and human factors in clinical practice

Skills base

- Designs, implements and completes a quality improvement project (which may include audit)
- Explains process mapping, goal and aim setting, implementing change and sustaining improvement
- Describes measurement for improvement
- Demonstrates the learning from the experience
- Support improvement projects by junior medical trainees and within the multi-disciplinary team
- Contributes to local and national audit projects as appropriate

1.19 Principles of medical ethics and confidentiality

To know, understand and apply appropriately the principles, guidance and laws regarding medical ethics and confidentiality.

Knowledge base

- Demonstrate knowledge of the principles of medical ethics
- Outline and follow the guidance given by the General Medical Council (UK), or equivalent national regulatory authority, on confidentiality
- Define the provisions on Data Protection and Freedom of Information within a trainee's own national constitution and legislation
- 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
- Outline the guidance given by the GMC 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 base

- Use and share information with the highest regard for confidentiality, and encourage such behaviour in other members of the team
- Use and promote strategies to ensure confidentiality is maintained e.g. anonymisation
- Counsel patients on the need for information distribution within members of the immediate healthcare team
- Counsel patients, family, carers and advocates tactfully and effectively when making decisions about resuscitation status, and withholding or withdrawing treatment
- 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

1.20 Research skills and Assessing medical literature

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 base

- Understands of the application of epidemiology and statistics in scientific medical practice
- Understand the advantages and disadvantages of different study methodologies (randomised control trials, case controlled, cohort etc)
- Understand the importance and sources of bias
- Understand the principles of critical appraisal of medical literature
- Understand levels of evidence and quality of evidence
- Understand the role and limitations of evidence in the development of clinical guideline
- Understand the advantages and disadvantages of guidelines
- Understand the processes that result in nationally applicable guidelines

Skills base

- Ability to apply appropriate epidemiology and statistical methods in different research settings
- 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 **1.21 Teaching and training** To progressively develop the ability to teach to a variety of different audiences in a variety of different ways To progressively be able to assess the quality of the teaching To progressively be able to train a variety of different trainees in a variety of different ways To progressively be able to plan and deliver a training programme with appropriate assessments **Knowledge base** • Outline adult learning principles relevant to medical education: • Identification of learning methods and effective learning environments • Construction of educational objectives • Use of effective questioning techniques • Varying teaching format and stimulus • Demonstrate knowledge of relevant literature relevant to developments in medical education • Outline the structure of the effective appraisal interview • Define the roles 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 Base** • 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 programmes including journal clubs
- Recognise the failing trainee

1.22 Professional behavior

To ensure that trainees develop the knowledge, skills and attitudes to act in a professional manner at all times.

Knowledge base

- Understand relevance of continuity of care
- Recognise aspects of a professional relationship
- Ability to recognize extent of own limitations and when to ask for advice
- Ability to summarise cases and ask relevant questions when seeking advice from others
- Ability to recognize the effects of stress
- Recognize relevance of outside bodies to professional life of: ECSACOP, other regional and International Colleges, National Physicians Associations, Regulating/licencing national Councils

Skills base

- Ensure satisfactory completion of reasonable tasks at the end of the shift/day with appropriate handover
- Recognise the importance of punctuality and attention to detail
- Make adequate arrangements to cover leave
- Willing to consult and have respect for colleagues
- Regarding doctor-patient relationship: Avoid unnecessary personal comments, ensure all discussion / examination is relevant, deal with inappropriate behaviour in patients, e.g. aggression, violence, sexual harassment
- Recognise the manifestations of stress on self & others
- Develop coping mechanisms for stress
- Be open to constructive criticism
- Accept professional regulation

2. Symptom-Based Competencies

These are divided into

2.1 Emergency presentations

2.2 Most Frequent Important presentations

2.3 Other Important presentations

2.1 Emergency Presentations:

2.1.1 Cardio-respiratory arrest

	The trainee will have full competence in the assessment and resuscitation of the patient who has suffered a cardio-respiratory arrest, as defined by the UK Resuscitation Council or American College of Anesthesiologists **Knowledge base** • Demonstrate knowledge of causes of cardio-respiratory arrest • Recall the ALS algorithm for adult cardiac arrest • Outline indication and safe delivery of drugs used as per ALS algorithm **Skills Base** • Rapidly assess the collapsed patient in terms of ABCDE, airway, breathing, circulation, disability and exposure • Perform Basic Life Support competently as defined by Resuscitation Council (UK): effective chest compressions, airway manoeuvres, bag and mask ventilation • Competently perform further steps in advanced life support: IV drugs; safe DC shocks when indicated; identification and rectification of reversible causes of cardiac arrest • Break bad news appropriately **2.1.2 Shocked Patient** The trainee will be able to identify a shocked patient, assess their clinical state, produce a list of appropriate differential diagnoses and initiate immediate management. **Knowledge base** • Identify physiological perturbations that define shock • Identify principal categories of shock (i.e. cardiogenic, anaphylactic) • Elucidate main causes of shock in each category (e.g. myocardial infarction, heart failure, pulmonary embolus, blood loss, sepsis) • Demonstrate knowledge of sepsis syndromes **Skills base** • Recognise significance of major physiological perturbations • Perform immediate (physical) assessment • Institute immediate, simple resuscitation (oxygen, iv access, fluid resuscitation) • Arrange simple monitoring of relevant indices (oximetry, arterial gas analysis) and vital signs (BP, pulse & respiratory rate, temp, urine output) • Order, interpret and act on initial investigations **2.1.3 Unconscious Patient** The trainee will be able to promptly assess the unconscious patient to produce a differential diagnosis, establish safe monitoring, investigate appropriately and formulate an initial management plan, including

	recognising situations in which emergency specialist investigation or referral is required. **Knowledge Base** • Identify the principal causes of unconsciousness (metabolic, neurological) • Recognise the principal sub causes (drugs, hypoglycaemia, hypoxia; trauma, infection, vascular, epilepsy, raised intra-cranial pressure, reduced cerebral blood flow, endocrine) • List appropriate investigations for each • Outline immediate management options **Skills Base** • Make a rapid and immediate assessment (A B C D E) including examination of coverings of nervous system (head, neck, spine) and coma scores • Initiate appropriate immediate management (e.g. cervical collar, administer glucose) • Take simple history from witnesses when patient has stabilised • Prioritise, order, interpret and act on simple investigations appropriately • Initiate early (critical) management (e.g. control fits) **2.1.4 Anaphylaxis** The trainee will be able to identify patients with anaphylactic shock, assess their clinical state, produce a list of appropriate differential diagnoses, initiate immediate resuscitation and management and organise further investigations **Knowledge base** • Identify physiological perturbations causing anaphylactic shock • Recognise clinical manifestations of anaphylactic shock • Elucidate causes of anaphylactic shock • Define follow-up pathways after acute resuscitation **Skills base** • Recognise clinical consequences of acute anaphylaxis • Perform immediate physical assessment (laryngeal oedema, bronchospasm, hypotension) • Institute resuscitation (adrenaline/epinephrine), oxygen, IV access, fluids) • Arrange monitoring of relevant indices • Order, interpret and act on initial investigations (tryptase, C1 esterase inhibitor etc.) • Be an ALS provider **2.2 Most Frequent Important presentations**

	2.2.1 Abdominal pain The trainee will 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 Base** • Outline the different classes of abdominal pain and how the history and clinical findings differ between them • Identify the possible causes of abdominal pain, depending on site, details of history, acute or chronic • Define the situations in which urgent surgical, urological or gynaecological opinion should be sought • Determine which first line investigations are required, depending on the likely diagnoses following evaluation • Define the indications for specialist investigation: ultrasound, CT, MRI, endoscopy **Skills base** • Elicit signs of tenderness, guarding, and rebound tenderness and interpret appropriately • Order, interpret and act on initial investigations appropriately: blood tests; x-rays; ECG; microbiology investigations • Initiate first line management: the diligent use of suitable analgesia; 'nil by mouth'; IV fluids; resuscitation • Interpret gross pathology on CT abdo scans, including liver metastases and obstructed ureters with hydronephrosis **2.2.2 Acute Back Pain** The trainee will be able to assess a patient with a new presentation of back pain to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • Recall the causes of acute back pain • Specify abdominal pathology that may present with back pain • Outline the features that raise concerns as to a sinister cause ('the red flags') and lead to consideration of a chronic cause ('the yellow flags') • Recall the indications of an urgent MRI of spine • Outline indications for hospital admission • Outline secondary prevention measures in osteoporosis **Skills** • Perform examination and elicit signs of spinal cord / cauda equine

compromise
- Practise safe prescribing of analgesics / anxiolytics to provide symptomatic relief
- Order, interpret and act on initial investigations appropriately: blood tests and x-rays

2.2.3 Acute kidney injury and chronic kidney disease

The trainee will be 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. They will 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 base

