الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

Hospital Medicine


بسم الله الرحمن الرحيم

PREFACE

- The primary goal of this document is to enrich the training experience of postgraduate trainees by defining the learning objectives required for the trainees to become competent independent specialists in Hospital Medicine.
- This curriculum contains sections outlining some training regulations. Such regulations need to be sought from the "General Bylaws" and "Executive Policies" on training published by the Saudi Commission for Health Specialties (SCFHS). Documents containing this information can be accessed online through the official SCFHS website. In the event of discrepancy between regulation statements, the most up-to-date bylaws and executive policies will be applied.
- This curriculum is subject to periodic refinement. For the most up-to-date edition of this document, please refer to the electronic version posted online at www.scfhs.org.sa.

I. CONTRIBUTORS

This curriculum was prepared by the SCFHS Curriculum Development Committee that was made of:
• Dr. MUBASHAR SULTAN KHARAL • Dr. MOHAMMAD AL QAHTANI • Dr. 'SIRAJ' RAJKUMAR RAJENDRAM
This curriculum was reviewed and approved by the following SCFHS Scientific Committee Members:
• Prof. SALIH BIN SALIH • Dr. MOHAMMAD AL QAHTANI • Dr. 'SIRAJ' RAJKUMAR RAJENDRAM • Dr. MUBASHAR SULTAN KHARAL
Curriculum Review Committee Members were:
• Dr. MAZEN ALQASM, IMBBS, Msc.MedEd, SBEM • Dr. NADA SALEH, Msc.MedEd, MSc, PhD
The curriculum was approved by the Head of the Curriculum Review Committee:
• Dr. ALI ALASSIRI, MBBS, Msc.MedEd. FRCSC, FACS

II. COPYRIGHT STATEMENTS

Correspondence: SCFHS P.O. Box: 94656 Postal Code: 11614

Contact Center: 920019393

E-mail: curricula@scfhs.org.sa

Website: www.scfhs.org.sa

III. FOREWORD

Hospital Medicine is a distinct subspecialty of medicine that was first conceived in 1996.[1] Thereafter, in recognition of the importance of specialists in acute hospital medicine, healthcare systems have rapidly established hospitalist programs worldwide.

Expert academic hospitalists who authored this curriculum are the pioneers of hospital medicine in Saudi Arabia. Dr. Mubashar Sultan Kharal is an internist and specialist in quality and patient safety, with a wealth of experience as a hospitalist. He is 'double-boarded' with American Board certification in both Hospital Medicine and Internal Medicine. Dr. Mohammad Al Qahtani, a member of the Board of Internal Medicine at the SCFHS, also recognized the benefits of hospitalist programs during his fellowship training in North America. Dr. 'Siraj' Rajkumar Rajendram was trained at Oxford University Hospitals, and was one of the first physicians in the United Kingdom to obtain specialist certification in Acute Medicine. Uniquely, he also has specialist certifications in Internal Medicine, Anesthesia, and Intensive Care.

Prof. Salih Bin Salih is the Chairman of the Department of Medicine at King Abdulaziz Medical City, Riyadh, and a Professor of Medicine at King Saud bin Abdulaziz University for Health Sciences. He has over 20 years of experience as an examiner of the Saudi Board of Internal Medicine. He was previously the Chairman of the Examination Committee and a member of the Scientific Council for the Internal Medicine residency curriculum at the SCFHS. Hence, Prof. Bin Salih laid the foundations on which Saudi internists of the 21st century were built.

Prof. Bin Salih, Dr. Kharal, Dr. Al Qahtani, and Dr. Siraj all have active research interests, which include Hospital Medicine, quality improvement (QI), patient safety, medical education, and point-of-care ultrasound. They have published over 400 original research papers, narrative review articles, systematic

reviews, and conference papers; moreover, they have held joint appointments at the College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh.

With the unwavering support of the higher administration of the Ministry of National Guard Health Affairs, Dr. Kharal, Dr. Al Qahtani, and Prof. Bin Salih established the first hospitalist program in Saudi Arabia at King Abdulaziz Medical City, Riyadh, in 2014. Dr. Siraj joined the hospitalist program shortly after its inception, and strengthened the team's academic and research activities.

There are now 25 consultant hospitalists in the Department of Medicine at King Abdulaziz Medical City, Riyadh. This dynamic, proactive team currently manages an average daily census of 200 patients in 11 clinical teaching units, and provides dedicated consultation/co-management services for patients admitted in other specialty units. The hospitalist program at King Abdulaziz Medical City, Riyadh, has improved the quality of care and patient safety while reducing morbidity and mortality.

The curriculum for the fellowship program in Hospital Medicine provides a strong foundation for the training of hospitalists. These forward-thinking specialists will be able to deliver excellent and evidence-based, yet compassionate and cost-effective care to people who require admission to the hospital.

Furthermore, this curriculum describes the conceptualization of the field of Hospital Medicine and then covers the basic requirements of the SCFHS accredited fellowship program in Hospital Medicine.

The Canadian Medical Education Directives for Specialists (CanMEDS) competencies [1] have been adopted for training fellows in Hospital Medicine. Therefore, it must be acknowledged that the Royal College of Physicians and Surgeons of Canada holds copyright to the CanMEDS framework.[1] Many curriculum competencies were acquired from CanMEDS resources. This document will guide the training of fellows in Hospital Medicine who can

achieve the best outcomes for hospitalized patients by becoming health advocates and international leaders in Hospital Medicine.

The team that developed the curriculum for the Saudi fellowship in Hospital Medicine also acknowledges the valuable contributions of the members of the scientific committee. We extend special appreciation and gratitude to all those who contributed. The Curriculum Group, Curriculum Specialists, and Scientific Council were pivotal in the completion of this document.

Significant efforts have been made to ensure that this document represents the best model for fellowship training in Hospital Medicine in Saudi Arabia. However, it is important to recognize that future developments in medical practice and education will require refinement of this curriculum. The implementation of this curriculum will also be subject to an ongoing QI process.

IV. TABLE OF CONTENTS

PREFACE	3
I. CONTRIBUTORS	4
II. COPYRIGHT STATEMENTS	5
III. FOREWORD	6
IV. TABLE OF CONTENTS	9
V. INTRODUCTION	11
1. Context of Practice	11
2. 2. Goals and Responsibilities of Curriculum Implementation	13
VI. ABBREVIATIONS	15
VII. PROGRAM ENTRY REQUIREMENTS	18
VIII. LEARNING AND COMPETENCIES	19
1. Introduction to learning outcomes and competency-based education	19
2. Program Duration	25
3. Program Rotations	25
4. Mapping of learning objectives and competency roles to program rotations	73
IX. CONTINUUM OF LEARNING	86
X. TEACHING METHODS:	87
1.1. Program-Specific learning activities:	87
1.2. Universal Topics	91
1.3. General Learning Opportunities:	93
XI. ASSESSMENT AND EVALUATION	95
1. Purpose of Assessment	95

2. Formative Assessment 96

2.2 Formative Assessment Tools 97

3. Summative Assessment 99

XII. PROGRAM EVALUATION 105

XIII. POLICIES AND PROCEDURES 106

XIV. APPENDICES 107

Appendix A 107

Appendix B 109

Appendix-C 112

Appendix-D 125

Appendix-E 127

Appendix-F 138

Appendix-G 141

Appendix-H 142

V. INTRODUCTION

1. Context of Practice

The term “hospitalist” refers to a physician who cares for acute patients in a hospital setting.[2] Since 1996, when Dr. Bob Wachter and Dr. Lee Goldmann first coined the term,[2] the number of practicing hospitalists has skyrocketed such that Hospital Medicine is currently the fastest growing specialty in the history of medicine. Recent estimates suggest that over 50,000 hospitalists are practicing in the United States of America (USA) alone.[3] Hospitalists deliver safe, high-quality, and efficient patient-centered care. These physicians were no longer stretched between out- and inpatients. Hospitalists spend more time taking care of acutely ill patients in the hospital setting than any other specialty of medicine. Thus, they have become champions in the delivery of efficient and high-quality patient-centered care, thereby enhancing pre-existing healthcare systems and care pathways.

The 2030 vision of the Kingdom of Saudi Arabia (KSA) emphasizes transformation, which requires a health service that is suitable for the transformation purpose. To achieve this, it is required to have leaders of the healthcare profession who have been trained in safe, efficient, high-quality, and patient-centered care. The hospital fellowship training program will train and develop future health care leaders, academics, educators, QI physicians, and clinician scientists desperately required by the KSA.

Due to hyper-specialization in the KSA, there are many different single ”organologists” who are not able to provide holistic, global inpatient care. Saudi Arabia is currently undergoing dramatic epidemiological changes. The Saudi population is aging, and the majority of patients do not present to the hospital with a single organ-specific clinical problem, but rather with multi-organ diseases compounded by complex comorbidities.

When multi-morbid patients arrive the emergency department, it is difficult to identify the main clinical problem and assign them to an organ specialty unit. Furthermore, regardless of the team that takes primary responsibility for any given patient's care, a considerable number of consultations with other teams are often required.

Moreover, rather than providing rational patient-centered, evidence-based care, the tunnel vision of single-organ specialists often maximizes the use of all the tools at their disposal. Thus, at present, our traditional hospital model is generating care fragmentation, an inflation of diagnoses, drug over-prescription, and increasing costs.

Obviously, a new 'patient-centric' model is needed in the future. In this context, the Saudi Fellowship in Hospital Medicine consists of 2 years of full-time supervised training in Hospital Medicine. Training institutions accredited by the SCFHS to offer the program geared toward Saudi Board certification in Hospital Medicine will provide comprehensive training that includes inpatient management, as well as procedural, communication, leadership, research, and education skill acquisition (Tables 1-17 and Appendices A-D, G).

Upon successful completion of the program, trainees will be awarded the "Saudi Fellowship in Hospital Medicine" qualification, and will be eligible to sit the examinations required for Saudi Board certification in hospital medicine.

The 2030 vision of the KSA aims to improve the health, well-being, and longevity of the Saudi population. The Saudi Fellowship in Hospital Medicine embraces this aim as a core value. It strives to realize this vision by training future medical experts who can safely and compassionately provide outstanding care for hospitalized patients.

2. 2. Goals and Responsibilities of Curriculum Implementation

This curriculum ultimately seeks to guide trainees to become *competent* in Hospital Medicine. Accordingly, this goal requires significant effort and coordination from all stakeholders involved in postgraduate training.

As *"adult-learners,"* trainees must be proactive and fully engaged. They should exhibit the following qualities: a careful understanding of learning objectives, self-directed learning, problem solving, an eagerness to apply learning through reflective practice from feedback and formative assessment, as well as self-awareness and willingness to ask for support when needed.

The fellowship program director plays a vital role in ensuring the successful implementation of this curriculum. The training committee members, particularly the program administrator, also have a significant impact on the implementation of the program. However, the trainees themselves must share responsibility in this endeavor.

To achieve the highest quality of medical training, the SCFHS applies the best models of training governance. Academic affairs in training centers and the regional supervisory training committee play major supporting roles in the supervision of training and the implementation of curricula. The SCFHS Scientific Committee for Hospital Medicine fellowship will guarantee that the content of this curriculum is constantly updated to match the highest standards in the postgraduate education of each trainee's specialty.

Overall goals

The specific aim of the Saudi fellowship in Hospital Medicine is to train specialists who can practice independently as hospitalists while applying hospitalists' knowledge, skills, and attitudes to competently provide holistic, compassionate care to their patients.

Overall program goals

- To train Board-certified internists to practice as physicians with additional competencies in the field of Hospital Medicine. These physicians will ultimately be able to provide hospitalist care services as consultant physicians.
- To provide clinical and initial basic academic education for physicians who intend to pursue academic careers in Hospital Medicine.

VI. ABBREVIATIONS

Abbreviation	Description
A	Attitude
ACLS	Advanced cardiac life support
ACS	Acute coronary syndrome
AHD	Academic half-day activities
AIDS	Acquired immunodeficiency syndrome
AVNRT	Atrioventricular nodal re-entrant tachycardia
AVRT	Atrioventricular reciprocating tachycardia
BLS	Basic life support
CanMEDS	Canadian Medical Education Directives for Specialists framework
ME	Medical educator
COM	Communicator
COL	Collaborator
SC	Scholar
HA	Health advocate
P	Professional
L	Leader
CBD	Case-based discussion report
CBE	Competency-based education
CBL	Clinic-based learning

CBME	Competency-based medical education
CNS	Central nervous system
COPD	Chronic obstructive pulmonary disease
CT	Computed tomography
DCC	Didactic centralized component
DOPS	Direct observation of procedural skills
ESBL	Extended-spectrum beta-lactamase
F1	First year of fellowship
F2	Second year of fellowship
FITER	Final in-training evaluation report
G6PD	Glucose-6-phosphate dehydrogenase
GERD	Gastroesophageal reflux disease
HELLP	Hemolysis, elevated liver enzymes, low platelet count
HSV	Herpes simplex virus
ICU	Intensive care unit
ILD	Interstitial lung disease
ITER	In-Training evaluation report
K	Knowledge
KSA	Kingdom of Saudi Arabia
MI	Myocardial infarction
Mini-CEX	Mini-clinical experience report
Mini-MSE	Mini-mental state examination
MRI	Magnetic resonance imaging

MRSA	Methicillin-resistant *Staphylococcus aureus*
NSTEMI	Non-ST segment elevation myocardial infarction
OBL	On-call-based learning
OSCE	Objective-structured clinical examination
PET	Positron emission tomography
QI	Quality improvement
RCC	Rotational component of the curriculum
S	Skills
SCFHS	Saudi Commission for Health Specialties
SLE	Systemic lupus erythematosus
SPECT	Single photon emission computed tomography
STEMI	ST segment elevation myocardial infarction
TIMI	Thrombolysis in myocardial infarction
UA	Unstable angina
USA	United States of America
VRE	Vancomycin-resistant Enterococci

VII. PROGRAM ENTRY REQUIREMENTS

To be admitted to the Saudi Fellowship Program in Hospital Medicine, a candidate must:

1) Possess a Saudi Specialty Certificate in Internal Medicine or its equivalent (approved by the SCFHS), or should have at least passed the written component of the Saudi Specialty Certificate in Internal Medicine.
2) Be licensed to practice medicine in Saudi Arabia.
3) Be available full-time for the training program and provide written permission from their sponsoring institution, allowing them to participate in full-time training for the entire program.
4) Sign an undertaking to abide by the rules and regulations of the training program, affiliated institutions, and SCFHS.
5) Successfully pass the admission test and/or interview.
6) Provide three (3) recommendation letters from consultants with whom they recently worked for at least 6 months.
7) Register annually for the fellowship program at the SCFHS.

VIII. LEARNING AND COMPETENCIES

1. Introduction to learning outcomes and competency-based education

Training in Hospital Medicine must be guided by well-defined "learning objectives." The learning objectives outlined in this document have been derived from targeted "learning outcomes," which serve the specific needs in Hospital Medicine. Thus, the learning outcomes identified in this curriculum document reflect professional "competencies" and tasks that will be "entrusted" to trainees upon graduation as hospitalists. This will ensure that the graduates meet the demands expected by their patients and the healthcare system in relation to Hospital Medicine.

Competency-based education (CBE) is a dynamic approach to adult learning. It is based on achieving predefined, fine-grained, and well-paced learning objectives that are derived from complex professional competencies. The competencies required by healthcare professionals often include multiple learning domains (knowledge, skills, and attitudes).

CBE is more flexible and dynamic than the traditional postgraduate education model. For example, time in training, though clearly a precious commodity, is no longer considered a proxy for competence. In other words, the duration of a specific rotation is not the primary factor that defines whether the trainee has achieved the learning objectives for that component of the curriculum. Furthermore, CBE emphasizes the critical role of the informed judgment of learners' progress. This is based on regular, staged, and formative assessments of competency, based on multiple workplace-based observations and multidisciplinary feedback. Several CBE models have been developed for postgraduate education in healthcare (e.g., CanMEDS by the

Royal College of Physicians and Surgeons of Canada [1]). The following concepts enhance the implementation of competency-based medical education (CBME) in this curriculum:

- **Competency:** Competency may be defined as the ability to successfully perform a task safely and efficiently. The assessment of competency is a cognitive construct that measures an individual's potential to perform a specific task efficiently in a given situation following professional standards. Professional roles (e.g., expert, advocate, communicator, leader, scholar, collaborator, and professional) are defined within each competency to facilitate their learning and assessment.
- **Milestones:** Milestones are defined as stages of development along the competency continuum. Throughout their learning journey, from junior to senior levels, trainees will be assisted in their transition from supervised to unsupervised practitioners. This does not undermine the role of supervisory/regulatory bodies in the malpractice of independent practitioners. Milestones enhance the learning process by pacing training/assessment to match trainees' development (i.e., junior vs. senior).
- **Learning domains:** Where possible, the learning outcomes defined in this curriculum have been mapped to corresponding domains (K, Knowledge; S, Skills; A, Attitude). More than one domain may be relevant to a specific learning outcome.
- **Content area categorization:** The learning outcomes have been categorized into broad content areas within the scope of Hospital Medicine practice. For example, diagnostic versus therapeutic, simple versus complex, and acute versus chronic.

Fellows in Hospital Medicine are expected to progress from novice to mastery through various stages, as defined in a set of professional competencies (Tables 1-17 and Appendices A-D). The committees involved in the development of this curriculum and the SCFHS have fully endorsed the use of the CanMEDS framework [1] to articulate these professional competencies. Thus, the principles of CBME should be applied in the centers that implement this curriculum. To facilitate this, the CanMEDS 2015 framework [1] was

adopted to describe the competencies of the Saudi Fellowship in Hospital Medicine.

Medical Expert

A medical expert in Hospital Medicine will demonstrate all of the CanMEDS roles by applying advanced medical knowledge and clinical skills to provide individualized care for hospitalized adults.

1. Deliver best practices in clinical care for hospitalized adults.
    - 1.1 Optimally complete comprehensive consultations and clearly present recommendations to other healthcare professionals.
    - 1.2 Develop patient-centered care plans that reflect individual values, ideas, concerns, and expectations.
    - 1.3 Manage and prioritize time efficiently, while delivering care in different settings within the hospital.
    - 1.4 Recognize the common ethical issues facing hospitalized adults, and provide the best recommendations for the management of these ethical issues by incorporating the knowledge of the local laws and regulations that govern adult rights.
2. Acquire the extensive clinical knowledge and skills required by hospitalists to deliver compassionate, safe, excellent, and efficient patient-oriented care. (The minimum knowledge and skills necessary to achieve this are defined below.)
3. Integrate a detailed understanding of physiology, pharmacology, and pathology to formulate and deliver comprehensive, individualized treatment plans for multi-morbid patients requiring hospitalization.
4. Use all specialist hospitalist cognitive and procedural skills to proficiently assess and treat hospitalized adults.
5. Provide the best, evidence-based, and preventive interventions for hospitalized adults.
6. Show an ability to communicate with patient caregivers to obtain collateral information and assess caregiver stress and burnout.

7. Provide expert opinion to governmental bodies and courts for medico-legal issues related to hospitalized adults (e.g., cognitive and mental health disorders and the abuse of vulnerable adults).
8. Demonstrate the ability to periodically critique personal performance (i.e., self-reflect) and seek professional support when necessary.