- Describe the common conditions that cause acute kidney injury and chronic kidney disease
- Outline the clinical approach required to distinguish chronic kidney disease from acute kidney injury, and to diagnose different common causes of these conditions
- Describe the life-threatening complications of renal failure, in particular of hyperkalaemia, and the indications for emergency renal replacement therapy
- Describe the principles of maintaining fluid balance in the oliguric or polyuric patient
- Describe the effect of renal failure on handling of drugs
- Describe the principles of the methods of providing RRT

Skills base

- Identify the presence of significant hyperkalaemia and treat appropriately
- Order, interpret and act on initial investigations, including blood tests and radiological imaging
- Assess fluid balance and prescribe fluids appropriately in the oliguric or polyuric patient
- Assess fluid balance in a patient on RRT who presents acutely to hospital and interpret laboratory results appropriately, recognising which ‘abnormal results’ are to be expected

2.2.4 Blackout / Collapse

The trainee will be able to assess a patient presenting with a collapse to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan (see also ‘Syncope’ and ‘Falls’)

Knowledge base

	• Recall the causes for blackout and collapse • Differentiate the causes depending on the situation of blackout +/or collapse, associated symptoms and signs, and eye witness reports • Outline the indications for temporary and permanent pacing systems • Define indications for investigations: ECHO, ambulatory ECG monitoring, orthostatic stress testing, neuroimaging **Skills** • Elucidate history to establish whether event was LOC, fall without LOC, vertigo (with eye witness account if possible) • Assess patient in terms of ABCDE and degree of consciousness and manage appropriately • Perform examination to elicit signs of cardiovascular or neurological disease and to distinguish epileptic disorder from other causes • Order, interpret and act on initial investigations appropriately: ECG, blood tests incl. glucose • Manage arrhythmias appropriately as per ALS guidelines • Detect orthostatic hypotension • Institute external pacing systems when appropriate **2.2.5 Breathlessness** The trainee will be able to assess a patient presenting with breathlessness to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • Recall the common and/or important cardio-respiratory conditions that present with breathlessness • Differentiate orthopnoea and paroxysmal nocturnal dyspnoea • Identify non cardio-respiratory factors that can contribute to or present with breathlessness e.g. acidosis • Define basic pathophysiology of breathlessness • List the causes of wheeze and stridor • Outline indications for CT chest, CT pulmonary angiography, spirometry **Skills base** • Interpret history and clinical signs to list appropriate differential diagnoses: • Differentiate between stridor and wheeze • Order, interpret and act on initial investigations appropriately: routine blood tests, oxygen saturation, arterial blood gases, chest x-rays, ECG, peak flow test, spirometry

	• Initiate treatment in relation to diagnosis, including safe oxygen therapy, early antibiotics for pneumonia • Perform chest aspiration and chest drain insertion • Recognise disproportionate dyspnoea and hyperventilation **2.2.6 Chest Pain** The trainee will be able to assess a patient with chest pain to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • Characterise the different types of chest pain, and outline other symptoms that may be present • List and distinguish between the common causes for each category of chest pain and associated features: cardiorespiratory, musculoskeletal, upper GI • Define the pathophysiology of acute coronary syndrome and pulmonary embolus • Identify the indications for angioplasty and thrombolysis in ACS • Identify the indications and limitations of cardiac biomarkers and dimer analysis • Outline emergency and longer term treatments for pulmonary embolus • Outline the indications for further investigation in chest pain syndromes: CT angiography and non-invasive stress tests **Skills base** • Interpret history and clinical signs to list appropriate differential diagnoses: esp. for cardiac pain & pleuritic pain • Order, interpret and act on initial investigations in the context of chest pain appropriately: such as ECG, blood gas analysis, blood tests, chest radiograph, cardiac biomarkers • Commence initial emergency treatment including coronary syndromes, pulmonary embolus and aortic dissection • Elect appropriate arena of care and degree of monitoring • Formulate initial discharge plan **2.2.7 Confusion, Delirium (Acute)** The trainee will be able to assess an acutely confused / delirious patient to formulate a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • List the common and serious causes for acute confusion / delirium • Outline important initial investigations, including electrolytes, cultures, full blood count, ECG, blood gases, thyroid function tests • Recognise the factors that can exacerbate acute confusion /

	delirium e.g. change in environment, infection, • List the pre-existing factors such as dementia that pre-dispose to acute confusion / delirium • Outline indications for further investigation including head CT, lumbar puncture **Skills base** • Examine to elicit cause of acute confusion / delirium • Perform mental state examination (abbreviated mental test and mini mental test) to assess severity and progress of cognitive impairment • Recognise pre-disposing factors: dementia, psychiatric disease • Understand and act on the results of initial investigations e.g. CT head, LP • Interpret and recognise gross abnormalities of CT head/MRI brain e.g. mid-line shift and intracerebral haematoma **2.2.8 Cough** The trainee will be able to assess a patient presenting with cough to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • List the common and serious causes of cough (for top examples refer to system specific competencies) • Identify risk factors relevant to each aetiology including precipitating drugs • Outline the different classes of cough and how the history and clinical findings differ between them • State which first line investigations are required, depending on the likely diagnoses following evaluation **Skills Base** • Order, interpret and act on initial investigations appropriately: blood tests, chest x-rays and lung function tests • Awareness of management for common causes of cough **2.2.9 Diarrhoea** The trainee will be able to assess a patient presenting with diarrhoea to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • Specify the causes of diarrhoea (refer to system specific competencies)

	• Correlate presentation with other symptoms: such as abdominal pain, rectal bleeding, and weight loss • Recall the pathophysiology of diarrhoea for each aetiology • Describe the investigations necessary to arrive at a diagnosis • Identify the indications for urgent surgical review in patients presenting with diarrhoea • Recall the presentation, investigations, prevention and treatment of C. difficile, diarrhoea • Demonstrate knowledge of infection control procedures **Skills base** • Evaluate nutritional and hydration status of the patient • Assess whether patient requires hospital admission • Perform rectal examination as part of physical examination • Initiate and interpret investigations: blood tests, stool examination, endoscopy and radiology as appropriate (AXR – intestinal obstruction, toxic dilatation) **2.2.10 Falls** The trainee will be able to assess a patient presenting with a fall and produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan (see also 'Syncope' and 'Blackout/Collapse') **Knowledge Base** • Recall causes of falls and risk factors for falls (refer to system specific competencies) • Knowledge of what is involved in the assessment of a patient with a fall and give a differential diagnosis • Recall the relationship between falls risk and fractures • Recall consequences of falls, such as loss of confidence, infection • State how to distinguish between syncope and fall **Skills base** • Define the significance of a fall depending on circumstances, and whether recurrent, to distinguish when further investigation is necessary • Identify awareness of implications of falls and secondary complications of falls • Commence appropriate treatment including pain relief **2.2.11 Fever** The trainee will be able to assess a patient presenting with fever to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge base

- Recall the pathophysiology of developing a fever and relevant use of anti-pyretics
- Recall the underlying causes of fever: infection, malignancy, inflammation (refer to the system specific competencies)
- Recall guidelines with regard to antibiotic prophylaxis
- Differentiate features of viral and bacterial infection
- Outline indications and contraindications for LP in context of fever
- Recognition and awareness of management of neutropenic sepsis

Skills base

- Recognise the presence of septic shock in a patient, commence resuscitation and liaise with senior colleagues promptly
- Order, interpret and act on initial investigations appropriately: blood tests, cultures,
- Perform a lumbar puncture and interpret, ensure appropriate investigation of and act on results.
- Arrange appropriate investigation of CSF and interpret results
- Identify the risk factors in the history that may indicate an infectious disease e.g. travel, sexual history, IV drug use, animal contact, drug therapy
- Commence empirical antibiotics when an infective source of fever is deemed likely in accordance with local prescribing policy
- Commence anti-pyretics as indicated

2.2.12 Fits / Seizure

The trainee will be able to assess a patient presenting with a fit, stabilise promptly, investigate appropriately, formulate and implement a management plan

Knowledge base

- Recall the causes for seizure (refer to the system specific competencies)
- Recall the common epileptic syndromes
- Recall the essential initial investigations following a ‘first fit’
- Recall the indications for a CT or MRI of head
- Describe the indications, contraindications and side effects of the commonly used anti-convulsants
- Differentiate seizure from other causes of collapse

Skills base

- Recognise and commence initial management of a patient presenting with status epilepticus
- Obtain collateral history from witness

	• Promptly recognise and treat precipitating causes: metabolic, infective, malignancy • Differentiate seizure from other causes of collapse using history and examination **2.2.13 Haematemesis & Melaena** The trainee will be able to assess a patient with an upper GI haemorrhage to determine significance; resuscitate appropriately; and liaise with endoscopist effectively **Knowledge base** • Specify the causes of upper GI bleeding, with associated risk factors including coagulopathy and use of NSAIDs/aspirin /anticoagulants • Recall scoring systems used to assess the significance and prognosis of an upper GI bleed • Recall the principles of choice of IV access including central line insertion, fluid choice and speed of fluid administration • Recall common important measures to be carried out after endoscopy, including helicobacter eradication, acid suppression **Skills base** • Recognise shock or impending shock and resuscitate rapidly and assess need for higher level of care • Distinguish upper and lower GI bleeding • Demonstrate ability to site large bore IV access • Safely prescribe drugs indicated in event of an established upper GI bleed using the current evidence base **2.2.14 Headache** The trainee will be able to assess a patient presenting with headache to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • Recall the common and life-threatening causes of acute new headache, and how the nature of the presentation classically varies between them (refer to system specific competencies) • Understand the pathophysiology of headache • Recall the indications for urgent CT/MRI scanning in the context of headache • Recall clinical features of raised intra-cranial pressure • Demonstrate knowledge of different treatments for suspected migraine **Skills base**