Communicator

Expert hospitalists are able to build a strong rapport with patients and their family members to obtain and clearly, concisely, and securely document the information necessary to provide the best treatment plan.

1. Develop the expertise required to interact with, listen to, and communicate with hospitalized adults from different backgrounds.
2. Maintain a high degree of professionalism in communication while respecting the religious, social, and cultural backgrounds of hospitalized adults.
3. Formulate clear and comprehensive care plans that represent patient values and wishes.
4. Document the essential historical, physical, functional, and psychosocial information relevant to the patient's presentation.
5. Record and save medical data securely to protect patient rights to privacy, confidentiality, and personal information security.
6. Share patient records and document medical encounters in written or electronic format, as required, but only with the explicit consent of the patient or their legal representative.
7. Apply closed loop methods of communication during the hand-over of care to other healthcare providers.
8. Optimize the environment of hospitalized adults with sensory impairment (e.g., hearing loss) to facilitate communication and allow them to express themselves in the clearest way possible.
9. Demonstrate the ability to use communication skills and other non-pharmacological techniques to safely and efficiently manage hospitalized adults with disruptive behavior.

Collaborator

A competent hospitalist thrives within a multidisciplinary team and collaborates effectively with other healthcare professionals to formulate and implement comprehensive care plans.

1. Appreciate the crucial and distinct roles of each allied healthcare professional (case manager, social worker, occupational health therapist, patient educator, pharmacist, nurse, etc.).
2. Demonstrate the highest level of professionalism and respect when communicating with colleagues and allied healthcare professionals.
3. Work effectively with allied healthcare professionals in teams to develop and implement a multifaceted care plan.
4. Facilitate the implementation of the aspects of the comprehensive care plan formulated by other healthcare professionals.
5. Maintain clear documentation to facilitate a safe transfer of care within the same team or any other disposition.
6. Maintain the highest standards of professionalism in the face of conflicts and apply conflict resolution skills to appropriately manage a highly charged situation.

Leader

As a leader, an expert in Hospital Medicine will promote the implementation of national policies for health, and advocate for the establishment and maintenance of patient-friendly healthcare settings.

1. Work efficiently within the healthcare system.
2. Develop, support, and improve policies and processes focused on the health and wellbeing of hospitalized adults.
3. Recognize the importance of specialized, hospitalist-led, inpatient units (e.g., acute medical units and clinical decision units) as innovative models to provide optimal care for hospitalized adults, and maintain the sustainability of healthcare systems.
4. Demonstrate leadership skills in managing inpatient medicine services in diverse settings (i.e., acute medical units, clinical decision units, surgical

co-management, obstetric co-management, and medical subspecialty co-management).

5. Manage and allocate health care resources fairly and efficiently.

Health advocate

Throughout their professional career, hospitalists must advocate for hospitalized adults' rights and wellbeing. Hospitalists must fight against any form of discrimination. As health advocates, hospitalists must support the establishment of a patient-friendly healthcare system by engaging with national healthcare policy reforms and public health awareness campaigns.

1. Show leadership skills in demonstrating the importance of the hospitalist model in improving outcomes for hospitalized adults.
2. Participate in public health awareness campaigns that promote the health and wellbeing of hospitalized adults.
3. Advocate for patients in all healthcare settings to receive the appropriate resources and supplies to improve their health, quality of life, and functional status.
4. Identify the barriers that prevent hospitalized adults from benefiting from their rights. Advocate on the behalf of such patients to ensure their security.
5. Recognize the societal priorities of healthy aging and (re)enablement; work with leadership to implement them.

Scholar

The rapidly expanding evidence base in Hospital Medicine necessitates that contemporary hospitalists commit to continuous professional development throughout their career.

1. Participate in annual continuous improvement programs focused on updates relevant to Hospital Medicine.
2. Demonstrate proficiency in teaching and training junior colleagues, students, and allied healthcare professionals on basic and advanced topics in Hospital Medicine.
3. Undertake QI projects to improve the outcomes of hospitalized adults.

4. Proactively engage in research to develop the field of Hospital Medicine.
5. Identify gaps in optimal resources for hospitalized adults with special needs, and propose practical initiatives to fill them.

Professional

A committed professional hospitalist practices medicine with the highest ethical standards, respecting everyone's background, race, creed, or religion. They adhere to all professional regulations that govern their practice.

1. Practice medicine according to local and national laws, regulations, and standards.
2. Demonstrate commitment to society and patients by practicing best care standards in clinical, academic, and research settings.
3. Practice evidence-based medicine and adhere to professional guidelines and recommendations for best practices.
4. Manage patients and colleagues with respect and dignity, appreciating their cultural and religious backgrounds.
5. Recognize regulations of public safety and adhere to the laws and regulations governing compulsory reporting.
6. Respond to unethical behavior or unprofessional conduct in any clinical, academic, or research setting.

2. Program Duration

The fellowship in Hospital Medicine is a 2-year, full-time program.

3. Program Rotations

The program will include:

- Mandatory clinical rotations
- Fellowship projects (selective longitudinal rotations)
- Participation in academic conferences

Fellows will join established services such as the hospitalist service and the internal medicine consultation service. Fellows will be encouraged to join established committees in their training sites to develop their attributes in

leadership, medical education, QI, and/or research. Fellows will be expected to present ideas and work, such as new practice guidelines or QI initiatives, at faculty meetings, fellows' conferences, and national and international conferences.

There will be 13 blocks per year, each lasting 4 weeks. Annual leave will be allocated to one block. Table 1 outlines the rotations for the 2-year program.

Table 1. Rotations of the 2-year fellowship in Hospital Medicine

Training Year	*Mandatory core rotations		Selective rotations**	
	Rotation name	Duration (Blocks; 1 Block = 4 weeks)	Rotation name	Duration (Blocks; 1 Block = 4 weeks)
F1	• Hospital Medicine (Acute Medicine) • Emergency Medicine • ICU • Stroke/Neurology • Infectious Disease • Internal Medicine Consultation and Perioperative Co-management • Pain management • Palliative Care	5 Blocks 1 Block 1 Block 1 Block 1 Block 1 Block ½ Block ½ Block	• Selected Track ** (Longitudinal) • Selected Track ** (Longitudinal) • Annual leave	½ Block ½ Block 1 Block
F2	• Hospital Medicine (Acute Medicine) • Pulmonology • Cardiology • Geriatric Medicine • Nephrology • ED/Medicine • Internal Medicine Consultation and Perioperative Co-management • Anesthesia (Airway management) • Interventional Radiology (Invasive Procedures; Longitudinal) ***	5 Blocks 1 Block 1 Block ½ Block 1 Block 1 Block 1 Block ¼ Block ¼ Block	• Selected Track ** (Longitudinal) • Selected Track ** (Longitudinal) • Annual leave	½ Block ½ Block 1 Block

Legend to Table 1. Rotations of the 2-year fellowship in hospital medicine.

*Mandatory core rotation: A set of mandatory rotations that represent program core components.

**Selective rotation: A set of other rotations selected by the trainee (directed by the mentor/program director) to enhance competency acquisition in a given specialty). The selective, longitudinal tracks during the fellowship in Hospital Medicine will cover one of four paraclinical themes (leadership, medical education, quality improvement, or research). The allocated block time will be utilized to provide fellows with an introduction to their chosen track. However, the fellows will work on their chosen track throughout their fellowship. ***Dedicated training in procedural skills should be provided during the interventional radiology rotation. However, gaining competency in procedural skills requires continuous exposure to practical procedures. Thus, training in practical procedures should also be longitudinal throughout the duration of the fellowship in Hospital Medicine.

MANDATORY CLINICAL ROTATIONS

HOSPITAL MEDICINE ROTATION

DURATION:

A minimum of 20 weeks' rotation divided into 5 blocks as F1

A minimum of 20 weeks' rotation divided into 5 blocks as F2

DESCRIPTION:

Hospital Medicine rotations are mandatory. These are the core rotations for all fellows. Fellows on rotation in Hospital Medicine departments must develop all CanMEDS core competencies, while learning the advanced skills required for the diagnosis and management of a broad range of medical conditions affecting adolescents and adults. Fellows should focus on patients with undifferentiated problems, as well as problems that emerge in patients with previously diagnosed diseases.

Moreover, fellows should practice progressive responsibility and self-directedness when dealing with patients and their families, as well as act as primary care providers for patients with multiple comorbidities. Table 2

shows a list of presenting problems and underlying conditions that should serve as a guide. Fellows are expected to attend to any patient assigned to them, regardless of whether the patient's problem is included in the list. Each presenting problem could involve any number of underlying conditions; the list has been created to provide fellows with a clearer focus during their training. Fellows should view the list as representative, and use it as a guide to further their learning.

The duration of the Hospital Medicine rotation is flexible and can be extended to 60 weeks, which are distributed throughout the 2-year training period.

OBJECTIVES:

The specific objectives of this rotation are:

- Develop all seven CanMEDS core competencies, while learning the advanced skills required for the diagnosis and management of a broad range of general medical conditions affecting adolescents and adults requiring hospitalization.
- Demonstrate a thorough understanding of relevant medical sciences including pathophysiology, drug therapy, and the microbial basis of diseases related to the key presenting problems and conditions listed in Table 2.
- Order appropriate and selective investigations, and interpret the findings in the context of patient complaints.
- Perform a complete health assessment that includes a focused patient physical examination and mental state assessment.
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions.
- Provide immediate care to patients with such needs.
- Perform the procedures shown in Appendix G in a safe and competent manner, including the following, where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent
    - Ensuring patient comfort, privacy, and adequate pain control
    - Documentation

- Post-procedure follow-up

- Document patient findings in medical records in a legible and timely manner.
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition.
- Respect the roles and responsibilities of other healthcare professionals, including nurses, pharmacists, and allied health professionals.
- Promote health maintenance strategies, including dietary factor control, lifestyle modification, smoking cessation, and primary and secondary prevention during every consultation.
- Develop patient-centered care plans that value individual and family preferences and societal and religious norms.

Table 2. Presenting problems and underlying conditions relevant to the Hospital Medicine fellowship rotation.

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Glucose metabolism disorders	- Diabetes mellitus - Diabetic ketoacidosis - Hyperosmolar state - Metabolic syndrome and obesity	- Diagnosis - Prevention of complications - Screening - Lifestyle modification - Dietary counseling - Non-pharmacological and pharmacological management - Prevention	RCC AHD CBL OBL
Hypertension	- Primary hypertension - Secondary hypertension - Hypertensive crisis	- Diagnosis - Classification - Evidence-based management - Complications	RCC AHD CBL OBL

Hypertension in Pregnancy	- Pregnancy-induced hypertension - Chronic hypertension - Pre-eclampsia - HELLP syndrome	- Recognition - Evidence-based management	AHD OBL RCC
Lipid metabolism disorders	- Primary (familial) hyperlipidemia - Secondary (acquired) hyperlipidemia - Metabolic syndrome	- Etiology - Screening - Clinical manifestation - Evaluation - Management	RCC AHD CBL OBL
Breathlessness	- Heart Failure - Asthma - COPD - ILD - Bronchiectasis - Pulmonary embolism - Pneumothorax - Pleural effusion	- Etiology - Diagnosis - Differential diagnosis - Assessment of severity - Pharmacological and non-pharmacological management - Prevention	OBL AHD CBL
Coughs, colds, and fever	- Community-acquired pneumonia - Hospital-acquired pneumonia - Aspiration pneumonia - Lung abscess	- Diagnosis - Risk factors - Complications - Treatment - Prevention	OBL AHD RCC
Fever in ambulatory settings	- Urinary tract infection - Gastroenteritis - Upper respiratory tract infection	- Diagnosis - Treatment	OBL
Fever in specific geographical areas/emerging infections	- Fever of unknown etiology - Malaria - Tuberculosis - Brucellosis - Visceral leishmaniosis - Rift Valley fever - Dengue fever - Swine flu - Coronavirus infection	- Definition - Risk factors - Diagnosis - Identification - Complications - Management - Reporting to appropriate authorities - Prevention	RCC AHD DCC

Chest pain	- Cardiac causes of chest pain
	  - Ischemic heart disease
	  - Pericardial disease
	  - Aortic aneurysm and dissection
	- Pulmonary causes of chest pain
	  - Pleurisy
	  - Pulmonary embolism
	  - Pneumothorax
	- Gastrointestinal causes of chest pain
	  - GERD
	  - Esophageal spasm
	  - Others
	- Musculoskeletal causes of chest pain
	  - Tietze's syndrome
	  - Others
	- Others
		- Etiology
		- Classification
		- Manifestation
		- Diagnostic workup
		- Differential diagnosis
		- Complications
		- Management
		- Prevention
			AHD
			RCC
			DCC
			OBL

Heart valve disorders	- Acute rheumatic fever
	- Infective endocarditis
	- Valvular disorders
	  - Mitral stenosis
	  - Mitral regurgitation
	  - Aortic stenosis
	  - Aortic regurgitation
	  - Tricuspid stenosis
	  - Tricuspid regurgitation
	  - Pulmonary stenosis
	  - Pulmonary regurgitation
		- Risk factors
		- Etiology
		- Clinical features
		- Diagnosis
		- Complications
		- Evidence-based management
			AHD
			DCC
			RCC

Palpitations	- Supraventricular arrhythmias including atrial fibrillation, atrial flutter, and atrial tachycardia - Ventricular arrhythmia - Heart blocks	- Etiology - Mechanisms - Risk factors - Manifestation - ECG recognition - Acute and chronic management - Prevention	AHD DCC RCC CBL

Skin, soft tissue, and bone infection	- Cellulitis - Necrotizing fasciitis - Acute and chronic osteomyelitis - Infectious arthritis	- Definition - Clinical features - Risk factors - Causative organism Investigations - Diagnosis - Management - Evidence-based prophylaxis	AHD DCC OBL
Jaundice	- Viral hepatitis - Non-viral hepatitis - Chronic liver disease and cirrhosis	- Investigation - Prophylaxis - Treatment	AHD RCC DCC
Pallor (anemia)	- Iron deficiency anemia - Hemolytic anemia - Sickle cell anemia - Thalassemia - G6PD deficiency - Autoimmune hemolytic anemia - Spherocytosis, elliptocytosis - Megaloblastic anemia - Aplastic anemia	- Presentation - Causes - Investigation - Complications and management	AHD RCC DCC
Sexually transmitted diseases	- Syphilis - HSV - Gonorrhea - Chlamydia	- Risk factors - Diagnosis - Reporting - Prevention	CBL AHD
Acute kidney injury	- Acute pyelonephritis - Acute glomerulonephritis - Acute interstitial nephritis - Acute tubular necrosis - Contrast-induced nephropathy - Pigmented nephropathy - Thrombotic microangiopathy - Obstructive uropathy	- Etiology - Classifications - Pathophysiology - Manifestation - Complications - Diagnosis - Management - Prevention	AHD RCC DCC
Acid-base imbalance	- Anion gap acidosis and non-anion gap acidosis (including renal tubular acidosis) - Alkalotic disorders	- Pathogenesis - Recognition - Associated conditions	AHD OBL

Water and electrolyte disturbances	- Hypo- and hypervolemia - Hypo- and hypernatremia - Hypo- and hyperkalemia - Hypo- and hypercalcemia	- Pathogenesis - Recognition - Immediate management	AHD OBL RCC
Diabetes in pregnancy	- Pre-existent diabetes in pregnancy - Gestational diabetes	- Screening - Complications - Evidence-based management	AHD OBL RCC
Thrombotic disorders in pregnancy	- Deep vein thrombosis - Sagittal vein thrombosis	- Recognition - Prophylaxis - Evidence-based management	AHD OBL RCC
Miscellaneous medical disorders in pregnancy	- Hypo- and hyperthyroidism - SLE and similar disorders - Inflammatory bowel disease - Asthma Epileptic disorders (medication-controlled)	- Screening - Recognition - Evidence-based management	RCC

Headaches	- Primary headache and related syndromes
	  - Tension headache
	  - Migraine
	  - Cluster headache
	- Secondary headaches
	  - Space-occupying lesions
	  - Pseudotumor cerebri
	  - Thunderclap headache
	  - Trigeminal neuralgia
		- Etiology
		- Clinical manifestation
		- Diagnostic workup
		- Differential diagnosis
		- Management
			AHD
			OBL
			RCC

CNS infections	- Meningitis
	  - Viral meningitis
	  - Bacterial meningitis
	- Focal CNS infections
	  - Brain abscess
	  - Spinal epidural abscess
	- Encephalitis
		- Etiology
		- Clinical manifestation
		- Differential diagnosis
		- Diagnostic workup
		- Management
		- Complication
		- Prevention
			AHD
			OBL
			RCC

Stroke	- Transient ischemic attack - Ischemic stroke - Hemorrhagic stroke - Dural sinus venous thrombosis	- Etiology - Risk factors - Clinical manifestation - Lesion localization - Diagnostic workup - Complications - Management - Prevention	AHD OBL RCC DCC
Mental and behavioral disorders	- Depression - Anxiety disorders - Bipolar disorders - Somatoform disorders - Eating disorders	- Clinical manifestation - Differential diagnosis - Diagnosis - Management	AHD CBL

Toxicology and drug overdose	- Common drug overdose
	- Paracetamol overdose
	- Antidepressants
	- Benzodiazepines
	- Opiates
	- Alcohol
	- Heroin
	- Cocaine
	- Cyanide
	- Carbon monoxide poisoning
	- Organophosphate poisoning
	- Heavy metal poisoning:
	  - Lead
	  - Mercury
	  - Copper
	  - Arsenic
		- Recognition
		- Initial stabilization
		- Management
		- Prevention
			AHD
			RCC

Perioperative management of common medical conditions		- Identification of risk factors - Assessment - Patient monitoring - Recognition - Immediate management	RCC AHD

Legend to Table 2. Abbreviations. AHD, academic half-day activities; CBL, clinic-based learning; CNS, central nervous system; COPD, chronic obstructive pulmonary disease; DCC, didactic centralized component; G6PD, glucose-6-phosphate dehydrogenase; GERD, gastroesophageal reflux disease; HELLP, hemolysis, elevated liver enzymes, low platelet count; HSV,

herpes simplex virus; ILD, interstitial lung disease; OBL, on-call-based learning; RCC, rotational component of the curriculum; SLE, systemic lupus erythematosus.

EMERGENCY MEDICINE ROTATION

DESCRIPTION:

The emergency medicine rotation is mandatory for all fellows. Fellows on rotation in emergency departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of emergency conditions affecting adolescents and adults, which initially present as pertaining to emergency medicine but are relevant to the practice of Hospital Medicine. However, it is practically useful for fellows in Hospital Medicine to undertake the initial evaluation and management of patients with minor injuries and problems related to other specialties, but closely related to Hospital Medicine, such as general surgery, orthopedics, and gynecology. Fellows should practice progressive responsibility and self-directedness in dealing with patients, including those with multiple comorbidities and their families.