- Recognise important diagnostic features in history
- Perform a comprehensive neurological examination, including eliciting signs of papilloedema, temporal arteritis, meningism and head trauma
- Order, interpret and act on initial investigations
- Perform a successful lumbar puncture when indicated with minimal discomfort to patient observing full aseptic technique
- Interpret basic CSF analysis: cell count, protein, bilirubin, gram stain and glucose
- Initiate prompt treatment when indicated: appropriate analgesia; antibiotics; antivirals; corticosteroids

2.2.15 Jaundice

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

Knowledge base

- Recall the pathophysiology of jaundice in terms of pre-hepatic, hepatic, and post-hepatic causes.
- Recall causes for each category of jaundice with associated risk factors
- Recall issues of prescribing in patients with significant liver disease
- Recall basic investigations to establish aetiology (see system specific competencies)
- Demonstrate knowledge of common treatments of jaundice

Skills base

- Take a thorough history and examination to arrive at a valid differential diagnosis
- Recognise the presence of chronic liver disease or fulminant liver failure
- Interpret results of basic investigations to establish aetiology;
- Recognise complications of jaundice
- Recognise and initially manage complicating factors: coagulopathy, sepsis, GI bleed, alcohol withdrawal, electrolyte disturbance

2.2.16 Limb Pain & Swelling

The trainee will 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 base

- Recall the causes of unilateral and bilateral limb swelling in terms of acute and chronic presentation
- Recall the different causes of limb pain and the pathophysiology of pitting oedema, non-pitting oedema and thrombosis
- Recall the risk factors for the development of thrombosis and recognised risk scoring systems
- Recall the indications, contraindications and side effects of diuretics and anti-coagulants
- Demonstrate awareness of the longer term management of DVT
- Differentiate the features of limb pain and/or swelling pain due to cellulitis, varicose eczema and DVT

Skills Base

- Perform a full and relevant examination including assessment of viability and perfusion of limb and differentiate pitting oedema; cellulitis; venous thrombosis; compartment syndrome
- Recognise compartment syndrome and critical ischaemia and take appropriate timely action
- Order, interpret and act on initial investigations appropriately: blood tests, doppler studies, urine protein
- Practice safe prescribing of initial treatment as appropriate (anticoagulation therapy, antibiotics etc)
- Prescribe appropriate analgesia

2.2.17 Palpitations

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

Knowledge base

- Recall cardiac electrophysiology relevant to ECG interpretation
- Recall common causes of palpitations
- Recall the categories of arrhythmia
- Recall common arrhythmogenic factors including drugs
- Recall the indications, contraindications and side effects of the commonly used anti-arrhythmic medications
- Demonstrate knowledge of the management of atrial fibrillation

Skills base

- Elucidate nature of patient's complaint
- Order, interpret and act on initial investigations appropriately: ECG, blood tests
- Recognise and commence initial treatment of arrhythmias being poorly tolerated by patient (peri-arrest arrhythmias)

2.2.18 Vomiting and Nausea

	The trainee will be able to assess a patient with vomiting and nausea to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • Recall the causes and pathophysiology of nausea and vomiting • Recall the use and adverse effects of commonly used anti-emetics and differentiate the indications for each • Recall alarm features that make a diagnosis of upper gastrointestinal malignancy possible **Skills base** • Elicit signs of dehydration and take steps to rectify • Recognise and treat suspected GI obstruction appropriately: nil by mouth, NG tube, IV fluids • Practise safe prescribing of anti-emetics • Order, interpret and act on initial investigations appropriately: blood tests, x-rays **2.2.19 Weakness and Paralysis** The trainee will be able to assess a patient presenting with motor weakness to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan (see also 'Speech Disturbance' and 'Abnormal Sensation (Paraesthesia and Numbness)') **Knowledge base** • Broadly outline the physiology and neuroanatomy of the components of the motor system • Recall the myotomal distribution of nerve roots, peripheral nerves, and tendon reflexes • Recall the clinical features of upper and lower motor neurone, neuromuscular junction and muscle lesions • Recall the common and important causes for lesions at the sites listed above • Recall the Bamford classification of stroke, and its role in prognosis • Demonstrate knowledge of investigations for acute presentation, including indications for urgent head CT **Skills base** • Perform full examination to elicit signs of systemic disease and neurological dysfunction and identify associated deficits • Describe likely site of lesion in motor system and produce differential diagnosis

	• Order, interpret and act on initial investigations for motor weakness appropriately • Recognise when swallowing may be unsafe and manage appropriately • Detect spinal cord compromise and investigate promptly • Perform tests on respiratory function and inform senior appropriate • Ensure appropriate care: thrombo-prophylaxis, pressure areas, **2.2.20 Poisoning** The trainee will be able to assess promptly a patient presenting with deliberate or accidental poisoning, initiate urgent treatment, ensure appropriate monitoring and recognise the importance of psychiatric assessment in episodes of self-harm **Knowledge base** • Recall indications for gastric lavage, activated charcoal and whole bowel irrigation • Define parameters used to give clues to type of poisoning: pupils, pulse and respiration, blood pressure, • temperature, glucose, seizure, coma, renal function, osmolar and anion gap • Outline presentation and management of poisoning with: organophosphates, organochlorines, paracetamol, aspirin, opiates, alcohol, benzodiazepines, beta-blockers, digoxin, carbon monoxide, anti-coagulants, tricyclics, SSRIs, amphetamines and cocaine • Recognise importance of accessing national poisons information service • Outline the principles of the relevant mental health legislation and Common Law that pertain to treatment against patients' will • Describe role of analytical toxicology **Skills Base** • Recognise critically ill overdose patient and resuscitate as appropriate • Take a full history of event, including collateral if possible • Examine to determine nature and effects of poisoning • Commence poison-specific treatments • Order, interpret and act on initial investigations appropriately: biochemistry, arterial blood gas, glucose, ECG, and drug concentrations • Ensure appropriate monitoring in acute period of care • Perform mental state examination • Use scoring tools to assess risk of further self-harm (e.g. Beck's score)

- Formulate management plan for acute period of care
- Recognise and treat complications of poisoning (e.g. aspiration)
- Co-ordinate multiple-specialty management of patient (ITU, Renal etc.)

2.2.21 Snake, animal and insect bites

2.2.22 Rash

The trainee will be able assess a patient presenting with an acute-onset skin rash and common skin problems to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge base

- Define the characteristic lesions found in the acute presentation of common skin diseases
- Outline basic investigations to establish aetiology
- Identify risk factors, particularly drugs, infectious agents and allergens
- Describe possible medical treatments
- Recall less common causes of acute skin rashes, particularly infective
- Outline the indications for specialist investigations including skin biopsy

Skills base

- Take a thorough focussed history & conduct a detailed examination, including the nails, scalp and mucosae to arrive at appropriate differential diagnoses
- Recognise the importance of a detailed drug history
- Recognise that anaphylaxis may be a cause of an acute skin rash
- Order, interpret and act on initial investigations appropriately to establish diagnosis
- Apply measures to compensate for fluid loss, and to prevent and treat skin infection

2.3 Other important Presentations:

2.3.1 Abdominal Mass / Hepatosplenomegaly

The trainee will 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 base

- Recall the different types of abdominal mass in terms of aetiology,

site, and clinical characteristics (e.g. malignancy, inflammatory)
- Recall relevant investigations related to clinical findings: radiological,
- Recall the common causes of hepatomegaly and splenomegaly

Skills base
- Elicit associated symptoms and risk factors for the presence of diseases presenting with abdominal mass, hepatomegaly and splenomegaly
- Elicit and interpret important clinical findings of mass to establish its likely nature
- Order, and interpret following the results of initial investigations including blood tests and imaging

2.3.2 Abdominal Swelling & Constipation

The trainee will be 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 base
- Recall the causes of abdominal swelling and their associated clinical findings
- Recall the common causes of constipation, including drugs
- Recall the pathophysiology ascites, ileus and bowel obstruction
- Recall important steps in the diagnosis of the cause of ascites, including clinical findings, blood tests, imaging and the diagnosis of spontaneous bacterial peritonitis and malignancy
- Recall the alarm symptoms which raise suspicion of colorectal malignancy
- Recall the mode of action and side effects of the commonly used laxatives