The list of presenting problems and underlying conditions outlined in Table 3 is to be used as a guide. Fellows are expected to attend to any patient assigned to them, regardless of whether the patient's problem is included in the list. Moreover, each presenting problem could involve a number of underlying conditions; the list was created to provide fellows with a clearer focus during their training. Fellows should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:

Fellows on rotation in emergency departments should improve their general knowledge and skills to prevent, diagnose, and treat emergency medical conditions, as outlined below:

- Develop all seven CanMEDS core competencies while learning the advanced skills required for the diagnosis and management of a broad range of medical emergency conditions affecting adolescents and adults.

- Complement the Hospital Medicine Fellows' training program in areas that are unique to emergency medicine but relevant to the subsequent practice of physicians in Hospital Medicine.
- Develop competencies in the management of minor wound care; injury evaluation; and the assessment of common eye, ear, nose, and throat conditions. Develop competencies in the management of minor musculoskeletal injuries and the application of clinical decision rules in management.
- Gain experience and competencies in the management of common gynecological disorders.

Table 3. Presenting problems and underlying conditions relevant to the Emergency Medicine rotation of the fellowship in Hospital Medicine.

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Chest pain	- Acute coronary syndromes (STEMI, NSTEMI, and unstable angina) - Chronic stable angina - Acute pericarditis - Aortic dissection - Costochondritis - Esophageal dysmotility - Pulmonary embolism - Pneumothorax - Chest infections	- Etiology - Clinical features - Classification - Pathophysiology - Risk factors - Pretest probability for IHD - Diagnosis - Acute management - Complications	RCC, DCC, AHD
Acute dyspnea	- Acute decompensated heart failure - Bronchial asthma - COPD - Pulmonary embolism - Pneumothorax - Toxic inhalation	- Etiology - Diagnosis - Acute management	AHD OBL

Palpitations	• Supraventricular arrhythmias - Sinus node re-entrant tachycardia - Atrial tachycardia - Atrial fibrillation - Atrial flutter - AVRT - AVNRT • Ventricular arrhythmia - Ventricular tachycardia - Ventricular flutter - Ventricular fibrillation - Bradycardias - Sick sinus syndrome - AV blocks	- Etiology - Diagnosis - Acute management	OBL AHD
Syncope and dizziness	- Neurally mediated syncope - Cardiogenic syncope - Unexplained syncope	- Etiology - Diagnosis - Acute management	OBL AHD
Hypertensive crisis	- Urgent hypertensive crisis - Emergency hypertensive crisis	- Recognition - Acute management	OBL AHD
Shock	- Hypovolemic shock - Cardiogenic shock - Distributive shock - Combined shock	- Definition - Diagnosis - Pathophysiology - Acute management	OBL RCC AHD
Gastrointestinal bleeding	- Upper GI bleeding - Lower GI bleeding	- Recognition - Etiology - Acute management	OBL AHD
Acute abdominal pain	- Peptic ulcer disease - Peritonitis - Pancreatitis - Ischemic bowel syndrome - Ruptured viscus	- Etiology - Diagnosis - Acute management	OBL AHD RCC
Glucose metabolism disorders	- Hypoglycemia - Diabetic ketoacidosis - Hyperosmolar non-ketotic state	- Definitions - Recognition - Precipitating factors - Acute management	OBL AHD RCC

Water and electrolyte disorders	- Sodium disorders - Potassium disorders - Calcium disorders	- Definition - Recognition - Acute management	OBL RCC AHD
Acid-base imbalance	- Metabolic and respiratory acidosis - Metabolic and respiratory alkalosis	- Etiology - Recognition - Acute management	OBL AHD
Toxic ingestion and exposure	- Drug overdose - Paracetamol overdose - Antidepressants - Benzodiazepines - Opiates - Alcohol - Heroin - Cocaine - Cyanide - Carbon monoxide poisoning	- Recognition - Acute management	OBL AHD RCC
Altered mental state	- Stroke - CNS infection - Epilepsy - Metabolic causes	- Etiology - Diagnosis - Acute management	OBL AHD
Headaches	- Tension headache - Migraine - Cluster headache - Intracranial hypertension	- Etiology - Diagnosis - Management	OBL AHD
Environmental injury	- Cold- and heat-related injuries	- Recognition - Acute management	AHD
Burns	- Fire burns - Chemical burns	- Recognition - Acute management	OBL
Minor injuries	- Wounds and lacerations - Extremity injuries - Sport injuries	- Recognition - Acute management	OBL
Ear, nose, and throat disorders	- Otitis media - Otitis externa - Pharyngitis and tonsillitis	- Diagnosis - Management	OBL

Genitourinary conditions	- UTI - Renal colic	- Diagnosis - Acute management	OBL
Gynecological and obstetric conditions	- Essential hypertension - Pregnancy-induced hypertension (pre-eclampsia, eclampsia) - Pelvic inflammatory disease	- Diagnosis - Management	OBL

Legend to Table 3. Abbreviations. AHD, academic half-day activities; AV, atrioventricular; AVNRT, atrioventricular nodal re-entrant tachycardia; AVRT, atrioventricular reciprocating tachycardia; CBL, clinic-based learning; CNS, central nervous system; COPD, chronic obstructive pulmonary disease; DCC, didactic centralized component; GI, gastrointestinal; IHD, ischemic heart disease; OBL, on-call-based learning; RCC, rotational component of the curriculum; UTI, urinary tract infection.

INTENSIVE CARE MEDICINE ROTATION

DESCRIPTION:

The critical care medicine rotation is mandatory. Fellows on rotation in critical care medicine departments must develop all CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of critical conditions that affect adolescents and adults, and are sufficiently severe to require hospitalization and treatment in a medical intensive care unit. Fellows should focus on undifferentiated patient problems, as well as those that emerge in patients with previously diagnosed diseases. Fellows should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to collaborate well with other critical care staff, caring for patients with multiple comorbidities. Critical care medicine deals with life-threatening single or multiple organ failure, using a multidisciplinary approach. Therefore, the primary physician must be able to coordinate the efforts of subspecialists and specialized ancillary support personnel.

The list of presenting problems and underlying conditions detailed in Table 4 is to be used as a guide. Fellows are expected to attend to all patients assigned to them, regardless of whether the patient's problem is included in the list.

Furthermore, each presenting problem could involve a number of underlying conditions; the list is created to provide fellows with a clearer focus during their training. Fellows should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:

The specific objectives for this rotation are as follows:

- Develop all seven CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of critical conditions affecting adolescents and adults.
- Develop competencies in the basic skills required for the diagnosis and management of a broad range of critical medical conditions that affect adolescents and adults and are sufficiently severe to require hospitalization and treatment in the medical intensive care unit.
- Assess patient needs with respect to ward versus ICU admission via their responsibilities as admitting fellows.
- Learn and begin to practice lifelong learning behaviors, and develop the attitudes and skills necessary to be leaders and coordinators of an increasingly complex health delivery team via demonstrated practice-based learning and systems-based practice.
- Perform the procedures shown in Appendix G in a safe and competent manner, including where appropriate:
  - Recognition of indications and contraindications
  - Obtaining informed consent
  - Ensuring patient comfort, privacy, and adequate pain control
  - Documentation
  - Post-procedure follow-up and handover
- Document patient findings in medical records in a legible and timely manner.
- Proactively communicate and liaise with patients and families regarding patient condition, management plan, and disposition.
- Respect the roles and responsibilities of other healthcare professionals, including nurses, pharmacists, and allied health professionals.

- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation.
- Judiciously use common monitoring systems and techniques available in the ICU.

Table 4. Presenting problems and underlying conditions relevant to the Intensive Care Medicine rotation of the Hospital Medicine fellowship.

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Systemic inflammatory response syndromes (including sepsis)	- Septicemia and septic shock - Acute pancreatitis - Vasculitis - Burn - Massive thromboembolism - Surgery	- Identification - Diagnosis - Evidence-based management - Early directed-goal therapy	DCC AHD
Shock	- Cardiogenic shock - Distributive shock - Hypovolemic shock - Adrenal insufficiency	- Etiology - Diagnostic approach - Hemodynamic assessment - Categorization of shock syndromes - Management	DCC AHD RCC
Respiratory failure	- COPD - Severe acute bronchial asthma - Hypoventilation syndromes - Acute respiratory distress syndrome	- Etiology - Diagnosis - Acute versus chronic - Acute and chronic management - Principles of mechanical ventilation - Prevention - Complication	AHD RCC
Toxic ingestion and exposure	- Drug overdose - Paracetamol overdose - Antidepressants - Benzodiazepines - Opiates - Alcohol - Heroin - Cocaine - Cyanide - Carbon monoxide poisoning	- Recognition - Assessment - Clinical features - Mechanism of toxicity - Management	AHD

Organ donation	- Cadaver-unrelated donors - Heart - Kidney - Liver - Cornea	- Principles - Indications - Contraindications - Complications - Related ethical issues - Management	RCC DCC
Others ICU monitoring	- ECG monitor - Gas monitor - Invasive hemodynamic monitor - Intracranial pressure monitor	- Recognition - Limitations - Indications - Contraindications - Understanding the correct use of drugs and therapies within the ICU	RCC

Legend to Table 4. Abbreviations. AHD, academic half-day activities; CBL, clinic-based learning; COPD, chronic obstructive pulmonary disease; DCC, didactic centralized component; OBL, on-call-based learning; RCC, rotational component of the curriculum; ICU, intensive care unit.

CARDIOLOGY/CORONARY CARE UNIT ROTATION

DURATION:

DESCRIPTION:

The cardiology rotation is mandatory for all fellows. During this rotation, fellows must develop all CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of cardiac conditions affecting adolescents and adults. Fellows should focus on undifferentiated patient problems and problems that emerge in patients with previously diagnosed cardiac diseases. Fellows should practice progressive responsibility and self-directedness in dealing with patients, including those with multiple comorbidities and their families.

The list of presenting problems and underlying conditions outlined in Table 5, as well as the list of important investigations detailed in Table 6, are to be used as guides. Fellows are expected to attend to any patient assigned to them, regardless of whether the patient's problem is included in the list. Moreover, each presenting problem could involve a number of underlying conditions; the list is created to provide fellows with a clearer focus during

their training. Fellows should view the list as representative, and as a guide with which to further their learning.

OBJECTIVES:

The specific objectives for this rotation are as follows:

- Develop all seven CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of cardiovascular conditions affecting adolescents and adults.
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and conditions shown in Table 5.
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems.
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state.
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions.
- Render immediate management to patients who are in need of such care.
- Perform the procedures shown in Appendix G in a safe and competent manner, including the following, where appropriate:
  - Recognition of indications and contraindications
  - Obtaining informed consent
  - Ensuring patient comfort, privacy, and adequate pain control
  - Documentation
  - Post-procedure follow-up and handover
- Document patient findings in medical records in a legible and timely manner.
- Proactively communicate and liaise with patients and their families regarding patient condition, management plan, and disposition.
- Respect the roles and responsibilities of other healthcare professionals, including nurses, pharmacists, and allied health professionals.
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation.

- Develop patient-centered care that values individual and family preferences, as well as societal and religious norms.

Table 5. Presenting problems and underlying conditions relevant to the Cardiology/Coronary Care Unit rotation of the Hospital Medicine fellowship.

Presenting Problem/Disorder	Underlying Key Condition	Primary Focus in Learning	Venue
Cardiopulmonary resuscitation	- BLS and ACLS	- Perform BLS and ACLS as per protocol	Courses AHD
Angina	- Chronic stable angina - Acute coronary syndromes (STEMI, NSTEMI, and UA)	- Definition - Clinical features - Assessment of pretest probability - Risk factors - Diagnosis - Risk stratification (TIMI scoring) - Complications - Acute management - Understand the indications of invasive management including percutaneous coronary intervention and coronary artery bypass grafting - Chronic management - Prevention - Understand the pharmacology of inotropes, vasopressors, and vasodilators; demonstrate an appropriate selection of the use of these agents in patients presenting with acute cardiac disease - List the indications and contraindications for intra-aortic balloon counter pulsation, and understand the mode of action and potential complications - List the driving restrictions for patients following ACS	AHD OBL CBL RCC

Myocardial disorders	- Heart failure	- Definition - Pathophysiology - Etiology - Classification - Clinical features - Diagnosis - Precipitating factors - Complications - Evidence-based acute and chronic management - Device management - Prevention	AHD RCC CBL OBL
Heart valve disorders	- Aortic stenosis - Aortic regurgitation - Mitral stenosis - Mitral and tricuspid Regurgitation - Medical management of prosthetic valves	- Etiology - Clinical features - Pathophysiology - Acute versus chronic valve regurgitation - Diagnosis - Complications - Prevention and prophylaxis - Management	AHD RCC OBL CBL
Cardiac rhythm disorders	- Supraventricular arrhythmias: Atrial extrasystole Sinus node re-entrant tachycardia Atrial tachycardia Atrial fibrillation Atrial flutter AVRT AVNRT Ventricular arrhythmias: Ventricular extrasystole Ventricular tachycardia Ventricular flutter Ventricular fibrillation Long QT syndrome Short QT syndrome Brugada syndrome - Bradycardias Sick sinus syndrome AV blocks	- Recognition - Etiology - Clinical features - Risks - Investigations - Acute and chronic management including device implantation - Classification and complications of antiarrhythmic medication - Understand the principles, indications, and contraindications of active hypothermia in patients with resuscitated cardiac arrest	AHD RCC CBL OBL

Pericardial disorders	- Acute pericarditis - Chronic pericarditis	- Etiology - Pathophysiology - Clinical features - Differences between constrictive and restrictive cardiomyopathy - Diagnosis - Complications - Acute and chronic management	AHD RCC OBL
Aortic disorders	- Aortic aneurysm - Aortic dissection - Coarctation of the aorta - Takayasu's arteritis	- Etiology - Pathophysiology - Diagnosis - Classification - Acute and chronic management - Medical versus invasive management - Indications and contraindications for invasive management - Complications of surgical management - Prevention	AHD RCC OBL
Peripheral vessel disorders	- Acute limb ischemia - Berger's disease	- Screening - Risk factors - Complications - Clinical features - Diagnosis - Management	AHD RCC DCC
Congenital heart diseases in adults	- Hypertrophic cardiomyopathy - Familial dilated cardiomyopathy - Atrial septal defect - Ventricular septal defect - Tetralogy of Fallot - Patent foramen ovale - Patent ductus arteriosus - Pulmonary valve stenosis - Bicuspid aortic valve - Coarctation of aorta - Eisenmenger's syndrome	- Risk factors - Mode of inheritance - Recognition - Diagnosis - Complications - Management	AHD RCC

Heart transplantation		- Types - Indications - Contraindications - Indications for referral	AHD DCC

Legend to Table 5. Abbreviations. ACLS, advanced cardiac life support; ACS, acute coronary syndrome; AHD, academic half-day activities; AVNRT, atrioventricular nodal re-entrant tachycardia; AVRT, atrioventricular reciprocating tachycardia; BLS, basic life support; CBL, clinic-based learning; DCC, didactic centralized component; MI, myocardial infarction; OBL, on-call-based learning; NSTEMI, non-ST segment elevation; RCC, rotational component of the curriculum; STEMI, ST-segment elevation myocardial infarction; TIMI, thrombolysis in myocardial infarction; UA, unstable angina.

Table 6. List of diagnostic investigations relevant to the Cardiology/Coronary Care Unit rotation of the fellowship in Hospital Medicine.

Diagnostic tests and monitoring	- 12-lead ECG - Holter monitor - Events recorder - Exercise ECG test - Pharmacological tests - Echocardiogram - Cardiac CT scan - Cardiac MRI - Cardiac PET CT - Cardiac nuclear medicine imaging - Coronary angiogram Electrophysiology	- Knowledge of operating characteristics - Interpretation - Indications - Contraindications Complications and risks	AHD RCC

Legend to Table 6. Abbreviations. AHD, academic half-day activities; CT, computed tomography; ECG, electrocardiogram; MRI, magnetic resonance imaging; PET, positron emission tomography; RCC, rotational component of the curriculum.

PULMONOLOGY ROTATION

DESCRIPTION:

Fellows on rotation in pulmonology must develop all CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of pulmonary conditions affecting adolescents and adults. Fellows should focus on undifferentiated patient problems, as well as those that emerge in patients with previously diagnosed diseases. Fellows should practice progressive responsibility and self-directedness in dealing with patients and their families, and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions outlined in Table 7, as well as the list of important investigations detailed in Table 8, are to be used as guides. Fellows are expected to attend to any patient assigned to them, regardless of whether the patient's problem is included in the list. In addition, each presenting problem could involve a number of underlying conditions; the list is created to provide fellows with a clearer focus during their training. Fellows should view the list as representative, and use it as a guide to further their learning.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of pulmonary conditions affecting adolescents and adults.
- Demonstrate a thorough understanding of relevant basic sciences, including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in Table 7.
- Order appropriate and selective investigations, and interpret the findings in the context of the patient's problems.
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state.

- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions.
- Render immediate management to patients who are in need of such care.
- Perform the procedures shown in Appendix G in a safe and competent manner, including the following, where appropriate:
  - Recognition of indications and contraindications
  - Obtaining informed consent
  - Ensuring patient comfort, privacy, and adequate pain control
  - Documentation
  - Post-procedure follow-up and handover
- Document patient findings in medical records in a legible and timely manner.
- Proactively communicate and liaise with patients and families regarding patient condition, management plan, and disposition.
- Respect the roles and responsibilities of other healthcare professionals, including nurses, pharmacists, and allied health professionals.
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation during every consultation.
- Develop patient-centered care that values individual and family preferences, as well as societal and religious norms.

Table 7. Presenting problems and underlying conditions relevant to the Pulmonology rotation of the fellowship in Hospital Medicine.

Presenting Problem/Disease Category	Underlying Key Condition	Primary Focus in Learning	Venue
Obstructive lung diseases	- Bronchial asthma - COPD - Emphysema	- Etiology - Manifestation - Assessment of severity - Diagnosis - Complications - Acute and chronic management - Prevention	RCC AHD

Restrictive lung disease	- Interstitial lung fibrosis - Hypersensitivity pneumonias - Occupational lung diseases - Sarcoidosis - Lymphangioleiomyomatosis - Bronchiolitis - Churg Strauss syndrome	- Etiology - Classifications - Manifestation - Diagnosis - Complications - Management - Prevention	AHD RCC
Occupational pulmonary diseases	- Asbestosis - Silicosis - Berylliosis - Byssinosis - Farmer's lung - Bird fancier's lung - Bagassosis - Others	- Etiology - Manifestation - Differential diagnosis - Complication - Diagnostic workup - Management - Prevention	AHD RCC DCC
Suppurative lung diseases	- Bronchiectasis - Lung abscess	- Etiology - Manifestation - Diagnosis - Complications - Management - Prevention	RCC AHD
Pleural effusion	- Heart failure - Parapneumonic effusion - Empyema - Mesothelioma - Metastasis	- Etiology - Classification - Pathophysiology - Manifestation - Complications - Management	AHD RCC
Lung masses	- Solitary pulmonary nodule - Bronchogenic carcinomas - Metastasis	- Etiology - Manifestation - Diagnostic approach - Management - Prevention	AHD RCC
Sleep apnea syndrome	- Obstructive sleep apnea syndrome - Central sleep apnea syndrome	- Etiology - Screening - Manifestation - Diagnosis - Management - Prevention	AHD RCC DCC

Pulmonary vascular disorders	- Primary pulmonary hypertension - Secondary pulmonary hypertension - Thromboembolic pulmonary hypertension	- Etiology - Pathophysiology - Classification - Manifestation - Risk factors - Diagnosis - Management - Prevention	RCC DCC
Pulmonary vasculitis	- Goodpasture syndrome - Wegener's granulomatosis	- Etiology - Classifications - Pathophysiology - Manifestation - Diagnosis - Management	RCC DCC
Preoperative pulmonary assessment		- Risk assessment - Management	AHD
Respiratory Failure and Mechanical Ventilation	- Invasive - Noninvasive	- Basic principles - Modes - Indications - Contraindications - Complications	AHD RCC

Legend to Table 7. Abbreviations. AHD, academic half-day activities; CBL, clinic-based learning; COPD, chronic obstructive pulmonary disease; DCC, didactic centralized component; OBL, on-call-based learning; RCC, rotational component of the curriculum.

Table 8. List of diagnostic investigations relevant to the Pulmonology rotation of the fellowship in Hospital Medicine.

Diagnostic tests in pulmonary medicine	- ABG - PFT - CXR - Chest CT - CT Chest Angiography - SPECT CT - Sleep study - Bronchoscopy - Endobronchial Ultrasound	- Basic principles - Indications - Contraindications - Interpretation	AHD RCC

Legend to Table 8. Abbreviations. ABG, arterial blood gas; AHD, academic half-day activities; CT, computed tomography; CXR, chest X-ray; PFT, pulmonary function tests; RCC, rotational component of the curriculum. SPECT CT: single-photon emission computed tomography

NEPHROLOGY ROTATION

DESCRIPTION:

Fellows on rotation in nephrology must develop all CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of nephrologic conditions affecting adolescents and adults. Fellows should focus on undifferentiated patient problems, as well as those that emerge in patients with previously diagnosed diseases. Fellows should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions outlined in Table 9, as well as the list of important investigations detailed in Table 10, are to be used as guides. Fellows are expected to attend to any patient assigned to them, regardless of whether the patient's problem is included in the list. Furthermore, each presenting problem could involve a number of underlying conditions; the list is created to provide fellows with a clearer focus during their training. Fellows should view the list as representative and use it as a guide to further their learning.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of nephrologic conditions affecting adolescents and adults.
- Demonstrate a thorough understanding of relevant basic sciences, including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in Table 9.

- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems.
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state.
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions.
- Render immediate management to patients who are in need of such care.
- Perform the procedures shown in Appendix G in a safe and competent manner, including the following, where appropriate:
  - Recognition of indications and contraindications
  - Obtaining informed consent
  - Ensuring patient comfort, privacy, and adequate pain control
  - Documentation
  - Post-procedure follow-up and handover
- Document patient findings in medical records in a legible and timely manner.
- Proactively communicate and liaise with patients and families regarding patient condition, management plan, and disposition.
- Respect the roles and responsibilities of other healthcare professionals, including nurses, pharmacists, and allied health professionals.
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation.
- Develop patient-centered care that values individual and family preferences and societal and religious norms.

Table 9. Presenting problems and underlying conditions relevant to the Nephrology rotation of the fellowship in Hospital Medicine.

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Hypertension	- Essential hypertension - Secondary hypertension - Pregnancy-induced hypertension	- Etiology - Classification - Manifestation - Diagnosis - Complications - Evidence-based management	CBL DCC RCC
Acute kidney diseases	- Acute pyelonephritis - Acute glomerulonephritis - Acute interstitial nephritis - Acute tubular necrosis - Contrast-induced nephropathy - Pigmented nephropathy - Thrombotic microangiopathy - Obstructive uropathy	- Etiology - Classifications - Pathophysiology - Manifestation - Complications - Diagnosis - Management - Prevention	AHD RCC DCC
Chronic kidney diseases	- Diabetes nephropathy - Chronic pyelonephritis - Chronic glomerulonephritis - Chronic interstitial nephritis - Polycystic kidney disease	- Etiology - Classifications - Pathophysiology - Manifestation - Complications - Diagnosis - Management - Prevention	RCC DCC
Renal colic	- Renal stones	- Etiology - Diagnosis - Complications - Management - Prevention	RCC DCC
Dialysis	- Hemodialysis - Peritoneal dialysis	- Indications - Contraindications	RCC AHD

Renal transplantation		- Types - Indications for referral - Indications - Contraindications - Complications - Post-transplantation management - Management of rejection - Prevention of rejection	AHD RCC DCC

Legend to Table 9. Abbreviations. AHD, academic half-day activities; CBL, clinic-based learning; DCC, didactic centralized component; OBL, on-call-based learning; RCC, rotational component of the curriculum.

Table 10. List of investigations relevant to the Nephrology rotation of the fellowship in Hospital Medicine.

Diagnostic tests	- Urine analysis - Urine microscopy - Biochemical renal functions - Estimation of GFR - Serology - Ultrasound of kidneys - Radioisotope renogram - CT scan - Kidney biopsy	- Indications - Contraindications - Precautions - Complications - Interpretation	RCC

Legend to Table 10. Abbreviations. CT, computed tomography; GFR, glomerular filtration rate; RCC, rotational component of the curriculum.

INFECTIOUS DISEASES ROTATION

DESCRIPTION:

Fellows on rotation in infectious disease departments must develop all CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of infectious conditions affecting adolescents and adults. Fellows should focus on undifferentiated patient problems, as well as those that emerge in patients with previously diagnosed diseases. Fellows should practice progressive responsibility and self-

directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions outlined in Table 11, as well as that of important investigations detailed in Table 12, are to be used as guides. Fellows are expected to attend to any patient assigned to them, regardless of whether the patient's problem is included in the list. Moreover, each presenting problem could involve a number of underlying conditions; the list is created to provide fellows with a clearer focus during their training. Fellows should view the list as representative, and use it as a guide to further their learning.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of infectious diseases affecting adolescents and adults.
- Demonstrate a thorough understanding of relevant basic sciences, including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in Table 11.
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems.
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state.
- Formulate appropriate provisional and alternative diagnoses of key presenting problems and underlying conditions.
- Render immediate management to patients who are in need of such care.
- Perform the procedures shown in Appendix G in a safe and competent manner, including the following, where appropriate:
  - Recognition of indications and contraindications
  - Obtaining informed consent
  - Ensuring patient comfort, privacy, and adequate pain control
  - Documentation

- Post-procedure follow-up and handover
- Document patient findings in medical records in a legible and timely manner.
- Proactively communicate and liaise with patients and families regarding patient condition, management plan, and disposition.
- Respect the roles and responsibilities of other healthcare professionals, including nurses, pharmacists, and allied health professionals.
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation.
- Develop patient-centered care that values individual and family preferences, as well as societal and religious norms.

Table 11. Presenting problems and underlying conditions relevant to the Infectious Diseases rotation of the fellowship in Hospital Medicine.

Presenting Problems/Major Topics	Underlying Key Conditions	Primary Focus in Learning	Venue
Fever	- Fever of unknown origin	- Definition - Etiology - Diagnostic workup - Management	RCC AHD CBL OBL
Antimicrobial agents	- Antibiotics - Antiviral agents - Antifungal agents - Antiprotozoal agents	- Rational use - Mechanism of actions - Pharmacokinetics - Dosage - Side effects - Precautions - Interactions - Principles of imperative initiation - Monitoring - Prophylaxis - Emergence of drug resistance	CBL DCC RCC

Emergency infections	- Septicemia and septic shock - Meningitis - Encephalitis - Brain abscess - Febrile neutropenia - Postsplenectomy infection	- Etiology - Pathophysiology - Manifestation - Complications - Diagnosis - Management - Prevention	AHD RCC DCC
Fever in patients with cardiac murmur	- Infective endocarditis	- Definition - Pathophysiology - Etiology - Manifestation - Diagnosis - Complication - Medical and surgical management - Prophylaxis	RCC DCC
HIV infection	- AIDS	- Risk factors - Pathophysiology - Manifestation - Complication - Management - Prophylaxis	RCC DCC
Infection in immunocompromised patients	- Bacterial - Viral - Fungal - Protozoan - Mycobacterial - Opportunistic infections	- Etiology - Manifestation - Diagnosis - Management - Complications - Prevention	RCC DCC
Fever in diabetes		- Diagnosis - Management - Prevention	RCC DCC
Hospital-acquired infection	- Clostridium difficile - MRSA - VRE - ESBL	- Etiology - Manifestation - Diagnosis - Management - Prevention	RCC DCC
Tuberculosis	- Pulmonary - Extra pulmonary - Active vs. latent	- Etiology - Risk factors - Pathophysiology - Manifestation	RCC DCC

	- Primary vs. secondary - Multidrug resistance	- Complication - Management - Prevention	
Fungal infection	- Histoplasmosis - Blastocytosis - Cryptococcosis - Mucormycosis	- Pathophysiology - Manifestation - Diagnosis - Complication - Management - Prevention	RCC DCC
World health issues	- Emerging infections - Geographic infections - Bioterrorism - Pandemic preparation	- Epidemiology - Transmission - Prevention - Notification of public health infection control - Management	AHD RCC DCC
Infection control	- Principles of infection control	- Epidemiology - Transmission - Prevention - Notification of public health infection control	CBL RCC AHD

Legend to Table 11. Abbreviations. AHD: academic half-day activities; AIDS: acquired immunodeficiency syndrome; CBL: clinic-based learning; DCC: didactic centralized component; ESBL: extended-spectrum beta-lactamase; MRSA: methicillin-resistant staphylococcus aureus; OBL: on-call-based learning; RCC: rotational component of the curriculum; VRE: vancomycin-resistant enterococci

Table 12. List of investigations relevant to the Infectious Diseases rotation of the fellowship in Hospital Medicine.

Diagnostic tests	- Gram stain - Acid fast stain - Body fluid cultures - Biopsy - Aspirations - Serological tests - Imaging	- Knowledge of technique - Interpretations - Reliability	CBL RCC

Legend to Table 12. Abbreviations. CBL, clinic-based learning; RCC, rotational component of the curriculum.

NEUROLOGY ROTATION

DESCRIPTION:

The neurology rotation is mandatory for all fellows. Fellows on rotation in neurology must develop all CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of neurological conditions affecting adolescents and adults. Fellows should focus on undifferentiated patient problems, as well as those that emerge in patients with previously diagnosed neurological diseases. Fellows should practice progressive responsibility and self-directedness in dealing with patients and their families, and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions outlined in Table 13, as well as that of important investigations detailed in Table 14, are to be used as guides. Fellows are expected to attend to any patient assigned to them, regardless of whether the patient's problem is included in the list. Moreover, each presenting problem could involve a number of underlying conditions; the list is created to provide fellows with a clearer focus during their training. Fellows should view the list as representative, and use it as a guide to further their learning.

OBJECTIVES:

The specific objectives for this rotation are as follows:

- Develop all seven CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of neurological conditions affecting adolescents and adults.
- Demonstrate a thorough understanding of relevant basic sciences, including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in Table 13.

- Order appropriate and selective investigations, and interpret the findings in the context of the patient's problems.
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state.
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions.
- Render immediate management to patients who are in need of such care.
- Perform the procedures shown in Appendix G in a safe and competent manner, including the following, where appropriate:
  - Recognition of indications and contraindications
  - Obtaining informed consent
  - Ensuring patient comfort, privacy, and adequate pain control
  - Documentation
  - Post-procedure follow-up and handover
- Document patient findings in medical records in a legible and timely manner.
- Proactively communicate and liaise with patients and families regarding patient condition, management plan, and disposition.
- Respect the roles and responsibilities of other healthcare professionals, including nurses, pharmacists, and allied health professionals.
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation.
- Develop patient-centered care that values individual and family preferences and societal and religious norms.

Table 13. Presenting problems and underlying conditions relevant to the neurology rotation of the fellowship in hospital medicine.

Presenting Problem/Key Category of Disorder	Underlying Key Condition	Primary Focus in Learning	Venue
Consciousness disorders	- Delirium - Dementia - Coma	- Etiology - Assessment of reduced consciousness level - Application of the Glasgow Coma Scale score - Examination for brain death - Investigation - Management	RCC
Neurological manifestation of other diseases	- Diabetes - Renal failure - Hepatic disease - Malignancy - Respiratory disorders - Fluid and electrolyte disorders	- Recognition - Diagnosis - Management	AHD RCC
Headaches	- Tension headache - Migraine - Cluster headache - Intracranial hypertension - Trigeminal neuralgia - Thunderclap headache	- Manifestation - Diagnosis - Management - Complication - Prevention	AHD RCC DCC
Stroke and intracranial hemorrhage	- Cerebral infarction - Cerebral hemorrhage - Dural thrombosis - Subarachnoid hemorrhage - Subdural hemorrhage - Extradural hemorrhage	- Etiology - Risk factors - Manifestation - Diagnosis - Complications - Management - Prevention	RCC DCC

Movement disorders	- Parkinson's disease - Parkinson-plus syndrome - Ataxia - Tremor - Chorea - Dystonia - Tardive dyskinesia - Myoclonus - Wilson's disease - Neuroleptic malignant syndrome - Restless leg syndrome	- Etiology - Manifestation and assessment - Diagnosis - Management	RCC DCC
Seizures and epilepsy	- Generalized epilepsy - Localized epilepsy	- Etiology - Manifestation - Diagnosis - Complications - Acute and chronic management	CBL RCC AHD
Paraplegia	- Spinal cord injury - Spinal cord compression - Transverse myelitis	- Etiology - Manifestation - Diagnosis - Management	CBL RCC
Neuromuscular disorders	- Myasthenia gravis - Lambert-Eaton syndrome - Myopathies	- Etiology - Classification - Manifestation - Diagnosis - Management	RCC AHD
Neuropathy	- Mononeuropathy - Polyneuropathy	- Etiology - Classification - Diagnosis - Differential diagnosis - Management	RCC AHD
Demyelinating disorders	- Multiple sclerosis	- Pathophysiology - Manifestation - Diagnosis - Differential diagnosis - Management	RCC

Neuro-oncology	- Intracranial tumors - Primary CNS tumors - Metastasis - Paraneoplastic syndrome	- Etiology - Classification - Manifestation - Diagnosis - Management	RCC DCC

Legend to Table 13. Abbreviations. AHD, academic half-day activities; CBL, clinic-based learning; CNS, central nervous system; DCC, didactic centralized component; OBL, on-call-based learning; RCC, rotational component of the curriculum

Table 14. Investigations relevant to the neurology rotation of the fellowship in Hospital Medicine.

Special neurological tests	- Oculocephalic reflex - Caloric test - Dix–Hallpike maneuver/Tensilon test	- Indications - Contraindications - Utility - Interpretation	AHD RCC
Diagnostic tests	- CT scan - MRI - PET CT - EEG - EMG - Lumbar puncture - Nerve conduction study - Muscle biopsy - Visually evoked potential - Auditory evoked potential	- Indications - Contraindications - Utility - Interpretation	AHD RCC

Legend to Table 14. Abbreviations. AHD, academic half-day activities; CT, computed tomography; EEG, electroencephalography; EMG, electromyography; MRI, magnetic resonance imaging; PET, positron emission tomography; RCC, rotational component of the curriculum.

GERIATRICS ROTATION

DESCRIPTION:

Fellows on rotation in geriatric departments must develop all CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of geriatric conditions affecting adults. Fellows should focus on undifferentiated patient problems, as well as those that emerge in patients with previously diagnosed diseases. Fellows should practice progressive responsibility and self-directedness in dealing with patients and their families, and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions should be used as a guide. Fellows are expected to attend to any patient assigned to them, regardless of whether the patient's problem is included in the list. More so, each presenting problem could involve a number of underlying conditions; the list is created to provide fellows with a clearer focus during their training. Fellows should view the list as representative, and use it as a guide to further their learning.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of a broad range of geriatric conditions.
- Understand the special medical, social, and ethical problems related to the aging process.
- Recognize that geriatrics is an interdisciplinary subject area determined more by the functionality of the individual than by chronological age.
- Demonstrate clinical knowledge and skills pertinent to the diagnosis and management of common geriatric disorders.
- Demonstrate effective consultancy skills in the field of geriatrics.

- Demonstrate the ability to incorporate attitudes relating to gender, culture, and ethnic perspectives into clinical practice, research methodology, and analysis.

Table 15. Presenting problems and underlying conditions relevant to the geriatrics rotation of the fellowship in Hospital Medicine.

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Ethical issues in elderly patients		- Capacity assessment - Guardianships - Trusteeships - Caregiver burden	CBL RCC
Major geriatric Presentations	- Polypharmacy and drug hazards (drug-drug, drug-disease, and drug-diet interactions) - Delirium - Dementia - Depression - Falls - Incontinence	- Demonstrate an understanding of the pharmacokinetic changes that commonly occur with aging - Demonstrate an ability to modify drug regimens in the elderly - Manifestation - Diagnosis - Management - Prevention	CBL DCC RCC
Assessment of elderly patients	- Alteration of normal physical examination and laboratory investigations - Use of aids	- Define frailty - Apply knowledge and expertise in performing and interpreting the results of a mental status examination - Assessment of basic and instrumental activities of daily living - Assessment of basic mobility skills	RCC CBL OBL

Legend to Table 15. Abbreviations. AHD, academic half-day activities; CBL, clinic-based learning; DCC, didactic centralized component; OBL, on-call-based learning; RCC, rotational component of the curriculum.

PALLIATIVE CARE AND PAIN MANAGEMENT ROTATIONS

DESCRIPTION:

Palliative care is an approach to relieve suffering and improve quality of life for patients (and their families) facing life-threatening illnesses via the prevention, assessment, and treatment of pain and other physical, psychosocial, and spiritual problems.

The number of cancer patients is increasing progressively worldwide, as is the case in Saudi Arabia. Therefore, trainees are encouraged to pursue elective rotations in palliative care in a recognized center. Fellows should practice progressive responsibility and self-directedness in dealing with patients and their families, and be able to act as primary care providers for patients with multiple comorbidities.

The majority of the conditions and symptoms listed below are covered under different disciplines; however, the list of presenting problems and underlying conditions is to be used as a guide. Fellows are expected to attend to any patient assigned to them, regardless of whether the patient's problem is included in the list.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies, while learning the basic skills required for the diagnosis and management of painful conditions in adolescents and adults.
- Provide relief for pain and other distressing symptoms.
- Affirm life and regard dying as a normal process.
- Intend to neither hasten nor postpone death.
- Use a team approach to address patient needs, including the need for bereavement counseling of patients and their families, if indicated.
- Integrate the psychological and spiritual aspects of patient care.

- Offer a support system to help patients to live as actively as possible until death.
- Offer a support system to help the family cope during the patient's illness and bereavement.
- This will enhance the patient's quality of life and may positively influence the course of illness.

Table 16. The list of presenting problems and underlying conditions relevant to the palliative and pain management rotations of the fellowship in hospital medicine.