Skills base
- Examine to identify the nature of the swelling, including a rectal examination, and elicit co-existing signs that may accompany ascites, intestinal obstruction and constipation
- Order and interpret the results of initial investigations
- Perform a safe diagnostic ascitic tap with aseptic technique with minimal discomfort to the patient
- Interpret results of diagnostic ascitic tap
- Institute initial management as appropriate to the type of swelling

2.3.3 Abnormal Sensation (Parasthesia and Numbness)

The trainee will 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 base

- Broadly outline the physiology and neuroanatomy of the sensory components of the nervous system
- Recall the dermatomal distribution of nerve roots and peripheral nerves
- List common and important causes of abnormal sensation and likely site of lesion in nervous system (e.g. trauma, vascular)
- Outline the symptomatic treatments for neuropathic pain
- Outline indications for an urgent head CT or MRI
- Be aware of relevance of more specialised investigations: neuroimaging, screening blood tests for neuropathy, neurophysiology studies

Skills base

- Take a full history, including drugs, lifestyle, trauma
- Perform full examination including all modalities of sensation to elicit signs of nervous system dysfunction
- Describe likely site of lesion: central, root, mononeuropathy, or polyneuropathy
- Identify early spinal cord or cauda equine compression and take appropriate action

2.3.4 Bruising and spontaneous bleeding

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 base

- Recall the different types of easy bruising
- Identify the possible causes of easy bruising, depending on the site, age of the patient and details of the history, particularly in relation to prescribed medication
- State which first line investigations are required, depending on the likely diagnosis
- Identify the common clinical presentations of coagulation disorders
- Identify the pattern of bleeding associated with thrombocytopenia
- Identify the need for urgent investigations
- Identify differences in presentation between primary haematological causes of easy bruising and drug induced clotting disorders

	Skills base • Order, interpret and act on initial investigations appropriately including blood tests, X-rays, microbiology investigations • Initiate first line management in consultation with senior clinicians **2.3.5 Dyspepsia** The trainee will be able to assess a patient presenting with heartburn to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • Define dyspepsia and recall principle causes • Recall the lifestyle factors that contribute to dyspepsia • Recall the indications for endoscopy as stated in national guidelines • Recall indications, contraindications and side effects of acid suppression and mucosal protective medications • Recall the role of H Pylori and its detection and treatment • Recall the alarm symptoms of upper GI malignancy **Skills base** • Identify alarm symptoms indicating urgent endoscopy and arrange referral • Investigate as appropriate: H pylori testing, endoscopy • Take a history to differentiate between ulcer-like dyspepsia and gastro-oesophageal reflux disease and a full drug history • Carry out an abdominal examination particularly looking for an abdominal mass **2.3.6 Dysuria** The trainee will be able to assess a patient presenting with dysuria to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** Recall anatomy of the genito-urinary tract Be aware of the causes of dysuria in males and females Outline the pathophysiology of infective causes of urethritis Outline the principles of management of dysuria Outline general measures to prevent recurrent urinary tract infection **Skills base** Take a full history, including features pertaining to sexual health when appropriate

	Order, interpret and act on initial investigations Apply knowledge of local microbiological advice in commencing appropriate treatment **2.3.7 Genital Discharge and Ulceration** The trainee will 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 base** • Recall the disorders that can present with genital discharge • Recall the disorders that can present with genital ulceration • Recall the investigations necessary: urinalysis; urethral smear and culture in men; high vaginal and endo-cervical swab in women, genital skin biopsy • Recall the systemic modes of presentation of sexually transmitted diseases **Skills base** • Take a full history that includes associated symptoms, sexual, menstrual and contraceptive history and details of previous STDs • Perform full examination including inguinal lymph nodes, scrotum, male urethra, rectal examination **2.3.8 Haematuria** The trainee will be able to assess a patient with haematuria to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan **Knowledge base** • Recall the anatomy of the urinary tract • Outline the causes of microscopic and macroscopic haematuria • Determine whether glomerular cause is likely, and indications for a nephrology opinion **Skills base** • Perform a focused examination, including a rectal examination • Demonstrate when a patient needs urological assessment and investigation • Order, interpret and act on initial investigations such as: urine culture, cytology and microscopy; blood tests • Involve renal unit when rapidly progressive glomerulonephritis is suspected

2.3.9 Haemoptysis

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

Knowledge base

- Identify the presenting features of haemoptysis
- Recognise the common and potentially life threatening causes of haemoptysis: bronchiectasis, tuberculosis pneumonia, pulmonary embolism and carcinoma
- Knowledge of non-respiratory causes (eg aorto-pulmonary fistula)
- Describe initial treatment including fluids and oxygen management

Skills base

- Perform a detailed history and physical examination to determine an appropriate differential diagnosis
- Order, interpret and act on initial investigations appropriately: routine bloods, clotting screen, chest radiograph and ECG, sputum tests
- Initiate treatment including indications for starting or withholding anticoagulants and antibiotics

2.3.10 Hoarseness and Stridor

The trainee will 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 base

- Explain the mechanisms of hoarseness
- Explain the mechanisms of stridor
- List the common and serious causes for hoarseness and stridor

Skills base

- Differentiate hoarseness, stridor and wheeze
- Assess severity: cyanosis, respiratory rate and effort
- Perform full examination, eliciting signs that may co-exist with stridor or hoarseness e.g. bovine cough, Horner's syndrome, lymphadenopathy, thyroid enlargement, fever
- Order, interpret and act on initial investigations appropriately: blood tests, blood gas analysis, chest radiograph, flow volume loops, FEV1/peak flow ratio

2.3.11 Incidental Findings

The trainee will be able to construct a management plan for patients

	referred by colleagues due to asymptomatic abnormal findings **Knowledge base** • Recall asymptomatic abnormal findings on examination or investigation that may precipitate further assessment: abnormal radiograph; abnormal CT or MRI images (e.g. incidentalomas); malignant or accelerated hypertension; deranged blood tests (anaemia, calcium, urea and electrolytes, full blood count, clotting, thyroid); proteinuria; non visible haematuria; abnormal ECG; abnormal echo findings; drug interactions and reactions; masses, skin changes, lymphadenopathy • Awareness of the relevant asymptomatic findings that warrant immediate assessment, admission or management, including primary or secondary cancer • Able to appreciate chance (incidental) findings which have no clinical relevance **Skills base** • Elucidate finding and place it in context of particular patient • Decide whether immediate assessment of patient is required, or whether outpatient or GP assessment is sufficient , after discussion with senior colleague if uncertain • Formulate an appropriate management plan for each scenario • Order, interpret and act on further initial investigations appropriately • Manage common metabolic presentations appropriately (hyper/hypokalaemia, hyper/hyponatraemia) • Explain the abnormal findings to the patient in a manner that s/he can understand **2.3.12 Involuntary Movements** The trainee will 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 base** • Differentiate and outline the differential diagnoses of parkinsonism and tremor: be aware of myoclonus, and other less common movement disorders • Recall the main drug groups used in the management of movement disorders **Skills base** • Assess including a full neurological examination to produce a valid differential diagnosis

2.3.13 Joint Swelling

The trainee will 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 base

- Recall the generic anatomy of the different types of joint
- Differentiate between mono-, oligo-, and polyarthritis and recall principal causes for each
- Recall the importance of co-morbidities in the diagnosis of joint swelling
- Recall treatment options for acute arthritides e.g. analgesia, NSAIDs, steroids, physiotherapy etc

Skills base

- Recognise the importance of history for clues as to diagnosis
- Perform a competent physical examination of the musculo-skeletal system
- Elicit and interpret extra-articular signs of joint disease
- Order, interpret and act on initial investigations appropriately: blood tests, radiographs, joint aspiration, cultures
- (Make) basic interpretation of plain radiographs of swollen joints
- Practise safe prescribing of analgesics and NSAIDs for joint disease
- Awareness of second-line therapy and its complications

2.3.14 Lymphadenopathy

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

Knowledge Base

- Outline the anatomy and physiology of the lymphatic system
- Recall the causes of generalised and local lymphadenopathy in terms of infective, malignant, reactive and infiltrative
- Outline the initial investigations of lymphadenopathy and the indications for fine needle aspiration and lymph node biopsy
- Outline the investigations indicated when tuberculosis is considered

Skills base

- Elicit associated symptoms and risk factors for the presence of diseases presenting with lymphadenopathy
- Examine to elicit the signs of lymphadenopathy and associated

diseases
- Order, interpret and act on initial investigations appropriately
- Initiate treatment if appropriate

2.3.15 Loin Pain
The trainee will 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 base
- List the common and serious causes of loin pain and renal colic
- Outline other symptoms that may classically accompany loin pain and renal colic
- Outline indications and contraindications for an urgent IVU/CT KUB

Skills base
- Elucidate risk factors for causes of loin pain
- Perform full examination to elicit signs of renal pathology
- Order, interpret and act on initial investigations appropriately: blood tests, urinalysis, urine culture and microscopy, radiographs, ultrasound
- Prescribe appropriate analgesia safely
- Commence appropriate antibiotics when infective cause is likely
- Recognise co-existing renal impairment promptly

2.3.16 Neck Pain
The trainee will be able to assess a patient presenting with neck pain to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge base
- Recall the common and serious causes of neck pain in terms of meningism; tender mass; musculoskeletal; vascular, intrinsic cord lesion
- Recall indications for lumbar puncture

Skills base
- Take a full history, including recent trauma
- Perform a full examination to elicit signs that may accompany neck pain
- Order, interpret and act on initial investigations appropriately: blood tests, plain radiographs, thyroid function
- Recognise meningitis and promptly initiate appropriate investigations and treatment in consultation with senior

- Practise appropriate prescribing of analgesia
- Perform a lumbar puncture and interpret, ensure appropriate investigation of and act on results.