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Pain		- Pathophysiology - Assessment - Psychosocial factors - Management - Monitoring - Prevention	CBL RCC AHD
Conditions and symptoms common in patients with incurable and life-threatening diseases	- Hypercalcemia - Mouth problems (mouth ulcers, thrush, and dysphagia) - Anorexia - Weakness - Nausea and vomiting - Dyspnea - Intestinal obstruction - Constipation - Diarrhea - Incontinence - Anxiety - Depression - Restlessness - Delirium syndromes - Malignant effusions and ascites - Lymphedema	- Etiology - Pathophysiology - Diagnosis - Management - Prevention	RCC AHD CBL OBL
Rehabilitation	- Postoperative care - Postradiotherapy care - Postchemotherapy care	- Physical therapy - Occupational therapy - Speech therapy - Swallowing therapy	RCC AHD

End-of-life care	- Home-based care - Inpatient care	- Discuss the discontinuation of anticancer therapy - Discuss the anticipated clinical course - Signs and symptoms of imminent death - Ensure optimum patient comfort and family support	RCC AHD
Death		- Confirming death - Post-death procedures	AHD

Legend to Table 16. Abbreviations. AHD, academic half-day activities; CBL, clinic-based learning; DCC, didactic centralized component; OBL, on-call-based learning; RCC, rotational component of the curriculum.

ANESTHESIA ROTATION:

DESCRIPTION:

A ¼ block rotation in anesthesiology is offered to fellows in Hospital Medicine under the direct supervision of the faculty of the Department of Anesthesia. The objective of this rotation is to provide a general introduction to the field of anesthesiology. This should include postoperative follow-up for training in the assessment of non-surgical complications in the perioperative period.

OBJECTIVES:

The specific objectives of this rotation are:

1. **Preoperative assessment:** Describe the basic principles of preoperative assessment

Perform preoperative assessment in uncomplicated patients, with a special emphasis on:

- Assessment of general health
- Cardiorespiratory assessment

- Medications and medical device assessment
- Drug and food allergies
- Pain relief requirements
- Patient categorization according to risks

2. **Postoperative care:** Devise a postoperative care plan including vital sign monitoring, pain management, fluid management, medication use, and laboratory investigations.

a) Properly hand over patients to appropriate facilities.
b) Describe the process of postoperative recovery.
c) Identify common postoperative complications.
d) Monitor patients for possible postoperative complications.
e) Institute an immediate management of postoperative complications.

3. **Airway management**

Fellowship Tracks

At the beginning of their fellowship training, each fellow will select one of four tracks (leadership, research, medical education, or QI), based on their career goals and interests. All fellows will receive training in leadership, research, medical education, and QI, and will be expected to achieve competency in each of these domains. However, the chosen track determines the focus of the fellowship. For example, the fellows are all expected to complete a fellowship scholarly project during their training. The precise nature of this project was determined by the fellow's chosen track. Mentors will guide each fellow in their respective tracks throughout the two-year period.

1. Medical Education Track:

Fellows interested in pursuing a career as an academic hospitalist can choose to take all four ½ blocks of the longitudinal track in medical education.

During these four ½ blocks, fellows will have the opportunity to work with a mentor who is heavily involved in curriculum development and teaching for ½ a day per week for the entire two-year program. Fellows are expected to play an active role in the teaching and assessment of medical students and residents. During this time, the fellows will help to update existing curricula and develop new curricula. Fellows will also attend medical education courses.

The fellow will be required to write at least one manuscript based on a scholarly project in medical education to a standard required for publication in a high-impact factor journal.

2. Research Track:

Fellows interested in pursuing a career as clinical scientists can choose to take all four ½ blocks of the longitudinal track in research and evidence-based medicine. To ensure that the fellows achieve their full potential, a mentor with a high research output will guide their training through the two-year program.

During the four ½ blocks, the fellows will work with their mentors for ½ a day per week for the full two-year program. The fellow should also attend courses on research and evidence-based medicine. The fellow will be expected to obtain institutional review board approval for an original research project as either a co-investigator or principal investigator. They will also be required to write at least two original research manuscripts to the standard required for publication in a high-impact factor journal.

3. Quality Improvement Track:

Fellows interested in QI can choose to take all four ½ blocks of the longitudinal track in QI. During these four ½ blocks, the fellows will be attached to a mentor in QI who will guide them to initiate and complete several QI projects. The fellows will continue to work with their mentors over the two-year period, for ½ a day per week. Fellows will also attend courses and training programs relevant to

QI. Fellows can, for example, attend the Lean Sigma: Prescription for Healthcare Belt Course (5 days), and will also have the opportunity to become certified professionals in healthcare quality (CPHQ).

Fellows will be required to complete, present, and review at least one QI project during their two-year program. Moreover, they will be required to write at least one manuscript based on a QI project, to the standard required for publication in a high-impact factor journal.

4. Leadership Track:

Fellows interested in leadership can choose to take all four ½ blocks of the longitudinal track in leadership development. To ensure that they achieve their full potential, fellows will be paired with a mentor who is in a leadership role within the organization. During these four ½ blocks, the fellow will work with their mentor, but will also be seconded to different leaders, including the Hospital Medicine Fellowship Program Director, Chairman of Medicine, Executive Medical Director, Chief Medical Officer, Chief Operating Officer, and Chief Executive Officer. Fellows will also attend courses on leadership. Further, they will be required to write at least one manuscript based on a scholarly project related to medical leadership, to the standard required for publication in a high-impact factor journal.

In view of the range of competencies that must be achieved during the fellowship, attempting to obtain accreditation in more than one track is unlikely to be successful. Fellows will, therefore, be asked to choose a track before starting the fellowship. Changing between tracks during a fellowship is also highly undesirable. However, it may become clear during the fellowship that the fellow's initial choice was inappropriate. Hence, when the fellowship program director recommends promotion of fellows from F1 to F2, the fellows will also have to confirm if they will continue in their chosen track. In most cases, this is automatic. However, should the fellow wish to change track, this will be taken into consideration.

Research Project

Fellows in Hospital Medicine must complete a scholarly project during their training. This requirement can be satisfied by any of the following scholarly works:

- Qualitative or quantitative research project
- Systematic review (with or without meta-analysis)
- Hospital Medicine-related evidence-based policy and procedure
- Participate in the development of local guidelines relevant to Hospital Medicine
- QI project

Fellows are encouraged to publish case reports, submit abstracts, and present at national and international medical conferences. However, these activities do not satisfy the program's requirements for research.

4. Mapping of learning objectives and competency roles to program rotations

Table 17 matches the competencies and learning objectives of each rotation. Trainees and trainers should work together to achieve these objectives during teaching and formative assessments. Expectations evolve as the training progresses.

Table 17. Matching the competencies to the learning objectives of each rotation of the fellowship in Hospital Medicine.

Rotation Setting	Training Stage	Duration (Blocks)	Specific Objectives	Competency Roles
Hospital Medicine	Junior (F1) & Senior (F2)	5 5	1. Develop expertise in managing adults in acute/sub-acute hospital settings. 2. Master the performance of a Comprehensive Patient Assessment. 3. Demonstrate the ability to collaborate with multidisciplinary team members.	ME, COM, COL, P ME, COM, COL, HA, P, L

			4. Perform procedures in a safe and competent manner including, where appropriate: • Recognizing indications and contraindications • Obtaining informed consent • Ensuring patient comfort, privacy, and adequate pain control • Documentation • Post-procedure follow-up and handover 5. Demonstrate an ability to manage common acute medical conditions in adults who require hospitalization. 6. Show an ability to prioritize medical problems in multi-morbid patients. 7. Develop effective communication skills for multidisciplinary teamwork. 8. Formulate individually customized care plans that represent patient values and wishes. 9. Assess caregivers for stress and burnout using validated tools. 10. Demonstrate expertise in discussing and documenting advanced care plans and goals of care. 11. Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation.	ME, COM, COL, P ME, COM, COL, P ME, COM, COL, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, L, P ME, COM, COL, HA, P ME, COM, COL, HA, P
Emergency Medicine	Junior (F1) & Senior (F2)	1 1	1. Develop the advanced skills required to diagnose and manage a broad range of medical emergency conditions affecting adolescents and adults. 2. Obtain experience in areas that are unique to emergency medicine, but relevant to subsequent practice as a hospitalist. 3. Develop competencies in minor wound care; injury evaluation; and the assessment and treatment of common eye, ear, nose, and throat conditions.	ME, COM, COL, P ME, COM, COL, P ME, COM, COL, P

			4. Develop competencies in the management of minor musculoskeletal injuries and the application of clinical decision rules in management. 5. Gain experience and competencies in the management of common gynecological disorders.	ME, COM, COL, P ME, COM, COL, P
Intensive Care Medicine	Junior (F1)	1	1. Develop competencies in the basic skills required for the diagnosis and management of medical conditions affecting adolescents and adults, which are sufficiently severe to require treatment in the medical ICU. 2. Assess patients' needs with respect to admission to the ICU, rather than the ward, via their responsibilities as admitting fellows. 3. Learn and begin to practice lifelong learning behaviors to develop the necessary attitudes and skills required to lead and coordinate an increasingly complex health delivery team. 4. Perform procedures safely and competently including, where appropriate: • Recognizing indications and contraindications • Obtaining informed consent • Ensuring patient comfort, privacy, and adequate pain control • Documentation • Post-procedure follow-up and handover 6. Document patient findings in medical records legibly and in a timely manner. 7. Proactively communicate and liaise with patients and families regarding patient condition, management plan, and disposition.	ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, L, P ME, COM, COL, P ME, COM, COL, P ME, COM, COL, HA, P

			8. Demonstrate expertise in 9. discussing and documenting advanced care plans and goals of care. 10. Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals. 11. Judiciously use common monitoring systems and techniques available in the ICU.	ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, P
Stroke / Neurology	Junior (F1)	1	1. Develop the basic skills required for the diagnosis and management of a broad range of neurological conditions affecting adolescents and adults (including stroke). 2. Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions. 3. Order appropriate and selected investigations, and interpret the findings in the context of the patient's problems. 4. Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state. 5. Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions. 6. Render immediate management to patients who are in need of such care. 7. Perform procedures safely and competently including, where appropriate: • Recognizing indications and contraindications • Obtaining informed consent • Ensuring patient comfort, privacy, and adequate pain control • Documentation	ME, COM, COL, HA, P ME, COM, COL, HA, SC, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, P

			• Post-procedure follow-up and handover 8. Document patient findings in medical records in a legible and timely manner. 9. Proactively communicate and liaise with patients and families regarding patient condition, management plan, and disposition. 10. Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals. 11. Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation. 12. Develop patient-centered care that values individual and family preferences, as well as societal and religious norms.	ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P
Infectious Diseases	Junior (F1)	1	1. Develop the basic skills required for the diagnosis and management of a broad range of infectious diseases affecting adolescents and adults. 2. Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases. 3. Order appropriate and selective investigations, and interpret the findings in the context of the patient's problems. 4. Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state. 5. Formulate appropriate provisional and alternative diagnoses of key presenting problems and underlying conditions. 6. Render immediate management to patients who are in need of such care. 7. Perform procedures safely and competently including, where appropriate:	ME, COM, COL, HA, P ME, COM, COL, HA, SC, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, P

			• Recognizing indications and contraindications • Obtaining informed consent • Ensuring patient comfort, privacy, and adequate pain control • Documentation • Post-procedure follow-up and handover	ME, COM, COL, P
			8. Document patient findings in medical records in a legible and timely manner.	ME, COM, COL, HA, P
			9. Proactively communicate and liaise with patients and families regarding patient condition, management plan, and disposition.	
			10. Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals.	ME, COM, COL, P
			11. Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation.	ME, COM, COL, HA, P
			12. Develop patient-centered care that values individual and family preferences, as well as societal and religious norms.	ME, COM, COL, HA, P

Internal Medicine Consultation and Perioperative Medicine	Junior (F1) & Senior (F2)	1 1	1. Develop expertise in managing adults who are not admitted under internists in acute/sub-acute hospital settings. 2. Master the performance of a comprehensive patient assessment of adults who are not admitted under internists. 3. Demonstrate an ability to collaborate with multidisciplinary team members. 4. Demonstrate an ability to manage the common acute medical conditions in adults who require hospitalization, but are not admitted under internists. 5. Show an ability to prioritize medical problems in multi-morbid patients who are not admitted under internists. 6. Develop effective communication skills for multidisciplinary teamwork. 7. Formulate individualized 8. care plans that reflect 9. patient's wishes and values. 10. Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation.	ME, COM, COL, P ME, COM, COL, HA, P, L ME, COM, COL, P ME, COM, COL, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, P
Pain management and Palliative Care	Junior (F1)	½ ½	1. Develop the basic skills required for the diagnosis and management of pain and other symptoms common at the end of life in adults. 2. Provide relief for pain and other distressing symptoms. 3. Affirm life and regard dying as a normal process. Intend to neither hasten nor postpone death. 4. Use a multidisciplinary approach to address patients' needs, including the need for bereavement counseling of patients and their families, if indicated. 5. Integrate the psychological and spiritual aspects of patient care.	ME, COM, COL, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, P

			6. Offer a support system to help patients to live as actively as possible until death. 7. Offer a support system to help the family to cope during the patient's illness and their own bereavement. This will enhance the patient's quality of life and may also positively influence the course of illness.	ME, COM, COL, HA, P
Pulmonology	Senior (F2)	1	1. Develop the basic skills required for the diagnosis and management of a broad range of pulmonary diseases affecting adolescents and adults. 2. Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases. 3. Order appropriate and selective investigations, and interpret the findings in the context of the patient's problems. 4. Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state. 5. Formulate appropriate provisional and alternative diagnoses of key presenting problems and underlying conditions. 6. Render immediate management to patients who are in need of such care. 7. Perform procedures safely and competently including, where appropriate: • Recognizing indications and contraindications • Obtaining informed consent • Ensuring patient comfort, privacy, and adequate pain control • Documentation • Post-procedure follow-up and handover 8. Document patient findings in medical records in a legible and timely manner. 9. Proactively communicate and liaise with patients and families regarding patient	ME, COM, COL, HA, P ME, COM, COL, HA, SC, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, P ME, COM, COL, P ME, COM, COL, HA, P

			condition, management plan, and disposition. 10. Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals. 11. Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation. 12. Develop patient-centered care that values individual and family preferences, as well as societal and religious norms.	ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P
Cardiology	Senior (F2)	1	1. Develop the basic skills required for the diagnosis and management of a broad range of cardiovascular diseases affecting adolescents and adults. 2. Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases. 3. Order appropriate and selective investigations, and interpret the findings in the context of the patient's problems. 4. Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state. 5. Formulate appropriate provisional and alternative diagnoses of key presenting problems and underlying conditions. 6. Render immediate management to patients who are in need of such care. 7. Perform procedures safely and competently including, where appropriate: • Recognizing indications and contraindications • Obtaining informed consent • Ensuring patient comfort, privacy, and adequate pain control • Documentation	ME, COM, COL, HA, P ME, COM, COL, HA, SC, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, P

			• Post-procedure follow-up and handover 8. Document patient findings in medical records in a legible and timely manner. 9. Proactively communicate and liaise with patients and families regarding patient condition, management plan, and disposition. 10. Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals. 11. Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation. 12. Develop patient-centered care that values individual and family preferences, as well as societal and religious norms.	ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P
Geriatric Medicine	Senior (F2)		1. Develop expertise in managing elderly adults in acute/sub-acute hospital settings. 2. Master the performance of a comprehensive patient assessment. 3. Demonstrate the ability to collaborate with multidisciplinary team members. 4. Demonstrate proficiency in managing common syndromes requiring hospitalization in the elderly. 5. Demonstrate an ability to manage common acute medical conditions in older adults. 6. Show an ability to prioritize medical problems in multi-morbid patients. 7. Develop effective communication skills for multidisciplinary teamwork. 8. Formulate individualized, customized care plans that represent patient values and wishes. 9. Assess caregivers for stress and burnout using validated tools.	ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, P ME, COM, COL, P ME, COM, COL, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, HA, L ME, COM, COL, P

			10. Demonstrate expertise in discussing and documenting advanced care plans and goals of care. 11. Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation.	ME, COM, COL, HA, P
Nephrology	Senior (F2)	1	1. Develop the basic skills required for the diagnosis and management of a broad range of renal diseases affecting adolescents and adults. 2. Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases. 3. Order appropriate and selective investigations, and interpret the findings in the context of the patient's problems. 4. Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state. 5. Formulate appropriate provisional and alternative diagnoses of key presenting problems and underlying conditions. 6. Render immediate management to patients who are in need of such care. 7. Perform procedures safely and competently including, where appropriate: • Recognizing indications and contraindications • Obtaining informed consent • Ensuring patient comfort, privacy, and adequate pain control • Documentation • Post-procedure follow-up and handover 8. Document patient findings in medical records in a legible and timely manner. 9. Proactively communicate and liaise with patients and families regarding patient	ME, COM, COL, HA, P ME, COM, COL, HA, SC, P ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, HA, P ME, COM, COL, P ME, COM, COL, P ME, COM, COL, HA, P

			condition, management plan, and disposition. 10. Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals. 11. Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation. 12. Develop patient-centered care that values individual and family preferences, as well as societal and religious norms.	ME, COM, COL, P ME, COM, COL, HA, P ME, COM, COL, HA, P
Anesthesia	Senior (F2)	¼	1. Preoperative assessment: Describe the basic principles of preoperative assessment. Perform preoperative assessment in patients with uncomplicated diseases, with a special emphasis on • General health assessment • Cardiorespiratory assessment • Medications and medical device assessment • Drug allergy • Pain relief requirements • Patient categorization according to risks 2. Postoperative care: Devise a postoperative care plan including recommendations for monitoring vital signs, pain management, fluid management, medication use, and laboratory investigations. a) Properly Handover patients properly to appropriate facilities. b) Describe the process of postoperative recovery. c) Identify common postoperative complications. d) Monitor patients for possible postoperative complications.	ME, COM, COL, HA, P ME, COM, COL, HA, P

			e) Institute an immediate management of postoperative complications. 3. Airway management	ME, COM, COL, P
Interventional Radiology	Senior (F2)	¼	1. Perform procedures safely and competently including, where appropriate: • Recognizing indications and contraindications • Obtaining informed consent • Ensuring patient comfort, privacy, and adequate pain control • Documentation • Post-procedure follow-up and handover 2. Document patient findings in medical records in a legible and timely manner.	ME, COM, COL, HA, P ME, COM, COL, P

Legend to Table 17. Abbreviations. COL: collaborator, COM: communicator, HA: health advocate, ICU: intensive care unit, L: leader, ME: medical educator, P: professional.

IX. CONTINUUM OF LEARNING

The continuum of learning (Table 18) outlines what the fellows in Hospital Medicine should have achieved at each key stage of progression within the specialty. Trainees are reminded that a life-long commitment to continuous professional development (CPD) is required. Trainees should bear in mind that every healthcare professional must engage with CPD to meet the demands of their crucial role. The following table shows how the role of the hospitalist is expected to develop during their practice at the junior, senior, and consultant levels.

Table 18. Continuum of Learning during the fellowship in Hospital Medicine

Specialty General Practice	F1 (Junior Level)	F2 (Senior Level)	Consultant sub specialist
Sub-specialty non-practicing	Dependent/supervised practice	Dependent/supervised practice	Independent practice/provide supervision
Obtain basic health science and foundational level to core discipline knowledge	Obtain fundamental knowledge related to core clinical problems of the specialty	Apply knowledge to provide appropriate clinical care related to core clinical problems of the specialty	Acquire advanced and up-to-date knowledge related to core clinical problems of the specialty
Internship to the practice of discipline	Apply clinical skills such as physical examination and practical procedures related to the core presenting problems and procedures of the specialty	Analyze and interpret the findings from clinical skills to develop appropriate differential diagnoses and a management plan for the patient	Compare and evaluate challenging, contradictory findings; develop expanded differential diagnoses and a management plan

X. TEACHING METHODS:

The processes of teaching and learning in postgraduate fellowship training programs are mainly based on an adult learning theory. The trainees must recognize the importance of learning, and should play an active role in defining the content and methods of their own learning. The training programs will implement the concepts of adult learning in activities wherein the fellows are responsible for their own learning requirements. Formal training includes the following three types of teaching activities:

- Program-specific learning activities
- Universal topics
- General learning opportunities

1.1. Program-Specific learning activities:

Program-specific activities are educational activities that are specifically designed and intended for trainee teaching during their training program. Trainees are required to participate in these activities. Trainees who fail to attend these activities may be subject to disciplinary sanctions. The attendance and participation in these activities should be linked to continuous assessment tools (see the section on formative assessment below). The program administration should support these activities by providing protected-time for trainees to attend and participate in these activities.

A) Program academic half-day:

At least 2-4 h of formal training time (commonly referred to as an academic half-day [AHD]) should be reserved every week. A formal teaching session is planned in advance with assigned tutors, time slots, and venues. Formal teaching time excludes bedside teaching

and clinic postings. The academic half-day covers the core specialty topics that are determined and approved by the scientific council of the Hospital Medicine fellowship program. These are aligned with specialty-defined competencies and teaching methods. The core specialty topics will ensure that important clinical problems relevant to Hospital Medicine are well taught. It is recommended that lectures include interactive, case-based discussions. The learning objectives of each core topic must be clearly defined. It is also preferable to use pre-learning materials (i.e., the flipped classroom concept). Whenever applicable, core specialty topics should include workshops, team-based learning (TBL), and simulation to develop skills in core procedures.

Regional supervisory committees in coordination with academic and training affairs, program directors, and fellows should work together to ensure that the academic activities indicated in the curriculum are planned and implemented. The trainee should be actively involved in the development and delivery of the topics under faculty supervision; the involvement may be in the form of delivery, content development, or research. The supervisor should ensure that each topic is stratified into three categories of learning domains: knowledge, skills, and attitudes. This may be facilitated by reviewing Tables 2-16 that define the learning objectives for each rotation, and Table 17 that matches the learning outcomes to the learning objectives of each rotation of the fellowship in Hospital Medicine. Appendices D and E, which list the most important topics, diagnoses, and procedures to the specialty of Hospital Medicine, are also useful resources for fellows and their trainers.

Approximately 40 half-day activity sessions should be conducted per academic training year. Suggestions for the academic half-day activities are shown in Appendix E. Time should also be reserved for other forms of teaching (e.g., journal club, clinical/practical teaching, and procedural skills training). The fellowship training committee, program directors, and fellows should work with academic and

training affairs, as well as regional supervisory committees, to plan and provide the academic activities indicated in this curriculum. Available resources should be used efficiently to optimize the exchange of expertise.

B) Clinical practice-based learning:

This includes exposure to training during direct patient care at the bedside, operating theater, or interventional radiology suite, as well as other work-related activities. Such training may also include courses and workshops (e.g., simulations, standardized patients, and bedside teaching). Hence, clinical practice-based learning is an excellent conduit for knowledge and skill transfer.

Although fellows are expected to enhance their capabilities through self-directed learning, practice-based learning allows educators to supervise fellows in selected settings. This ensures that fellows in Hospital Medicine become competent in the practical skills required by the program. Thus, training in the necessary knowledge, psychomotor, and/or attitude domains required by hospitalists can be delivered as a form of clinical practice-based learning. Each fellow must maintain a logbook documenting the procedures they have observed, performed under supervision, and performed independently.

Procedural competence should not be solely defined by the successful completion of a specific minimum number of procedures under supervision. It must be determined through simulation, direct observation, and other relevant criteria outlined in this curriculum and provided by fellowship program directors.

Nevertheless, it is prudent to determine the minimum number of procedures to be performed before training completion, and the minimum number needed to maintain competency after certification. In this context, the scientific committee of the Saudi Fellowship in Hospital Medicine suggests that it is unlikely that competency in any procedure (which hospitalists are expected to perform) can be

achieved or maintained, unless at least five procedures are performed per year.

C) Morning report:

The morning report is a case-based teaching session. It is commonly conducted in many residency programs. The specific purpose and focus of morning reports may vary between centers. However, the aim of the morning report is to teach efficient strategies for handover and case presentation skills, while allowing the discussion of interesting cases to enhance problem-solving and multidisciplinary skills. Hospitalists are expected to be champions of inpatient care, and therefore fellows in Hospital Medicine should attend, engage with, direct, and deliver morning reports.

E) Procedural skill training

Fellows in Hospital Medicine should be able to perform the procedures shown in Appendix G, safely and competently, under supervision.

The learning objectives of procedural skills training include:

- Apply knowledge and technical expertise when performing procedures, interpreting results, and understanding relevant limitations.
- Demonstrate effective, appropriate, and timely performance of therapeutic procedures.
- Demonstrate precise and relevant evidence-based physical examination skills.
- Demonstrate competent performance of procedures on a partial task trainer prior to performing procedures under supervision in clinical practice.
- Become familiar with ultrasound, and learn ultrasound-guided procedures.
- For each procedure, the fellow should master the following:
  - Indications

- Contraindications
- Complications and complication rates
- Sterile technique
- Procedural technique
- Consent for the procedure

Resources that may be used to facilitate procedural skill training include standard books and journal articles, online learning modules, simulation, and manikins (i.e., partial task trainers).

1.2. Universal Topics

Universal topics are educational activities that are developed by the SCFHS, and are intended for all specialties. Fellows in Hospital Medicine should complete the universal topics listed below. Priority has been given to topics that:

- Are of high value
- Require interdisciplinary and integrated approaches
- Require expertise beyond those available in individual, local training sites

Fellowship Year 1

Module 1: Introduction

1. Safe drug prescribing
2. Hospital-acquired infections
3. Sepsis; SIRS; DIVC
4. Antibiotic stewardship
5. Blood transfusion

Module 2: Cancer

1. Principles of cancer management
2. Side effects of chemotherapy and radiation therapy
3. Oncologic emergencies
4. Cancer prevention
5. Surveillance and follow-up of patients with cancer

Module 3: Diabetes and Metabolic Disorders

1. Recognition and management of diabetic emergencies
2. Management of diabetic complications
3. Comorbidities of obesity
4. Abnormal ECG

Module 4: Medical and Surgical Emergencies

1. Management of acute chest pain
2. Management of acute breathlessness
3. Management of altered sensorium
4. Management of hypotension and hypertension
5. Management of upper GI bleeding
6. Management of lower GI bleeding

Fellowship Year 2

Module 5: Acute Care

1. Pre-operative assessment
2. Post-operative care
3. Acute pain management
4. Chronic pain management
5. Management of fluid in the hospitalized patient
6. Management of electrolyte imbalances

Module 6: Frail Elderly Persons

1. Assessment of frail elderly persons
2. Mini-mental state examination
3. Prescribing drugs in the elderly
4. Care of the elderly

Module 7: Ethics and Healthcare

1. Occupational hazards of healthcare workers
2. Evidence-based approach to smoking cessation
3. Patient advocacy
4. Ethical issues: transplantation/organ harvesting and withdrawal of care
5. Ethical issues: treatment refusal and patient autonomy

6. Role of doctors in death and dying

These universal topic modules were developed by the SCFHS, and are available as e-learning courses. Personalized access to these online modules will be granted to each trainee. There is a self-assessment section at the end of each universal topic module. As indicated in the SCFHS' "executive policies of continuous assessment and annual promotion", universal topics are a mandatory component of the criteria for the annual promotion of trainees from their current level of training to the subsequent level. Universal topics will be distributed over the entire training period. Appendix C presents more details about the universal topic modules that should be completed by fellows in Hospital Medicine.

1.3. General Learning Opportunities:

Formal training time should be supplemented by other opportunities for practice-based learning (PBL), such as:

- Journal Club
- Grand rounds
- Involvement in QI committees and meetings
- Involvement in departmental administrative activities and meetings
- Involvement in research committees and meetings
- Continuous professional activities (CPD) relevant to the specialty (conferences and workshops)
- Morbidity and Mortality meetings (M&M)*

* M&M conferences offer trainees the opportunity to discuss cases wherein adverse outcomes resulted from medical errors or complications. The goal of this exercise is to reflect on adverse outcomes and use the discussion of these events to teach the principles of patient safety, and emphasize strategies to reduce errors.

In this context, the specific requirements of fellows in Hospital Medicine include the following:

Grand rounds

Fellows in Hospital Medicine are expected to organize and give monthly regional presentations on topics relevant to Hospital Medicine or updates on a recent guideline/national policy.

Quality improvement project

Fellows in Hospital Medicine are expected to complete a QI project by the end of their fellowship. The project topic should be relevant to improving the care of hospitalized patients in any setting.

Continuous professional activities (CPD) relevant to the specialty

Fellows in Hospital Medicine are expected to attend one international conference relevant to Hospital Medicine, or two local conferences relevant to Hospital Medicine.

XI. ASSESSMENT AND EVALUATION

1. Purpose of Assessment

Assessment plays a vital role in the success of postgraduate training, as it guides trainees and trainers to achieve defined standards, learning outcomes, and competencies. Assessments also provide feedback to learners and faculties about curriculum development, teaching methods, and the quality of the learning environment. A reliable and valid assessment is an excellent tool for assessing the alignment of the curriculum's objectives and methods of training and learning with fellows' achievements. Finally, assessments reassure patients and the public that health professionals are safe and competent to practice.

Assessment serves the following purposes:

a. **Assessment for learning:** Trainers will use information from fellows' performance to guide their learning. This enables educators to use information about their knowledge, understanding, and skills to provide trainees with feedback about their learning, and how to improve.
b. **Assessment as learning:** Involving trainees in the learning process enables them to monitor their own progress. Trainees use self-assessment and their educators' feedback to reflect on their progression. This develops and supports trainees' metacognitive skills. Assessment as learning is crucial in helping fellows become lifelong learners.
c. **Assessment of learning:** This is used to quantify the knowledge and skills fellows obtained during their training program. This is

a graded assessment and usually counts towards the trainee's end-of-training certification.

d. **Feedback and evaluation:** These assessment outcomes will represent quality metrics that can improve the learning experience.

Miller's pyramid of assessment [4] provides a framework for the measurement of fellows' clinical competencies. It also acts as a map to guide trainers in the selection of the most appropriate assessment tools to measure specific levels of clinical competency (i.e. "knows," "knows how," "shows how," and "does"). For the sake of organization, assessment will be further classified into two main categories: formative and summative.

2. Formative Assessment

2.1 General Principles

Fellows, as adult learners, should strive to obtain feedback on their performance during their journey of competency from "novice" to "mastery" levels. Formative assessment (also referred to as continuous assessment) is a component of assessment that primarily aims to provide trainees with effective, constructive feedback. Formative assessments are distributed throughout the academic year.

Fellows should review their performance reports (e.g., ITER, e-portfolio, mini-CEX, etc.) with their mentors every two weeks. Each of these meetings should last approximately 1 h. At the end of each year of training, the input from the formative assessment tools will be used to determine whether individual fellows will be promoted from their current position to the subsequent level of training. Formative assessment will be defined by the recommendations of the scientific committee of the Hospital Medicine fellowship program. These recommendations are usually updated and announced for each individual program at the start of the academic year.

According to the executive policy on continuous assessment (available online: www.scfhs.org), the formative assessment tools that will be used will have the following features based on Miller's pyramid [4]:

a. Multisource: a minimum of four tools.
b. Comprehensive: covering all learning domains (knowledge, skills, and attitude).
c. Relevant: focusing on workplace-based observations.
d. Competency-milestone oriented: reflecting the trainee's expected competencies that match the trainee's developmental level.

Trainees should actively seek feedback during training. Trainers are expected to provide timely and formative assessments. The SCFHS provides an e-portfolio system to enhance communication and data analysis arising from formative assessments.

Trainers and trainees are directed to follow the recommendations of the scientific council regarding the updated forms, frequency, distribution, and deadlines related to the implementation of evaluation forms.

2.2 Formative Assessment Tools

Important information about formative assessment tools used in the Hospital Medicine fellowship program is presented in Table 19.

Table 19. Important information about formative assessment tools used in the Hospital Medicine fellowship program.

Learning Domain	Formative Assessment Tools	Important details (e.g. frequency, and tool-related specifications)
Knowledge	-Annual Structured Oral Exam (SOE) -Case-Based Discussion (CBD)	Complete two CBDs each year. The fellow's CBD evaluation should be conducted by two consultants who are board-certified in Internal Medicine,

		Hospital Medicine, or Acute Medicine. At least one of these consultants should be external to the fellow's home-base hospital.
Skills	-DOPS: Direct Observation for Procedural Skills -Mini-CEX: Mini-Clinical Evaluation Exercise -Research Activities	DOPS: Fellows are expected to run two case conferences/multidisciplinary meetings independently each year. Fellows must complete four Mini-CEX per year Fellows are expected to complete a scholarly project (e.g. research) during the two years of their fellowship. This should be based on their chosen track. Fellows should orally present an abstract from their work on a local research day. The fellow should also submit a manuscript completed to the standard required for publication in a high-impact factor journal to the Program Director of the fellowship in Hospital Medicine before completing the 18 months of training. Appendix F includes further details regarding the research component of the fellowship in Hospital Medicine.
Attitude	-ITER: In-Training Evaluation Report	The fellow's attitude should be assessed continuously throughout the fellowship. This evaluation must be formally documented at the end of each rotation.

The evaluation of each component of these assessments was based on the equation in Table 20.

3. Summative Assessment

3.1 General Principles

Summative assessment primarily aims to make informed decisions on trainees' competencies. In contrast to formative assessments, summative assessments do not aim to provide constructive feedback. Further details on this section are mentioned in the general bylaws and executive policy of assessment (available online: www.scfhs.org). To be eligible to sit for the final exams, trainees should be granted "Certification of Training Completion". The formula for grading the assessments used in the Hospital Medicine fellowship program is shown in Table 20. The requirements that must be satisfied to obtain the "Certification of Training Completion" are described below.

For unconditional promotion, the candidate must score a minimum of "borderline pass" in all five components.

Under some circumstances, the program director can still recommend the promotion of candidates if the above is not met:

- If the candidate achieved a "borderline fail" in one or two components at most, and these scores did not belong to the same area of assessment (for example, both borderline failures should not be skills)
- The candidate must have passed all the other components and scored a minimum of a clear pass in at least two components.

Table 20. The formula for evaluation of the assessments used in the Hospital Medicine fellowship program.

Percentage	< 50%	50-59.4%	60-69.4%	>70%
Description	Clear fail	Borderline fail	Borderline pass	Clear pass

3.2. Final In-training Evaluation Report (FITER)

After a fellow has successfully completed all training rotations, the supervising committee must approve the fellow's logbook to confirm that this has occurred. Thereafter, at the end of the fellow's final year of training, the program directors must prepare the fellow's FITER. This report shall be the basis for obtaining the Certificate of Training Completion, which will allow the fellow to sit in for the final specialty examinations.

3.3 Certification of Training Completion

To be eligible to sit the final specialty examinations, each fellow must obtain a "Certification of Training Completion." Based on the training bylaws and executive policy, trainees will be granted a "Certification of Training Completion" once the following criteria have been fulfilled:

a) Successful completion of all training rotations.
b) Completion of training requirements (e.g., logbook, research, and others) as outlined in the FITER and approved by the scientific committee of the specialty of Hospital Medicine.
c) Clearance from SCFHS training affairs to ensure compliance with the payment of tuition fees and completion of universal topics.
d) Passing of the first part of the examination (if applicable)

The "Certification of Training Completion" will be issued and approved by the supervisory committee or its equivalent according to SCFHS policies.

3.4 Final Specialty Examinations

The final specialty examination is the summative assessment component that grants trainees the specialty's certification. It has two elements:

a) Final written exam: In order to be eligible for this exam, trainees are required to have a "Certification of Training Completion".

b) Final clinical/practical exam: Trainees will be required to pass the final written exam to be eligible for the final clinical/practical exam.

The final written exam will be a combination of short essay questions (SEQs) and multiple-choice questions (MCQs).

- The final written exam will constitute 40% of the total weight of the final assessment.
- The remainder of the cumulative weight of assessment will be distributed as follows:
  - 15% on the average of Mini-CEX
  - 20% of the total grade of long case-based discussion (5% for each long CBD)
  - 25% on the FITER

Blueprint Outlines:

The contents of the blueprints for the final written (Table 21) and clinical (Tables 22 and 23) examinations are included for demonstration only. Please refer to the most updated version published on SCFHS website for the most accurate information.

Table 21. Written examination blueprint for the fellowship program in Hospital Medicine

Domain	Topic	Percentage
Inpatient care	Neurological Disease	72.5%
	Respiratory disease	
	Cardiovascular Disease	
	Renal Disease	
	Gastroenterological and Hepatological Disease	
	Endocrine disease	
	Hematological and Oncological Disease	
	Dermatological, Rheumatological, Allergic, and Immunological Disease	

	Care of the Elderly patient	
	Intensive Care	
Consultative co-management	Peri-operative Medicine	20%
	Obstetric Medicine	
	Co-management of patients in other specialties	
Palliative care and medical ethics		2.5%
Quality improvement, models of health care and research	Health care models for acute inpatient care	5%
	Quality improvement projects	
	Research design, methodology, and statistics	

Table 22. Clinical examination blueprint for the fellowship program in Hospital Medicine

		DIMENSIONS OF CARE				
		Health Promotion and Illness Prevention 1±1 Station(s)	Acute 5±1 Station(s)	Chronic 3±1 Station(s)	Psychological Aspects 1±1 Station(s)	Number of Station(s)
DOMAINS FOR INTEGRATED CLINICAL ENCOUNTER	Patient Care	1	3	2		6
	Patient Safety and Procedural Skills		1			1
	Communication and Interpersonal Skills			1	1	2
	Professional Behaviors			1		1
	Total Stations	1	5	3	1	10

Table 23. Blueprint of the distribution of stations in the clinical examination by system

	Distribution by System	
SYSTEM	Neurology	1±1 Station(s) 1
	Pulmonary	1±1 Station(s) 1
	Cardiology	1±1 Station(s) 1
	Nephrology	1±1 Station(s) 1
	Gastroenterology or Hepatology	1±1 Station(s) 1
	Endocrinology	1±1 Station(s) 1
	Hematology/Oncology	1±1 Station(s) 1
	Infectious diseases	1±1 Station(s) 1
	Dermatology, Rheumatology, Allergy, or Immunology	1±1 Station(s) 1
	Consultation Medicine	1±1 Station(s) 1
	Intensive Care Medicine	1±1 Station(s) 1
	Total Stations 10/10	

A matrix correlating the learning domains, summative assessment tools, and passing thresholds for obtaining board certification in Hospital Medicine is shown in Table 24. For further details on the final examinations of the fellowship program in Hospital Medicine, please refer to the SCFHS' general bylaws and executive policy of assessment (available online: www.scfhs.org).