2.3.17 Physical Symptoms in Absence of organic Disease

The trainee will 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 base

- List symptoms that commonly have a non-organic component

Skills base

- Take a full history, including Perform full examination including mental state
- Recognise the hyperventilation syndrome associated symptoms of anxiety or depression and past medical assessments

2.3.18 Polydipsia

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

Knowledge base

- Understand mechanisms of thirst

Skills base

- Identify common causes of polydipsia (refer to the system specific competencies)
- Identify other pertinent symptoms e.g. nocturia
- Order, interpret and act on initial investigations appropriately

2.3.19 Polyuria

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

Knowledge base

- Define true polyuria
- Outline the causes of polyuria (in terms of osmotic diuresis, diabetes insipidus etc)
- Outline the pathophysiology of diabetes insipidus
- Elucidate the principles of treating new onset diabetes mellitus, hypercalcaemia

Skills base

- Identify other pertinent symptoms
- Perform full examination to assess volaemic status, and elicit associated signs
- Order, interpret and act on initial investigations appropriately
- Calculate and interpret serum and urine osmolarity
- Commence treatment as appropriate
- Manage fluid balance in polyuric chronic renal failure and polyuric phase of acute renal failure

2.3.20 Pruritus

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 base

- Recall principle causes in terms of infestations, primary skin diseases, systemic diseases (e.g. lymphoma), liver disease, pregnancy
- Outline the principles of treating skin conditions
- Awareness of need to refer to specialist

Skills base

- Examine to elicit signs of a cause for pruritus
- Describe accurately any associated rash
- Formulate a list of differential diagnoses
- Order and interpret the results of initial investigations
- Recognise the presentation of skin cancer

2.3.21 Rectal Bleeding

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

Knowledge base

- Recall the causes of bleeding per rectum
- Recall the indications for surgical review
- Recall the treatments of inflammatory bowel disease

Skills base

- Take a history and perform examination including rectal examination
- Recognise and appropriately treat the shocked patient including consultation with surgical colleagues
  Order and interpret the results of initial investigations

- Attempt to clinically distinguish upper and lower GI bleeding

2.3.22 Skin and Mouth Ulcers
The trainee will 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

Knowledge base
- List the common and serious causes of skin (especially leg) or mouth ulceration
  Outline the classification of skin ulcers by cause
- Outline the pathophysiology, investigation and management principles of diabetic ulcers
- Recognise the association between mouth ulcers and immunebullous disease

Skills base
- Recognise likely skin and oral malignancy
- Recognise life threatening skin rashes presenting with ulcers, commence treatment and involve senior
- Assess and formulate immediate management plan for diabetic foot ulceration
- Order, interpret and act on initial investigations appropriately

2.3.23 Speech Disturbance

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

Knowledge base
- Define and recall causes for dysphonia, dysarthria and dysphasia
- Recall the neuro-anatomy relevant to speech and language
- Differentiate between receptive and expressive dysphasia

Skills base
- Take a history from a patient with speech disturbance
- Examine patient to define nature of speech disturbance and elicit other focal signs
- List differential diagnoses following assessment
- Order, interpret and act on initial investigations appropriately

2.3.24 Swallowing Difficulties
The trainee will be able to assess a patient with swallowing difficulties to produce a valid differential diagnosis, investigate appropriately, formulate

and implement a management plan

Knowledge base

- Recall the physiology of swallowing
- Recall the causes of swallowing problems
- Differentiate between neurological and GI causes
- Recall investigative options: contrast studies, endoscopy, manometry,
- Awareness of treatment options for oesophageal malignancy
- Awareness of the treatment of oesophageal strictures

Skills base

- Elicit history, detecting associations that indicate a cause: weight loss, aspiration, heartburn
- Examine a patient to elicit signs of neurological disease and malignancy .be able to evaluate whether patient is safe to eat or drink by mouth

2.3.25 Syncope & Pre-syncope

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

Knowledge base

- Define syncope
- Recall cause of syncope
- Outline the pathophysiology of syncope depending on situation (vaso-vagal, cough, effort, micturition, carotid sinus hypersensitivity)
- Differentiate from other causes of collapse in terms of associated symptoms and signs and eye witness reports
- Outline the indications for hospital admission
- Outline the indications for cardiac monitoring
- Define the recommendations concerning fitness to drive

Skills base

- Take thorough history from patient and witness to elucidate episode
- Differentiate pre-syncope from other causes of 'dizziness'
- Assess patient in terms of ABCDE and degree of consciousness and manage appropriately
- Perform examination to elicit signs of cardiovascular disease
- Order, interpret and act on initial investigations appropriately: blood tests, ECG

2.3.26 Unsteadiness / Balance Disturbance
The trainee will 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 Base

- Outline the neuro-anatomy and physiology relevant to balance, coordination and movement
- Define and differentiate types of vertigo and list causes
- Define and differentiate sensory and cerebellar ataxia and list causes
- Recognise the importance of environmental hazards
- Recognise the psychosocial aspects of care for the patient
- List the potential drugs or drug interactions contributing to unsteadiness

Skills base

- Take history from patient and attempt to define complaint as either pre-syncope, vertigo or unsteadiness
- Perform full physical examination to elicit signs of neurological, inner ear or cardiovascular disease including orthostatic hypotension
- Elucidate signs of vitamin deficiency
- Describe an abnormal gait accurately
- Recognise drug toxicity, intoxication and recreational drug abuse
- Initiate basic investigations and urgent treatment including vitamin supplementation
- Withdraw potentially causative drugs

2.3.27 Visual Disturbance (diplopia, visual field deficit, reduced acuity)
To assess the patient presenting with a visual disturbance to produce a valid differential diagnosis, investigate appropriately, formulate and implement a management plan

Knowledge base

- Broadly recall the basic anatomy and physiology of the eye and the visual pathways
- Recall the different types of visual field defect and list common causes
- Define diplopia and recall common causes
- Recall common causes for reduced visual acuity
- Recall implications for driving of visual field loss

Skills base

- Perform full examination including acuity, eye movements, visual fields, fundoscopy, related cranial nerves and structures of head & neck
- Formulate differential diagnosis
- Order, interpret and act on initial investigations appropriately

2.3.28 Weight Loss

The trainee will 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 base

- Recall the common causes for weight loss (in terms of psychosocial, neoplasia, gastroenterological etc)
- Recall the indications and complications for nutritional supplements, and enteral feeding including PEG/NG feeding

Skills base

- Take a valid history highlighting any risk factors for specific disorders presenting with weight loss, and a thorough social history
- Examine fully to elucidate signs of disorders presenting with weight loss, and assess degree of malnutrition
- Order, interpret and act on initial screening investigations

Sudden visual loss with visual disturbance

Medical Problems Following Surgical Procedures

The trainee will be able to assess, investigate and treat medical problems arising post-operatively and during acute illness and recognise importance of preventative measures

Knowledge base

- Identify factors which put patients at increased risk of developing medical complications of surgery
- Recall anaesthetic and analgesic complications
- Recall comorbidities such as Diabetes, Ischaemic heart disease, hypertension, obesity, COPD in the context of post-operative complications

Skills base

- 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 postoperative complications by carefully reviewing the full medical record • Involve surgical team in decision making processes **Medical Problems in Pregnancy** The trainee will be competent in the assessment, investigation and management of the common and serious medical complications of pregnancy **Knowledge base** • Understand the role of diagnostic imaging including the use of radiographs, CT and radio nucleotide scanning • To recognise the importance of awareness of drug prescribing in the pre-pregnancy, pregnancy and post- partum periods **Skills base** • Formulate a management plan for the acute presentation of: o dyspnoea and chest pain o pre-eclampsia, eclampsia, pulmonary embolism , infection, pulmonary oedema,,asthma, seizures • Recognise the importance of obstetric and haematology input in the management of thrombo-embolic disease • Recognise that patients with long-term conditions need specialist multidisciplinary medical input before and throughout the pregnancy • Discuss with patient likely outcomes and prognosis of common conditions during pregnancy • Seek expert advice when prescribing in pregnancy and postpartum period **Aggressive / Disturbed Behaviour** The trainee will be competent in predicting and preventing aggressive and disturbed behaviour; using safe physical intervention and tranquillisation; investigating appropriately and liasing with the mental health team **Knowledge base** • Outline de-escalation techniques that can be taken to prevent violent behaviour **Skills** • Determine whether disturbed behaviour is a result of organic or psychiatric disease • Formulate a management plan for the acute period of care • Encourage review of violent incident soon after it has occurred