Table 24. Matrix correlating the learning domains, summative assessment tools, and passing thresholds for obtaining board certification in Hospital Medicine.

Learning Domain	Summative Assessment Tools	Passing Score
Knowledge	- Final Written Examination	At least a borderline pass in each tool in accordance with the standard setting method used by the executive administration of assessment
Skills	- Objective Structured Clinical Examinations (OSCE) - Structured Oral Examinations (SOE)	At least a borderline pass in each tool in accordance with the standard setting method used by the executive administration of assessment
Attitude	FITER: In-Training Evaluation Report	Successfully pass FITER

XII. PROGRAM EVALUATION

The SCFHS will use several measures to evaluate the implementation of this curriculum. The training outcomes of this program will be measured against the quality assurance framework endorsed by the Central Training Committee at the SCFHS. The results of the fellows' assessments (both formative and summative) will be analyzed and mapped to curriculum content. Other performance indicators include:

- Report of the annual trainees' satisfaction survey.
- Reports from trainees' evaluation of faculty members.
- Reports from trainees' evaluation of rotations.
- Reports from the annual survey of program directors.
- Data available from program accreditations.
- Reports from direct field communications with trainees and trainers.

Goal-based evaluation: The achievement of the intended milestones will be evaluated at the end of each stage to assess the progress of curriculum delivery. Any identified deficiencies will be addressed in the following stages of curriculum delivery. This will utilize the time dedicated to the trainee-selected topics and sessions on professionalism.

In addition to updating the subject matter and integrating the best practices from benchmarked international programs, the SCFHS will ensure that all the relevant available data will be utilized for future revisions of the current curriculum document.

XIII. POLICIES AND PROCEDURES

This curriculum outlines the learning objectives with which trainees and trainers interact to achieve the identified educational outcomes. The SCFHS has a full set of "General Bylaws" and "Executive Policies" (published on the official SCFHS website) that regulate all training-related processes. The general bylaws of training, assessment, and accreditation, as well as executive policies on admission, registration, continuous assessment and promotion, examination, trainees' representation and support, duty hours, and leaves are examples of regulations that need to be implemented. Under this curriculum, trainees, trainers, and supervisors must comply with the most updated bylaws and policies, which can be accessed online (via the official SCFHS website).

XIV. APPENDICES

A. Junior-level Competency Matrix
B. Senior-level Competency Matrix
C. Universal Topic Modules
D. Top Conditions and procedures in the Specialty
E. Example of academic half-day table
F. Research component of the fellowship in Hospital Medicine
G. Practical procedures
H. References

Appendix A

Junior-level Competency Matrix: to map competency, learning domains, and milestones

Training Year level	Competency Roles (with annotation of learning domains involved: K: knowledge, S: Skills, A: Attitude)	Professional Activities Related to the Specialty					
		Conducting a full patient clinical assessment	Consultation Medicine	Managing patients undergoing procedures	Managing acute illness in adults	Managing unstable adults	Compliance with documentation and proper reporting standards
F1	Professional Expert	Mastering history-taking and physical examination K, S	Using all specialized hospitalist procedural and cognitive skills to proficiently assess and recommend treatment	Clinical and laboratory evaluation, hydration, NPO, and risk	Assessing and managing acutely unwell adults K, S	Evaluating and managing unstable adults (abnormal vital signs) K, S	Relevant documentation of daily patient care, prescriptions, and discharge summaries

			for adults admitted under other specialties K, S, A	assessment K, S			K, S, A
	Communicator	Effectively communicating with patients and guardians K, S, A	Effectively communicating with caregivers and team members K, S, A	Informed consent K, S	Effectively communicating with patients, caregivers, and team member K, S, A	Effectively communicating with patients, caregivers, and team members K, S, A	Writing, dictation, and presentation skills K, S
	Collaborator		Multidisciplinary team work S, A	Multidisciplinary team work S, A	Seeking support from senior physicians when needed K, S, A	Seeking support from senior physicians when needed K, S, A	Inter-professional communication A
	Advocate	Holistic approach and preventive medicine K, S, A		Patient safety K, S, A	Patient safety K, S, A	Patient safety K, S, A	Quality improvement K, S, A
	Leader	Time management S	Leading the consultation team S, A		Leading the situation for the patient's best interest S, A	Leading the situation for the patient's best interest S, A	Quality assurance K, S, A
	Scholar			Evidence-based practice K, S	Evidence-based practice K, S	Evidence-based practice K, S	

	Professional		Confidentiality and interprofessional relationships A			Interprofessional relationships A	Interprofessional relationships A

Appendix B

Senior-level Competency Matrix: to map competency, learning domain, and milestones

Training Year level	Competency-Roles (with annotation of learning domains involved: K: knowledge, S: Skills, A: Attitude)	Professional Activities Related to the Specialty					
		Complete a comprehensive assessment in a timely manner	Co-management (e.g., Peri-operative medicine, obstetric co-management, and co-management with other specialties	Manage acute illness	Manage chronic disease	Lead an in-patient team in acute care	Conduct a family meeting for an extremely unwell patient
F2	Professional Expert	Deliver best practices in clinical care for adults K, S, A	Use all specialized hospitalist procedural and cognitive skills to proficiently co-manage adults admitted under other specialties K, S, A	Deliver best practices in clinical care for adults K, S, A	Use all specialized hospitalist procedural and cognitive skills in assessing and treating adults proficiently K, S, A	Show an ability to communicate with caregivers to provide collateral information and assess the caregiver's stress and burnout levels K, S, A	Deliver best practices in clinical care for adults K, S, A
	Communicator	Communicator	Demonstrate the highest	Demon-strate the	Demon-strate the	Develop expert	Communicator

			level of professionalism and respect while communicating with colleagues and allied healthcare workers K, S, A	highest level of professionalism and respect while communicating with colleagues and allied healthcare workers K, S, A	highest level of professionalism and respect while communicating with colleagues and allied healthcare workers K, S, A	ability to interact, listen, and communicate with older adults from different backgrounds S, A	
	Collaborator	Work effectively with allied healthcare professional members to provide a multifaceted plan S, A	Work effectively with allied healthcare professional to provide a multifaceted plan S, A	Work effectively with allied healthcare professional to provide a multifaceted plan S, A	Work effectively with allied healthcare professional to provide a multifaceted plan S, A	Work effectively with allied health team members to provide a multifaceted plan S, A	
	Advocate	Identify barriers preventing older adults from receiving their health care rights, and advocate on their behalf to get them S, A	Identify barriers preventing older adults from receiving their health care rights, and advocate on their behalf to get them S, A	Identify barriers preventing older adults from receiving their health care rights, and advocate on their behalf to get them S, A	Identify barriers preventing older adults from receiving their health care rights, and advocate on their behalf to get them S, A	Identify barriers preventing older adults from receiving their health care rights, and advocate on their behalf to get them S, A	Identify barriers preventing older adults from receiving their health care rights, and advocate on their behalf to get them S, A
		Manage and	Work efficiently in a			Demonstrate	Manage and

		allocate health care resources in an efficient manner K, S, A Work efficiently in a sophisticated health care system S, A Demonstrate leadership in managing geriatric medicine services in diverse settings (i.e., long-term care facilities, acute care, ambulatory care, and patient homes) K, S, A Manage and allocate health care resources in an efficient manner K, S, A	sophisticated healthcare system S, A			leadership in managing geriatric medicine services in diverse settings (i.e., long-term care facilities, acute care, ambulatory care, and patient homes) K, S, A	allocate health care resources in an efficient manner K, S, A

	Scholar	Participate in annual continuous improvement programs focused on geriatric medicine updates K, A		Participate in annual continuous improvement programs focused on geriatric medicine updates K, A			
	Professional	Practice evidence-based medicine, and adhere to professional guideline recommendations for best practices K, S, A	Practice evidence-based medicine, and adhere to professional guideline recommendations for best practices K, S, A	Practice evidence-based medicine, and adhere to professional guideline recommendations for best practices K, S, A	Practice evidence-based medicine, and adhere to professional guideline recommendations for best practices K, S, A	Practice evidence-based medicine, and adhere to professional guideline recommendations for best practices K, S, A	Practice evidence-based medicine, and adhere to professional guideline recommendations for best practices K, S, A

Appendix-C

Universal Topics

Each fellow should complete modules 1-7 of the universal topics during their training in Hospital Medicine.

Intent:

These are high-value and interdisciplinary topics of outmost importance to trainees. The reason for delivering the topics centrally is to ensure that every trainee receives high-quality teaching, and develops essential core knowledge. These topics are common to all specialties.

The included topics meet one or more of the following criteria:

- Impactful: topics that are common or contain life-threatening diseases
- Interdisciplinary: topics that are difficult to teach in a single discipline
- Orphan: topics that are poorly represented in the undergraduate curriculum
- Practical: topics that trainees will encounter in hospital practice

Development and Delivery:

The core topics for postgraduate curricula are developed and delivered centrally by the SCFHS through an e-learning platform. A set of preliminary learning outcomes for each topic has been developed. Content experts, in collaboration with the central team, may modify the learning outcomes.

These topics are didactic in nature, but focus on practical aspects of care. These topics will be more content-heavy than workshops and other planned face-to-face interactive sessions. These e-learning modules may include case studies, high-quality images, worked examples of prescribing drugs in disease states, and internet resources.

The duration of each topic is approximately 1.5 h.

Assessment:

The topics are delivered in a modular manner. There is an online formative assessment at the end of each learning unit. After the completion of all the topics, there will be a combined summative assessment in the form of context-rich MCQs. All trainees must attain minimum competency in the summative assessment, as specified by the SCFHS. These topics may also be assessed in a summative manner through a specialty examination.

Please visit the SCFHS website for a complete list of universal topics. Some of the suggested universal topics for fellows in Hospital Medicine are listed below:

Module 1: Introduction

1. Safe drug prescribing
2. Hospital-acquired infections
3. Sepsis, SIRS, and DIVC

4. Antibiotic stewardship
5. Blood transfusion

Safe drug prescription: At the end of the learning unit program, the fellow should be able to:

a) Recognize importance of safe drug prescribing in health care.
b) Describe various adverse drug reactions, with examples of commonly prescribed drugs that can cause such reactions.
c) Apply principles of drug-drug interactions, drug-disease interactions, and drug-food interactions in common situations.
d) Apply principles of prescribing drugs in special situations such as renal and liver failures.
e) Apply principles of prescribing drugs for the elderly and pediatric patients, as well as for pregnant and lactating women.
f) Promote evidence-based cost-effective prescribing.
g) Discuss ethical and legal framework governing safe-drug prescribing in Saudi Arabia.

Hospital-Acquired Infections (HAI): At the end of the learning unit program, the fellow should be able to:

a) Discuss the epidemiology of HAI with special reference to HAI in Saudi Arabia.
b) Recognize HAI as one of the major emerging threats in health care.
c) Identify the common sources and set-ups of HAI.
d) Describe the risk factors of common HAIs such as ventilator-associated pneumonia, MRSA infection, CLABSI, and vancomycin-resistant Enterococcus (VRE) infection
e) Identify the role of healthcare workers in the prevention of HAI.
f) Determine appropriate pharmacological (e.g., selected antibiotic) and non-pharmacological (e.g., the removal of indwelling catheter) measures in the treatment of HAI.
g) Propose a plan to prevent HAI in the workplace.

Sepsis, SIRS, and DIVC: at the end of the learning unit program, the fellow should be able to:

a) Explain the pathogenesis of sepsis, SIRS, and DIVC.
b) Identify patient-related and non-patient-related predisposing factors of sepsis, SIRS, and DIVC.
c) Recognize a patient at risk of developing sepsis, SIRS, and DIVC.
d) Describe the complications of sepsis, SIRS, and DIVC.
e) Apply the principles of management of patients with sepsis, SIRS, and DIVC.
f) Describe the prognosis of sepsis, SIRS, and DIVC.

Antibiotic Stewardship: At the end of the learning unit program, the fellow should be able to:

a) Recognize antibiotic resistance as one of the most pressing public health threats globally.
b) Describe the mechanisms of antibiotic resistance.
c) Determine the appropriate and inappropriate use of antibiotics.
d) Develop a plan for the safe and proper use of antibiotics, including the correct indications, duration, types of antibiotics, de-escalation, and discontinuation.
e) Appraise the local guidelines for the prevention of antibiotic resistance.

Blood Transfusion: At the end of the learning unit program, the fellow should be able to:

a) Review the different components of blood products available for transfusion.
b) Recognize the indications and contraindications of blood product transfusion.
c) Discuss the benefits, risks, and alternatives to the transfusion of blood products.
d) Obtain consent for the transfusion of specific blood products.
e) Perform the steps necessary to ensure a safe transfusion of specific blood products.

f) Understand the special precautions and procedures needed during massive transfusions.
g) Recognize transfusion-associated reactions and provide immediate management for them.

Module 2: Cancer

1. Principles of cancer management
2. Side effects of chemotherapy and radiation therapy
3. Oncologic emergencies
4. Cancer prevention
5. Surveillance and follow-up of patients with cancer

Principles of cancer management: At the end of the learning unit program, the fellow should be able to:

a) Discuss the basic principles of cancer staging and grading.
b) Enumerate the basic principles (e.g., indications, mechanisms, and types) of:
    a. Cancer surgery
    b. Chemotherapy
    c. Radiotherapy
    d. Immunotherapy
    e. Hormone therapy

Side effects of chemotherapy and radiation therapy: At the end of the learning unit program, the fellow should be able to:

a) Describe important side effects (e.g., frequent or life-threatening) of common chemotherapy drugs.
b) Explain the principles of screening for and monitoring of side-effects in patients receiving chemotherapy.
c) Describe pharmacological and non-pharmacological measures to ameliorate the side effects of commonly prescribed chemotherapy drugs.
d) Describe important (e.g., common and life-threatening) side effects of radiation therapy.
e) Describe pharmacological and non-pharmacological measures to ameliorate the side effects of radiotherapy.

Oncologic Emergencies: At the end of the learning unit program, the fellow should be able to:

a) Enumerate important oncologic emergencies encountered both in hospital and ambulatory settings.
b) Discuss the pathogenesis of important oncologic emergencies.
c) Recognize oncologic emergencies.
d) Institute immediate measures when treating a patient with oncologic emergencies.
e) Counsel the patients in an anticipatory manner to recognize and prevent oncologic emergencies.

Cancer Prevention: At the end of the learning unit program, the fellow should be able to:

a) Conclude that many major cancers are preventable.
b) Recognize that smoking prevention and life-style modifications are major prevention measures.
c) Recognize cancers that are preventable.
d) Discuss the major cancer prevention strategies at the individual as well as national level.
e) Counsel patients and families in a proactive manner regarding cancer prevention, including screening.

Surveillance and follow-up of patients with cancer: At the end of the Learning Unit, the fellow should be able to:

a) Describe the principles of surveillance and follow-up of patients with cancer.
b) Enumerate the surveillance and follow-up plan for common forms of cancer.
c) Describe the role of primary care physicians, family physicians, and others in the surveillance and follow-up of patients with cancer.
d) Liaise with oncologists to provide surveillance and follow-up for patients with cancer.

Module 3: Diabetes and Metabolic Disorders

1. Recognition and management of diabetic emergencies
2. Management of diabetic complications
3. Comorbidities of obesity
4. Abnormal ECG

Recognition and management of diabetic emergencies: At the end of the learning unit program, the fellow should be able to:

a) Describe the pathogenesis of common diabetic emergencies, including their complications.
b) Identify risk factors and groups of patients vulnerable to such emergencies.
c) Recognize a patient presenting with a diabetic emergency.
d) Institute immediate management.
e) Refer the patient to the next level of care (i.e., high dependency unit or intensive care unit), when appropriate.
f) Counsel patients and their families to prevent such emergencies.

Management of diabetic complications: At the end of the learning unit program, the fellow should be able to:

a) Describe the pathogenesis of the important complications of type 2 diabetes mellitus.
b) Screen patients for such complications.
c) Provide preventive measures for such complications.
d) Treat such complications.
e) Counsel patients and families with special emphasis on prevention.

Comorbidities of obesity: At the end of the learning unit program, the fellow should be able to:

a) Screen patients for the presence of common and important complications/comorbidities of obesity.
b) Manage obesity-related comorbidities.
c) Provide dietary and lifestyle advice for the prevention and management of obesity.

Abnormal ECG: At the end of the learning unit program, the fellow should be able to:

a) Recognize common and important ECG abnormalities.
b) Institute immediate management, if necessary.

Module 4: Medical and Surgical Emergencies

1. Management of acute chest pain
2. Management of acute breathlessness
3. Management of altered sensorium
4. Management of hypotension and hypertension
5. Management of upper GI bleeding
6. Management of lower GI bleeding

For all of the above module items, the following learning outcomes apply.

At the end of the learning unit program, the fellow should be able to:

a) Triage and categorize patients.
b) Identify patients who need prompt medical and surgical attention.
c) Generate preliminary diagnoses based on history and physical examination.
d) Order and interpret urgent investigations.
e) Provide the appropriate immediate management required by these patients.
f) Refer patients to the next level of care (i.e., high dependency unit or intensive care unit), when necessary.

Module 5: Acute Care

1. Pre-operative assessment
2. Post-operative care
3. Acute pain management
4. Chronic pain management
5. Management of fluid in the hospitalized patient
6. Management of electrolyte imbalances

a) **Pre-operative assessment:** At the end of the learning unit program, the fellow should be able to describe the basic principles of pre-operative

assessment and perform preoperative assessment in patients with uncomplicated diseases, with special emphasis on:

a. General health assessment
b. Cardiorespiratory assessment
c. Medications and medical device assessment
d. Drug allergy
e. Pain relief needs
f. Individualized risk stratification
g. Optimization and risk reduction

Post-operative care: At the end of the learning unit program, the fellow should be able to:

a) Devise a postoperative care plan including monitoring of vital signs, pain management, fluid management, medication use, and laboratory investigations.
b) Properly hand over patients to appropriate facilities.
c) Describe the process of post-operative patient recovery.
d) Identify common post-operative complications.
e) Monitor patients for possible post-operative complications.
f) Institute immediate management for post-operative complications.

Acute Pain Management: At the end of the learning unit program, the fellow should be able to:

a) Review the physiological basis of pain perception.
b) Proactively identify patients who might be in acute pain.
c) Assess a patient with acute pain.
d) Apply various pharmacological and non-pharmacological modalities for the management of acute pain.
e) Provide adequate pain relief for uncomplicated patients with acute pain.
f) Identify patients with acute pain who may benefit from specialized pain services, and refer them appropriately.

Chronic Pain Management: At the end of the learning unit program, the fellow should be able to:

a) Review the bio-psychosocial and physiological basis of chronic pain perception.
b) Discuss various pharmacological and non-pharmacological options available for chronic pain management.
c) Provide adequate pain relief for patients with uncomplicated diseases and chronic pain.
d) Identify patients with chronic pain who may benefit from specialized pain services, and refer them appropriately.

Management of fluid in hospitalized patients: At the end of the learning unit program, the fellow should be able to:

a) Review the physiological basis of body water balance.
b) Assess patient hydration status.
c) Recognize over- and under-hydrated patients.
d) Order fluid therapy (oral and/or intravenous) for a hospitalized patient.
e) Monitor patient fluid status and response to therapy through history, physical examination, and laboratory investigations.