	• Involve mental health care team in patient management **Alcohol and Substance Dependence** The trainee will be able to assess a patient seeking help for substance abuse, and formulate an appropriate management plan **Knowledge base** • Recall the occult presentation alcoholism and substance misuse and appropriate investigations • Recall less common causes of substance misuse **Skills base** • Recognise the co-existence of psychiatric disease • Formulate a management plan of co-existing medical problems for the acute and ongoing period of care • Identify need to counsel patient with regard of maintaining abstinence • Liaise with psychiatric, GP and substance misuse teams as appropriate for ongoing community care **Anxiety / Panic disorder** The trainee will be able to assess a patient presenting with features of an anxiety disorder and reach a differential diagnosis to guide investigation and management **Knowledge base** • Recognise the role of psychological and self-help therapy in management • Elucidate the principles of pharmacotherapy in the treatment of anxiety disorders **Skills base** • Recognise that atypical physical symptoms may herald an underlying anxiety disorder • Recognise treatment goals • Involve primary care or mental health services as appropriate • 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 **Head Injury** The trainee will able to assess a patient with traumatic head injury,

	stabilise, admit to hospital as necessary and liaise with appropriate colleagues, recognising local and national guidelines (e.g. NICE) **Knowledge base** • 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 **Skills base** • Outline the indications for transfer from secondary settings to a neuroscience unit • Recall the long term complications of head injury • Decide on appropriate venue of care: discharge, ward, HDU • Practise safe discharge decisions • Recognise 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 national guidelines (e.g. NICE) • Recommend primary care follow up routinely at one week following discharge **Immobility** The trainee will be able to assess a patient with immobility to produce a valid differential diagnosis, investigate appropriately, and produce a management plan **Knowledge base** • 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 base** • Perform evaluation of functional status including ADL, 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 • 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 **Memory Loss (Progressive)** The trainee will be able to assess a patient with progressive memory loss to determine severity, differential diagnosis, investigate appropriately, and formulate management plan **Knowledge base** • Recall causes for early onset chronic confusion or memory loss • Recall the commonly used pharmacological treatments for dementia and their indications for use **Skills base** • Interpret assessment and investigations to make appropriate diagnosis of dementia • Involve neurologists or psychiatrists in elderly care when appropriate • Recognise the legal implications of dementia • Identify and anticipate the ethical and capacity issues that arise in patients with dementia and memory loss **Micturition Difficulties** The trainee will 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 base** • Outline indications for more detailed investigation: abdominal and pelvic ultrasound, CT, urine cytology, urodynamics **Skills base** • Recognise indications for supra-pubic catheterisation and refer appropriately • Formulate management plan for acute period of care • Involve specialist teams appropriately • Participate in multi-disciplinary approach to care of patients with long term or intermittent catheterisation **Suicidal Ideation** The trainee will be able to take a valid psychiatric history to elicit from a patient suicidal ideation and underlying psychiatric pathology; assess risk; and formulate appropriate management plan

Knowledge base

- Outline the principles of the relevant Mental Health Act

Skills base

- Risk 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
- Recognise the importance of ongoing input by health services following discharge

3. System-Specific Competencies

In the preceding sections, certain important knowledge based competencies have not been adequately defined. The following section considers each system in turn, alphabetically, and lists the competencies, common conditions and clinical science required for each system. The listing of 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 to be acquire for each specific condition is set out below, and should continue to be refined with time in line with the principles of a spiral curriculum:

- Overview o Definition o Practice essentials o Background o Pathophysiology o Etiology o Epidemiology o Prognosis
- Clinical Presentation o Features of History o Examination findings o Complications
- Differential Diagnosis
- Workup o Approach Considerations o Laboratory studies o Radiology
  o Other Investigations indicated
- Treatment and Management

	○ Approach considerations ○ Detailed initial management and principles of ongoing management (counselling, lifestyle, medical, surgical, care setting and follow up) o Appropriate referrals and consultations o Complications o Prevention (where relevant to condition) Medication summary (class summary, dosing/uses, adverse effects, interactions, warnings, pharmacology, administration and use in pregnancy/lactation) o

3.1 Allergy
The trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies in Allergy

Competencies

- Recognise when specialist allergy opinion is required
- Be aware of the management and subsequent investigation of patients presenting with immune mediated medical
- emergencies:
  1. Anaphylaxis
  2. Laryngoedema
  3. Urticaria
  4. 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 sensitisation: primary and secondary prophylaxis
- Natural history of allergic diseases
- Mechanisms of action of anti-allergic drugs and immunotherapy
- Principles and limitations of allergen avoidance

3.2 Cardiology
The trainee will acquire the defined knowledge base of clinical science

	and common problems with applied competencies in Cardiovascular Medicine
	
	Competencies
	• Recognise when specialist cardiology opinion is indicated
	• Outline risk factors for cardiovascular disease
	• Counsel patients on risk factors
	• Outline methods of smoking cessation of proven efficacy (see below)
	
	Common problems
	• Arrhythmias:
	  ○ Treatment of heart block, bradycardia
	  ○ SVT, AF, VT, VF
	• Cardiac arrest
	• Pacemaker
	• Misplacement of ECG leads
	• Ischaemic 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
	• Pericarditis
	• Cardiomyopathies
	• Orthostatic hypotension
	• Syncope
	• Dyslipidaemia
	
	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, anticoagulants, lipid modifying drugs, nitrates, centrally acting antihypertensives
	
	3.3 Clinical Pharmacology

	The trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies in Clinical Pharmacology **Competencies** • Practise safe prescribing: ○ Effects of: renal or liver impairment; old age; pregnancy o Outline importance of drug interactions and role of CYP450 isoenzymes o Outline drugs requiring therapeutic monitoring ○ Use national and local guidelines on appropriate and safe prescribing • Write a clear, accurate and unambiguous prescription • Engage patients in discussions on drug choice, and side effects • Recognise range of adverse drug reactions to commonly used drugs • Use national reporting schemes • 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 **Common problems** • Corticosteroid treatment: short and long-term complications o bone protection ○ safe withdrawal of corticosteroids ○ patient counselling regarding avoidance of adrenal crises Specific treatment of poisoning with: o Aspirin o Alcohol C ○ Calcium channel blockers o Anticoagulants o Amphetamines o Drugs of misuse o Paracetamol ○ Tricyclics anti-depressants o Beta-adrenoceptor blockers ○ Carbon monoxide o Opiates and opioids ○ Digoxin o Benzodiazepines o SSRI A ○ Knowledge of appropriate treatment of common medical conditions

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

3.4 Clinical Genetics

The trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies in Clinical Genetics.

Competencies

- Recognise the organisation and role of clinical genetics and when to seek specialist advice
- Take and interpret a complete family history
- Recognise the anxiety caused to an individual and their family when investigating genetic susceptibility to disease
- Recognise the importance of skilled counselling in the investigation of genetic susceptibility to disease
- Recognise basic patterns of 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
- Recognise the differing attitudes and beliefs towards inheritance

Common Problems

- Cystic Fibrosis Down's syndrome
- Familial cancer syndromes
- Familial cardiovascular disorders
- Haemochromatosis Haemophilia
- Huntington's disease
- Klinefelter syndrome
- Marfan's syndrome
- Polycystic kidney disease
- Sickle Cell disease Thalassaemias
- 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, mitochondrial
- Principles of pharmacogenetics
- Principles of mutation, polymorphism, trinucleotide repeat disorders
- Principles of genetic testing including metabolite assays, clinical examination and analysis of nucleic acid (e.g. PCR)

The following chapters will be expanded in the same fashion as the cardiology section above

3.5 Dermatology

The trainee will acquire the defined knowledge base of clinical science and common problems
with applied competencies in Dermatology

Competencies

- Psoriasis B
- Eczema B
- Skin tumours
- Skin failure: eg erthryoderma, toxic epidermal necrolysis
- Urticaria and angio-oedema
- Cutaneous vasculitis
- Dermatomyositis
- Scleroderma
- Viral infections eg Herpes Zoster and Herpes Simplex infections
- Bacterial infections eg impetigo
- Fungal infections eg tinea
- Ulcers
- Bullous disorders
- Skin infestations

Common Problems

- Cutaneous drug reactions
- Skin manifestations of systematic disorder
- Structure and function of skin, hair and nails
- Pharmacology of major drug classes: topical corticosteroids, immunosuppressants
- Lymphoedema

3.6 Endocrinology & Diabetes

Within the training programme the trainee will acquire the defined knowledge base of clinical science and common problems with applied

competencies in Diabetes and Endocrinology

Competencies

- Recognise vital importance of patient education and a multidisciplinary approach for the successful long-term care of diabetes
- Recognise when specialist Endocrine or Diabetes opinion is indicated
- Diabetic ketoacidosis
- Non-acidotic hyperosmolar coma / severe hyperglycaemia
- Hypoglycaemia
- Care of the acutely ill diabetic
- Peri-operative diabetes care
- Hyper/Hypocalcaemia
- Adrenocortical insufficiency
- Hyper/Hyponatraemia
- Thyroid dysfunction
- Dyslipidaemia
- Endocrine emergencies: myxoedema coma, thyrotoxic crisis, Addisonian crisis, hypopituitary coma, phaeochromocytoma crisis
- Polycystic ovarian syndrome

Common Problems

- Amenorrhoea
- Diabetes insipidus Cushing's syndrome
- Pituitary tumours e.g. prolactinoma, acromegaly and their complications e.g. SIADH
- Turner's syndrome
- Bone diease: oeteoporosis 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

3.7 Gastroenterology & Hepatology

	Within the training programme the trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies in Gastroenterology and Hepatology. **Competencies** • Peptic Ulceration and Gastritis • Gastroenteritis • GI malignancy (oesophagus, gastric, hepatic, pancreatic, colonic) • Inflammatory bowel disease • Iron Deficiency anaemia • Acute GI bleeding • Acute abdominal pathologies: pancreatitis, cholecystitis, appendicitis, leaking abdominal aortic aneurysm • Functional disease: irritable bowel syndrome, non-ulcer dyspepsia Coeliac disease • Alcoholic liver disease • Alcohol withdrawal syndrome • Acute liver dysfunction: jaundice, ascites, encephalopathy • Liver cirrhosis • Gastro-oesophageal reflux disease • Dysentery (shigellosis, amoebic, enteroinvasive E. coli) **Common Problems** • Nutrition: o Malnutrition, specific avitaminosis ○ 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, tropical sprue **Clinical Science** • Structure and function of salivary glands, oesophagus, stomach, small bowel, colon, rectum, liver, biliary system, pancreas • Principles of the physiology of alimentary tract: motility, secretion, digestion, absorption • Bile metabolism • Anatomy and Principles of action of the liver • Laboratory markers of liver, pancreas and gut dysfunction • Pharmacology of major drug classes: acid suppressants, antispasmodics, laxatives, anti-diarrhoea drugs, aminosalicylates,

corticosteroids, immunosuppressants, infliximab, pancreatic enzyme supplements

3.8 Haematology

Within the training programme the trainee will acquire the defined knowledge base of clinical
science and common problems with applied competencies in Haematology

Competencies

- Practise safe prescribing of blood products, including appropriate patient counselling
- Outline indications, contraindications, side effects and therapeutic monitoring of anticoagulant medications
- Bone marrow failure: causes and complications
- Bleeding disorders: DIC, haemophilia
- Thrombocytopaenia
- Anticoagulation treatment: indications, monitoring, management of over-treatment
- Transfusion reactions
- Anaemia: iron deficient, megaloblastic, haemolysis, sickle cell
- Thrombophilia: classification; indications and implications of screening
- Haemolytic disease
- Myelodysplastic syndromes
- Leukaemia
- Lymphoma

Common Problems

- Myeloma
- Myeloproliferative disease
- Inherited disorders of haemoglobin (sickle cell disease, thalassaemias)
- Amyloid

Clinical Science

- Principles of haematopoietic stem cell transplantation
- Structure and function of blood, reticuloendothelial system, erythropoietic tissues
- Haemoglobin structure and function
- Haemopoiesis
- Metabolism of iron, B12 and folate
- Coagulation

3.9 Immunology

	Within the training programme the trainee will acquire the defined

knowledge base of clinical
science and common problems with applied competencies in Immunology

Competencies

- Recognise the role of the Clinical Immunologist

Common Problems

- Anaphylaxis (see also “Allergy”)
- Immunodeficiencies e.g. hypogammaglobulinaemia, 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

3.10 Infectious diseases

Within the training programme the trainee will 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
- Recognise when specialist Microbiology or Infectious Diseases opinions are indicated
- Recognise 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, recognising complications of inappropriate use
- Use local anti-microbial prescribing guidelines, including therapeutic drug monitoring when indicated
- Recognise importance of immunisation and Public Health in infection control, including reporting notifiable diseases
- Outline principles of prophylaxis e.g. anti-malarials

Common Problems

- Complications of sepsis: shock, DIC, ARDS
- Common community acquired infection: LRTI, UTI, skin and soft tissue infections, viral exanthema, gastroenteritis
- CNS infection: meningitis, encephalitis, brain abscess

- Infections in immuno-compromised host
- Anti-microbial drug monitoring
- Endocarditis
- Pyrexia of unknown origin
- Common genito-urinary conditions: non-gonococcal urethritis, gonorrhoea, syphilis
- Fungal infections e.g. aspergillus, pneumocystis jirovecii infection Lyme disease
- Viral infections e.g. erythrovirus, infectious mononucleosis, erythrovirus infection, HSV
- Infections of special interest to Africa o Tetanus
    - Rickettsial infections o Relapsing fever
    - Yaws and endemic syphillis o Cholera
    - Typhoid and other salmonellas o Shigella infection o Brucellosis o Leptospirosis o Plague o Anthrax o Dengue
    - Viral Haemorrhagic fevers (yellow fever, Lassa, Rift Valley, Ebola Marburg, Crimean-Congo) o Poliomyelitis o Hepatits viruses o Rabies

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

3.11 Musculoskeletal

Within the training programme the trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies.

Competencies

- Accurately describe the examination features of musculoskeletal

	disease following full assessment • Recognise when specialist Rheumatology opinion is indicated • Outline the indications, contraindications and side effects of the major immunosuppressive drugs used in rheumatology including corticosteroids • Recognise the need for long term review in many cases of rheumatological disease and their treatments • Recognise importance of e.g. 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 MRCP • Pharmacology of major drug classes: NSAIDS, corticosteroids, immunosuppressants, colchicines, allopurinol, bisphosphonates **3.12 Neurology** Within the training programme the trainee will 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 • Recognise when specialist Neurology opinion is indicated • Recognise when a patient's presentation heralds a neurosurgical emergency and refer appropriately

	Common Problems • Acute new headache • Stroke and transient ischaemic 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 and cranial • CNS tumours: cerebral metastases, pituitary tumours • Retinopathy: diabetes mellitus , retinitis pigmentosa, retinal ischaemia 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 incl. benzodiazepines, anti-epileptics, anti-parkinson drugs (antimuscarinics, dopaminergics) **3.13 Nephrology**

	Within the training programme the trainee will acquire the defined knowledge base of clinical

	science and common problems with applied competencies in Renal Medicine **Competencies** • Formulate a differential diagnosis 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 • Recognise 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 renal failure • 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 • 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 **3.14 Respiratory Medicine** Within the training programme the trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies in Respiratory Medicine **Competencies** • Recognise 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
- Venous thromboembolism; Pulmonary embolism and DVT
- Tuberculosis
- Interstitial lung disease
- Obstructive sleep apnoea
- 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, inhaledco rticosteroids, leukotriene receptor antagonists, immunosuppressants

3.15 HIV and Tuberculosis

Within the training programme the trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies in HIV and Tuberculosis

Competencies

- Recognise risk factors in HIV and TB
- Recognise common presentation patterns of HIV and TB in various stages of the natural history
- Awareness of national screening recommendations and management algorithms for HIV
- Appropriate use of laboratory in diagnosis and management at population-wide and individual patient level
- Correct use of different drug regimens for individual patient profile

	• Recognise the importance of patient counselling in improving

	treatment outcomes **Common problems** • Candidiasis • Cryptococcosis • Cytomegalovirus • Herpes simplex • Lymphoma • Toxoplasmosis • Mycobacterium avium intracelulare • Viral hepatitis • Medicines classes, interaction and toxicity **Clinical Science** **3.16 Tropical medicine** Within the training programme the trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies in Tropical Medicine **Competencies** • Elucidate risk factors for the development of a communicable disease including contacts, travel, animal contact and environment • Recognise when specialist Microbiology or Tropical Diseases opinions are indicated • Recognise when a patient is critically ill with severe infection, promptly initiate treatment and liaise with critical care and senior colleagues • Outline spectrum of cover of common anti-microbials, recognising complications of inappropriate use • Use local anti-microbial prescribing guidelines, including therapeutic drug monitoring when indicated • Recognise importance of isolation and Public Health in infection control, including reporting notifiable diseases • Outline principles of diagnosis for various conditions **Common problems** • Intestinal helminths • Cysticercosis • Hydatid disease • Schistosomiasis • Paragonimiasis • Loiasis • Onchocerciasis