Management of acid-base electrolyte imbalances: At the end of the learning unit program, the fellow should be able to:

a) Review the physiological basis of the body's electrolyte composition and acid-base balance.
b) Identify diseases and conditions that often cause or are associated with acid/base and electrolyte imbalances.
c) Correct electrolyte derangements and acid-base imbalances.
d) Perform careful calculations, checks, and other safety measures, while correcting acid-base and electrolyte imbalances.
e) Monitor response to therapy through history, physical examination, and selected laboratory investigations.

Module 6: Frail Elderly Patients

1. Assessment of frail elderly patients
2. Mini-mental state examination (mini-MSE)
3. Prescribing drugs in the elderly
4. Care of the elderly

Assessment of frail elderly patients: At the end of the learning unit program, the fellow should be able to:

a) Enumerate the similarities and differences between a comprehensive assessment of an elderly patient and the assessment of other patients.
b) Perform comprehensive assessment, in conjunction with other members of the health care team, of a frail elderly patient with special emphasis on psychosocial factors, functional status, quality of life, diet and nutrition, comorbidities, and medication history.
c) Develop a problem list based on the holistic assessment of the elderly patient.

Mini-mental state examination: At the end of the learning unit program, the fellow should be able to:

a) Review the appropriate usages, advantages, and potential pitfalls of Mini-MSE.
b) Identify patients suitable for mini-MSE.
c) Screen patients for cognitive impairment through mini-MSE.

Prescribing drugs in the elderly: At the end of the learning unit program, the fellow should be able to:

a) Discuss the principles of drug prescription in the elderly.
b) Recognize polypharmacy, prescribing cascade, inappropriate dosages, inappropriate drugs, and deliberate drug exclusion as major causes of morbidity in the elderly.
c) Describe age-related physiological and functional changes that contribute to an increased risk of drug-induced adverse events in the elderly.
d) Discuss drug-drug and drug-disease interactions in the elderly.
e) Recognize and understand the application of Beers criteria for inappropriate medication use in the elderly.
f) Develop a rational prescribing habit for the elderly.
g) Counsel elderly patients and their families/care-givers on safe medication usage.

Care of the elderly: At the end of the learning unit program, the fellow should be able to:

a) Describe the factors that need to be considered while planning care for the elderly.
b) Recognize the needs and well-being of care-givers.
c) Identify the local and community resources available for the care of the elderly.
d) Develop, with input from other healthcare professionals, an individualized multidisciplinary care plan for an elderly patient.

Module 7: Ethics and Healthcare

1. Occupational hazards of healthcare workers
2. Evidence-based approach to smoking cessation
3. Patient advocacy
4. Ethical issues: transplantation/organ harvesting and withdrawal of care
5. Ethical issues: treatment refusal and patient autonomy
6. Role of doctors in death and dying

Occupation hazards of health care workers (HCW): At the end of the learning unit program, the fellow should be able to:

a) Recognize common occupational hazards for HCWs and identify the risk factors for these hazards.
b) Describe common occupational hazards in the workplace.
c) Develop familiarity with legal and regulatory frameworks governing occupational hazards amongst HCWs.
d) Proactively promote safety in the workplace.
e) Protect himself/herself and colleagues against potential occupational hazards in the workplace.

Evidence-based approach to smoking cessation: At the end of the learning unit program, the fellow should be able to:

a) Describe the epidemiology of smoking and tobacco usages in Saudi Arabia.
b) Review the effects of smoking on smokers and their families.

c) Effectively use pharmacologic and non-pharmacologic measures to treat tobacco usage and dependence.
d) Effectively use pharmacologic and non-pharmacologic measures to treat tobacco use and dependence in special population groups (e.g., pregnant women, adolescents, and patients with psychiatric disorders).

Patient advocacy: At the end of the learning unit program, the fellow should be able to:

a) Define patient advocacy.
b) Recognize patient advocacy as a core value governing medical practice.
c) Describe the role of patient advocates in patient care.
d) Develop a positive attitude towards patient advocacy.
e) Be a patient advocate in conflicting situations.
f) Be familiar with local and national patient advocacy groups.

Ethical issues (transplantation/organ harvesting and withdrawal of care): At the end of the learning unit program, the fellow should be able to:

a) Apply key ethical and religious principles governing organ transplantation and withdrawal of care.
b) Be familiar with the legal and regulatory guidelines on organ transplantation, goals of care, and withdrawal of therapy.
c) Counsel patients and families in the light of the ethical and religious principles relevant and applicable to each individual case.
d) Guide patients and families to make informed decisions.

Ethical issues (treatment refusal and patient autonomy): At the end of the learning unit program, the fellow should be able to:

a) Predict situations wherein a patient or family is likely to decline prescribed treatment.
b) Describe the concept of a 'rational adult' in the context of patient autonomy and treatment refusal.
c) Analyze key ethical, moral, and regulatory dilemmas in treatment refusal.
d) Recognize the importance of patient autonomy in the decision-making process.

e) Counsel patients and families declining medical treatment in the light of patients' best interests.

Role of doctors in death and dying: At the end of the learning unit program, the fellow should be able to:

a) Recognize the role of the doctor in the dying process.
b) Provide emotional support and physical care to dying patients and their families.
c) Provide appropriate pain management to a dying patient.
d) Identify patients who may benefit from palliative care services, and refer them appropriately.

Appendix-D

Most common diseases, conditions, and procedures relevant to the specialty of Hospital Medicine

Ten most common diagnoses in hospitalized patients in Saudi Arabia [5]			
Disease/Condition		Relative Frequency	Cumulative Frequency
1.	Diabetes	10.5	10.5
2.	Ischemic heart disease	8.6	19.1
3.	Bronchial asthma	5.8	24.9
4.	Chronic liver disease	5.4	30.3
5.	Congestive heart failure	3.8	34.1
6.	Hypertension	2.8	36.9
7.	Sickle cell anemia	2.6	39.5
8.	COPD	2.4	41.9
9.	Chronic kidney disease	2.1	44.0
10.	Cerebrovascular accident	2	46.0

Ten most common causes of mortality in Saudi Arabia [6,7]			
Disease/Condition		Relative Frequency (% of all cause adult mortality)	Cumulative Frequency (% of all cause adult mortality)
1.	Ischemic heart disease	24	24
2.	Road injuries	16	40
3.	Stroke	10	50
4.	Chronic kidney disease	6	56
5.	Lower respiratory infection	4	60
6.	Falls	3	63
7.	Cirrhosis	3	66
8.	Diabetes	2	68
9.	Other unintentional injuries	2	70
10.	COPD	2	72

Ten most common procedures performed by hospitalists	
Name of Procedure	Approximate Frequency
Electrocardiogram interpretation	Several times a day
Chest X-ray interpretation	Several times a day
Abdominal Paracentesis	Once per week
Thoracentesis	Once per week
Placement of an ascitic drain	Once per week
Placement of a chest drain	Once per week
Lumbar puncture	Once per week
Central Line Placement (including peripherally inserted central catheters)	Twice per month
Non-invasive ventilation	Twice per month
Endotracheal intubation	Once per month

Appendix-E

The following table includes examples of suggested themes for half-day activities over the course of 1 year.

Academic week	Section	Date	Time	Sessions	presenters
1	Introduction to Hospital Medicine		13:00-14:00	Welcoming of fellows for the program	Program director
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
2	Introduction to Consultation Medicine		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	

3	Introduction to Co-management		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
4	Introduction to Critical Appraisal and Research		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
5	Introduction to Medical Education, Teaching, and Presentation Skills		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
6	Introduction to Quality Improvement		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
7	Introduction to Leadership Skills		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
8	Stroke		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
9	Neurology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	

10	Pulmonology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
11	Cardiology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
12	Nephrology		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
13	Communication Skills, Goals of Care, and Medical Ethics		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
14	Gastroenterology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
15	Hepatology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
16	Diabetes and Endocrinology		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	

17	Infectious Diseases		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
18	Palliative Care and Pain Management		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
19	Obstetric Medicine		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
20	Peri-operative Medicine/Surgical Co-management		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
21	Dermatology and Rheumatology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
22	Allergy and Immunology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
23	Geriatrics		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	

24	Intensive Care		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
25	Neurology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
26	Pulmonology		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
27	Cardiology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
28	Nephrology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
29	Gastroenterology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
30	Hepatology		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	

31	Diabetes and Endocrinology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
32	Infectious Diseases		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
33	Geriatrics		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
34	Intensive Care		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
35	Dermatology and Rheumatology		13:00-14:00	Topic	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	
36	Allergy and Immunology		13:00-14:00	*Journal club	
			14:00-15:00	*Case presentation	
			15:00-16:00	Topic	

* The journal club and/or case presentation can be held either during a half-day activity or in the evening.

Examples of Core Topics: Case Discussions and Interactive Lectures	
Topics	**Comments**
Heart Failure	
Pneumonia	
Urinary Tract Infection	

Examples of Core Specialty Topics: Workshops/Simulation	
Topics	**Comments**
ECG interpretation and response	
Chest X-ray Interpretation	
Procedural Skills	
How to run a Quality Improvement Project	
How to conduct a Research Project	

Specific topics that may be considered for each theme are suggested below.

EMERGENCY TOPICS

Pulmonology

Pulmonary embolism

Chronic obstructive pulmonary disease

Asthma

Respiratory failure

Pneumonia

Cardiology

Arrhythmias

Acute coronary syndromes

Acute heart failure

Aortic dissection

Cardiogenic shock

Nephrology

Acute kidney injury

Pulmonary renal syndromes

Hepatorenal syndromes

Metabolic acidosis

Gastroenterology

GI bleeding (upper and lower)

Hepatic encephalopathy, spontaneous bacterial peritonitis

Acute liver failure

Acute pancreatitis

Acute cholangitis

Neurology

Stroke

Seizures

Pseudoseizures

Endocrinology

Diabetic ketoacidosis/Hyperosmolar hyperglycemic syndrome/hypoglycemia

Addisonian crisis

Myxedema coma/thyroid storm

Infectious Diseases

Middle East Respiratory Syndrome

Coronavirus disease 2019

Infective endocarditis

Meningitis and encephalitis

Rheumatology

Septic arthritis

Hematology/Oncology

Febrile neutropenia

Tumor lysis syndrome

Malignancy-induced hypercalcemia

Superior vena cava syndrome

Spinal cord compression

Thrombotic thrombocytopenic purpura/hemolytic uremic syndrome

Sickle cell disease crises

Intensive Care

Acute respiratory distress syndrome

Approach to a patient in shock

Coronavirus disease 2019

General Medicine

Hypertensive emergencies

Management of drug overdoses including:

- Acetaminophen
- Aspirin
- Tricyclic antidepressants
- Digoxin
- Hydrocarbon
- Alcohols (ethanol, methanol, and ethylene glycol)
- Opioids
- Cocaine
- Benzodiazepines

"NON-EMERGENCY" TOPICS

Pulmonology

Interstitial lung disease

Bronchiectasis

Sleep apnea

Interpretation of chest X-rays and lung function tests

Approach to lung nodules

Pleural effusion

Cardiology

ECG interpretation

Pericarditis

Heart failure

Atrial fibrillation

Cardiomyopathy/myocarditis

Mechanical complications of acute myocardial infarction

Nephrology

End-stage renal disease

Renal replacement therapy

Glomerulonephritis

Polycystic kidney disease

Gastroenterology/Hepatology

Gastroesophageal reflux disease

Peptic ulcer disease

Inflammatory bowel disease

Viral hepatitis

Autoimmune hepatitis, primary sclerosing cholangitis, primary biliary cirrhosis

Metabolic liver disease: non-alcoholic fatty liver disease, hemochromatosis, Wilson's disease

Celiac disease and malabsorption

Irritable bowel syndrome

Complications of cirrhosis

Infectious Diseases

Brucellosis

Tuberculosis

Malaria

Infection in immunocompromised patients

Neurology

Guillain-Barré syndrome

Polyneuropathy

Headache

Endocrinology

Thyroid nodule

Pheochromocytoma

Hyperaldosteronism

Cushing's syndrome

Dyslipidemia

Osteoporosis and metabolic bone disorders

Pituitary gland disorders

Rheumatology

Vasculitis

Systemic lupus erythematosus

Connective tissue disease

Rheumatoid arthritis

Hematology

Acute leukemia

Chronic leukemia

Multiple myeloma

Thalassemia

Thrombotic thrombocytopenic purpura/hemolytic uremic syndrome

Sickle cell disease

Bone marrow transplantation and graft-versus-host disease

Oncology

Breast, colon, lung, pancreatic, and nasopharyngeal carcinomas

Geriatrics

Falls

Acute confusional state

Dementia

Polypharmacy

Urinary incontinence/retention

Weight loss

Medical ethics

Appendix-F

RESEARCH COMPONENT OF THE FELLOWSHIP IN HOSPITAL MEDICINE

Number of rotation blocks (Included in time allocated to fellow's selected track)	First year	Second year	Total
	1	1	2

COMPETENCY-BASED MEDICAL EDUCATION ROLES

Medical Expert

Goals

- Demonstrate the understanding of research design, methodology, data analysis, and clinical epidemiology.
- Become familiar with the ethical requirements of research and to demonstrate an understanding of informed consent in this context.
- Understand and use appropriate methods to prepare and submit research proposals, collect data, analyze results using statistics, and write research manuscripts.
- Demonstrate awareness of current research topics in Hospital Medicine.
- Acquire skills for scientific presentations and public discussions.

Communicator

- Demonstrate skills in presenting research to scientific communities through posters, abstracts, teaching slides, manuscripts, or other methods of scientific communication.
- Communicate and collaborate effectively with research supervisors to conduct research.

Collaborator

- Identify, consult, and collaborate with experts to conduct a research project.

Leader

- Identify a research interest and a supervisor to engage in scholarly activities of scientific inquiry and data dissemination.
- Use available resources and regularly meet with an identified research supervisor.
- Set realistic priorities and use time effectively to optimize professional performance.
- Use healthcare resources cost-effectively.

Health Advocate

- Recognize the contributions of scientific research to improve the health of patients and communities.

Scholar

- Demonstrate the ability to formulate an appropriate research question, recognize and identify gaps in knowledge and expertise around this question, and devise an appropriate study design to answer the research question.
- Demonstrate the ability to carry out research as outlined in a proposal.
- Demonstrate the ability to collect data, analyze data, and prepare an abstract and manuscript.
- Demonstrate the ability to identify areas requiring further research.

Professional

- Uphold ethical and professional expectations of researchers consistent with institutional review board guidelines, including the meticulous maintenance of confidentiality and ethical research practices.
- Demonstrate personal responsibility for setting research goals, and working with supervisors to set and achieve research timeline objectives.
- Publish accurate and reliable data, paying attention to appropriate criteria for attributing authorship.

- Disclose potential financial conflicts of interest (including speaker fees and consultative relationships) as appropriate when engaging in and disseminating research results.

TRAINING METHODS

- A total of 1 block per year of fellowship training is allocated to the fellow's selected track. The fellow should dedicate some of this time to research and scholarly work.
- The fellowship project will span more than a month. Therefore, the work required to complete the research should be conducted in parallel with other rotations.
- The fellow must choose a supervisor/mentor for their research project with whom they should regularly discuss their progress. This mentor should help the fellow to access the essential resources that will facilitate the fellow's development of research skills.
- The program may require a fellow to attend dedicated courses or workshops on research skills.
- The fellow must submit the research proposal to the institutional review board before the end of the 4th month of their fellowship. This is because the fellow must obtain institutional review board authorization before they can start a project.
- The fellow should collect and analyze the data, and write a manuscript reporting their findings. The manuscript should be written according to the standard required for publication in a high-impact factor journal. The completed manuscript should be submitted to the Program Director for the fellowship in Hospital Medicine before the fellow completes 18 months of training.
- It is highly desirable for fellows to present their research at national/international conferences, and publish their work in indexed journals.
- Notwithstanding, during the second year of their fellowship, the fellow must orally present an abstract describing their study and its results,

during the Fellows' Research Day and/or the Department of Medicine's Research Day.

- The research abstract should be submitted to the relevant scientific organizing committee at least 4 weeks before the date of the research day.

EVALUATION

- Panel scoring of the oral presentation of the research abstract will be conducted at the Department of Medicine's Research Day or the Fellows' Research Day during the second year of fellows training. This will count as part of the evaluation score for the fellow's chosen track.
- The manuscript will be reviewed and graded for scientific merit independently by two clinicians. The average of their assessments will count as part of the evaluation score for FITER.

Appendix-G

PROCEDURE LIST

Procedures to be performed independently

- Venipuncture
- Nasogastric tube insertion
- 12-lead ECG analysis
- Cardiopulmonary resuscitation
- Arterial access, including blood gas sampling
- Spirometry
- Blood films for malaria
- Gram stain
- Acid-fast stain
- Peripheral blood smear
- Urine analysis and microscopy
- Abdominal paracentesis
- Fundoscopy
- Lumbar puncture
- External cardioversion/defibrillation

Procedures to be performed under supervision

- Central venous catheter insertion
- Thoracocentesis
- Mechanical ventilation (invasive and non-invasive)
- Knee joint aspiration and injection
- Intercostal tube insertion
- Pericardiocentesis

Procedures to be observed

- Echocardiography
- Performance of endocrine dynamic tests
  - Insulin tolerance test
  - Oral glucose tolerance tests with growth hormone levels
  - Low-dose dexamethasone suppression test
  - Synacthen test
  - Metyrapone suppression test
  - Water deprivation test
- Exercise ECG testing
- Flexible and rigid bronchoscopy
- Upper gastrointestinal endoscopy
- Lower gastrointestinal endoscopy
- Electroencephalography
- Electromyography
- Visual and auditory evoked potentials and central nervous system imaging
- Kidney biopsy
- Plasmapheresis

Appendix-H

References:

1. Frank JR, Snell L, Sherbino J, editors. CanMEDS 2015 Physician Competency Framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015.

2. Wachter RM. The state of Hospital Medicine in 2008. Med Clin North Am. 2008;92:265-73, vii. doi: 10.1016/j.mcna.2007.10.008. PMID: 18298978.

3. Wachter RM, Goldman L. Zero to 50,000 - The 20th Anniversary of the Hospitalist. N Engl J Med. 2016;375:1009-11. doi: 10.1056/NEJMp1607958.

4. Miller GE. The assessment of clinical skills / competence / performance. Acad Med. 1990;65(9 Suppl):S63-7.#

5. Alamoudi OS, Attar SM, Ghabrah TM, Al-Qassimi MA. Pattern of Common Diseases in Hospitalized Patients at a University Hospital in Saudi Arabia; A Study of 5594 Patients. JKAU: Med. Sci.16:3-12.

6. Institute for Health Metrics and Evaluation (IHME). The Global Health Data Exchange (GHDx). http://ghdx.healthdata.org/gbd-results-tool. Accessed 070721.

7. Thakkar R, Wright SM, Alguire P, Wigton RS, Boonyasai RT. Procedures performed by hospitalist and non-hospitalist general internists. J Gen Intern Med. 2010;25:448-52. doi:10.1007/s11606-010