	• Lymphatic filariasis

	• Guinea worm • Trichinosis • Leishmaniasis • African trypanosomiasis • Amoebiasis • Intestinal protozoa • Leprosy **Clinical Science** **3.17 Oncology** The trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies in Oncology **Competencies** • Recognise the terminally ill often present with problems with multi-factorial causes • Recognise associated psychological and social problems • Investigate appropriately • Recognise 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 patients interests are paramount • Recognise the dying phase of terminal illness **Common Problems** • Hypercalcaemia • SVC obstruction • Spinal cord compression • Neutropenic sepsis • Common cancers (presentation, diagnosis, staging, treatment principles): lung, bowel, breast, prostate, stomach, oesophagus, bladder, skin, haematological, testicular and ovarian • Premalignant conditions eg familial polyposis coli • Paraneoplastic conditions eg 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: antiemetics, opiods, NSAIDS, agents for neuropathic pain, bisphosphonates, laxatives, anxolytics **3.18 Palliative Care and End of Life Care** The trainee will acquire the defined knowledge base of clinical science and common problems with applied competencies in Palliative Care **Competencies** • Take an accurate pain history • Recognise that the terminally ill often present with problems with multi-factorial causes • Recognise associated psychological and social problems • Recognise 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 • Recognise the dying phase of terminal illness • Manage symptoms in dying patients appropriately • Practice safe use of syringes drivers • Recognise importance of hospital and community Palliative Care teams • Recognise that referral to specialist palliative care is appropriate for patients with other life threatening illnesses as well as those with cancer **Common Problems** – Palliative Care • Pain: 1. appropriate use of analgesia 2. analgesic ladder 3. 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, anxiolytics **3.19 Psychiatry** Within the training programme the trainee will 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
- Recognise when specialist Psychiatric opinion is indicated
- Recognise when a patient's presentation heralds organic illness and manage appropriately
- Recognise 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
- Principles 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)

4. Investigation Competencies

Listed below are the investigations that the trainee is expected to be able to outline the indications for and interpret by the end of Core Medical Training. The subsequent list states the investigations that the trainee should know the indications for, and how the investigation is carried out. A detailed interpretation is not expected by trainees in core programmes, as these investigations usually require specialist interpretation (e.g. histology, radiology). However, the trainee in the latter stages of training in specialty training should be able to interpret the investigations given the clinical context and if uncertain ensure that accurate interpretation of the investigation is available from the relevant specialists. Outline the Indications for, and interpret the following Investigations:

Biochemistry

- 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 • Amylase • Drug levels: paracetamol, salicylate, digoxin, antibiotics, anticonvulsants, theophylline **Haematology** • Full blood count • Coagulation screen • Haemolysis screen • D dimer • Blood film report • Haematinics **Microbiology / Immunology** • Blood / Sputum / urine culture • Fluid analysis: pleural, cerebro-spinal fluid, ascitic • Urinalysis and urine microscopy • Auto-antibodies • H. Pylori testing • Tumour markers **Radiology** • Chest radiograph • Abdominal radiograph • Joint radiographs (knee, hip, hands, shoulder, elbow, dorsal spine, ankle) **Physiological** • ECG • Peak flow tests • Full lung function tests **Special Tests** Outline the principles of, and interpret, the following investigations (if necessary in more complex cases with the aid of relevant specialists): • Biochemistry

	○ Urine catecholamines ○ Sex hormones (FSH, LH, testosterone, oestrogen and progesterone) & Prolactin ○ Specialist endocrine suppression or stimulation tests (dexamethasone suppression test; insulin tolerance test; water deprivation test, glucose tolerance test and growth hormone) Microbiology / Immunology o Coeliac serology screening o Viral hepatitis serology o Myeloma screen o Stool testing o HIV testing Radiology o Ultrasound ○ Detailed imaging: Barium studies, CT, CT pulmonary angiography, high resolution CT, MRI ○ Imaging in endocrinology (thyroid, pituitary, adrenal) o Renal imaging: ultrasound, KUB, IVU, CT Physiological o Echocardiogram o 24 hour ECG monitoring ○ Ambulatory blood pressure monitoring ○ Exercise tolerance test o Cardiac perfusion scintigraphy o Tilt testing ○ Neurophysiological studies: EMG, nerve conduction studies, visual and auditory evoked potentials Medical Physics o Bone scan o Bone densitometry o Scintigraphy in endocrinology o V/Q scanning Endoscopic Examinations o Bronchoscopy o Upper and lower GI endoscopy o ERCP

	Pathology o Liver biopsy o Renal biopsy ○ Bone marrow and lymph node biopsy ○ Cytology: pleural fluid, ascitic fluid, cerebro-spinal fluid, sputum

	5. Procedures Competencies The trainee is expected to be competent in performing the following procedures by the end of Core Syllabus. The trainee must be able to outline the indications for these interventions. For invasive procedures, the trainee must recognise the indications for the procedure, the importance of valid consent, aseptic technique, safe use of local anaesthetics and minimisation of patient discomfort. • Venepuncture • Cannula insertion, including large bore • Arterial blood gas sampling • Lumbar Puncture • Pleural tap and aspiration, biopsy • Intercostal drain insertion: Seldinger technique • Ascitic tap • Abdominal paracentesis • Central venous cannulation • Initial airway protection: chin lift, Guedel airway, nasal airway, laryngeal mask, tracheal intubation • Basic and, subsequently, advanced cardiorespiratory resuscitation • DC cardioversion • Liver biopsy • Bone marrow aspiration • Lymph node biopsy • Pericardial aspiration • Urethral catheterisation • Nasogastric tube placement and checking • Electrocardiogram • Knee aspiration • Temporary cardiac pacing by internal wire or external pacemaker • Skin Biopsy (this is not mandated for all trainees but opportunities to become competent in this technique should be available especially for trainees who subsequently wish to undertake specialist dermatology training)
Contact Hours:	Lectures 1hr/week Tutorial 1hr/week Self-Directed Student-Centred Learning 6 hr/week Clerkship Rotations (as per department's work schedule).

Teaching Methods:	The teaching methods may include, but not limited to, the following: expository lectures, tutorials, seminars, practical classes, skills laboratories, clinical demonstrations, clinical clerkships (bedside teaching, ward rounds, ambulatory care teaching, operating theatre experience, postmortem, and on-call duties), field and community based learning, and ICT supported learning experiences.

Assessment Methods and Weighting:	Log of experiences and procedures completed, case reports, portfolios, project reports, multiple choice questions, essay questions, short answer questions, modified essay questions, short and long cases, objective structured clinical examinations (OSCE), practical examinations, objective structured practical examinations (OSPE), Mini-clinical Examination (MiniCEX), Viva Voce, **Annual Review of Competence Progression** (a) Continuous Assessment - 40% (b) Final Examinations - 60% **ZACOMS Administered Examinations** Taken according to ZACOMS Examinations Schedule

Specialized Internal Medicine

Course Name Code ***STP IM 4***	***Specialized Internal Medicine***
Aim/Purpose:	This Course aims at further consolidating the specialist clinical care and leadership skills in Internal Medicine in the trainees, and giving them final responsibility for teaching and supervising activities of staff at all levels, be role models by good example and be advocates for children's health and rights. This course also aims at providing mentorship and guidance to the trainee for the finalizing of their research project.
Learning Outcomes:	At the completion of the course students will be able to: 1. To function independently as a specialist in Internal Medicine and provide high standard specialist care at all levels of the health care system, in line with National Health Policy. 2. To demonstrate excellent general professional competencies including leadership and managerial skills, medical ethics and teamwork. 3. To initiate, plan and undertake independent scientific research activities. 4. Communicate effectively and functions as a productive team member engaged in health care, research and education. 5. To take full part in all academic activities in the department, including supervision of other health professionals. 6. To portrait as a role model and demonstrate healthy Professional behaviours. 7. To contribute to evidence-base knowledge for Internal Medicine practice and improve the Health Systems in Zambia with regards to newborn and child, holistic health care standards, including prevention and health promotion.
Course Content	1. Emergency Medicine & Critical Care Specialist Clerkship 2. Cardiology & Renal Specialist Clerkship 3. Gastroenterology & Hepatology Specialist Clerkship 4. Infectious Diseases Specialist Clerkship
Contact Hours:	Lectures 1hr/week Tutorial 1hr/week Clerkship Rotations (as per department's work schedule).
Teaching Methods:	The teaching methods may include, but not limited to, the following: expository lectures, tutorials, seminars, practical classes, skills laboratories, clinical demonstrations, clinical clerkships (bedside teaching, ward rounds, ambulatory care teaching, operating theatre experience, postmortem, and on-call duties), field and community based learning, and ICT supported learning experiences.

Assessment Methods and	Log of experiences and procedures completed, case reports, portfolios, project reports, multiple choice questions, essay questions, short answer
Weighting:	questions, modified essay questions, short and long cases, objective structured clinical examinations (OSCE), practical examinations, objective structured practical examinations (OSPE), Mini-clinical Examination (MiniCEX), Viva Voce, **Annual Review of Competence Progression** (a) Continuous Assessment - 40% (b) Final Examinations - 60% **ZACOMS Administered Examinations** Taken according to ZACOMS Examinations Schedule

INDICATIVE RESOURCES

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