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Saudi Commission for Health Specialties

Forensic Medicine

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بسم الله الرحمن الرحيم

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TABLE OF CONTENTS

I. INTRODUCTION AND OVERVIEW

The Forensic Medicine program aims to develop academic standards in forensic medical practice and to train graduates who have a sound knowledge of and skills in medicolegal principles. Graduates from this program will develop the knowledge and skills required to provide forensic medicine services to the community and contribute to improved justice and public health outcomes particular to the workings of an Arab society and unique Saudi laws.

The term forensic medicine refers to the application of medical knowledge (all branches of medicine, including laboratory examinations) for the administration of law and justice. It is a subset of forensic science, where knowledge of medicine is used for the administration of law and justice in the Kingdom of Saudi Arabia.

It is both a relevant new specialty and an age-old one at the same time; the urge to solve medical mysteries had been documented since the earliest forms of human civilization, dating back to 6000 years ago, in Sumerian, Babylonian, and Egyptian manuscripts.

The first forensic medicine program in the Kingdom of Saudi Arabia, established in 2005, was a four-year program granting graduates a certificate that is equivalent to a doctorate degree in forensic medicine. The Forensic and Legal Medicine Program graduates have consistently proven how successful the program is. They are important assets to the forensic and legal medicine specialty in all the country.

In proposing a new Forensic and Legal Medicine Specialty program, we aim to bring about a new generation of forensic specialists who are open minded, knowledgeable, and properly qualified in forensic physical evidence collection, as well as experienced in the intricacies of working in an Arab society and the unique Saudi culture as aptly quoted in the following paragraph:

The medicolegal death investigation system in the Kingdom of Saudi Arabia (KSA) is unique in the world. It is exclusively derived from Islamic judiciary based on Shari'ah law, which is the definitive Islamic law or doctrine. This law is applied to Saudi citizens as well as foreigners. This is different from that in other Islamic countries, which have a combination of Islamic and other judiciary systems.

Therefore, it is extremely important to create a unique program that suits the medicolegal investigation system in the Kingdom of Saudi Arabia, which is a unique judicial system influenced by Islamic judiciary (Shari'ah law). We consider this proposed program the first step toward developing new subspecialties in the forensic medicine field.

The Saudi Commission for Health Specialties (SCFHS) has recognized and accredited a number of centers for residency training in forensic medicine in the Kingdom.

II. CONTEXT OF PRACTICE

Forensic Medicine is a constantly evolving specialty, and the proper production of candidates is an important step in the sustainability of this specialty. The context of practice is defined as conditions or factors that affect the practice of forensic medicine, including cultural and religious standards, number of cases per year, location and importance of the forensic medicine centers (e.g., main centers, intermediate and small centers), type of cases seen by the practice (e.g., clinical vs. post-mortem examination), and availability of equipment (e.g., dissecting tables and radiology equipment), educational staff (certified and competent consultants), transportation (e.g., transportation to crime scene), and any other resources available. The context of practice involves many sectors (e.g., forensic toxicology laboratories, forensic pathology laboratories, Ministry of Justice, emirates, and Ministry of Interior).

III. ELEMENTS OF FORENSIC MEDICINE

The following are elements of forensic medicine: medicine and science in the service of the law, including the organization of the medical profession; biomedical forensic science; scientific evidence and its collection at the scene of a crime; forensic chemistry; forensic photography; ballistics; fingerprint evidence; forensic pathology; forensic odontology and the identification of victims; RTA; examination of victims of assault; DNA evidence; forensic psychiatry and psychology; and medicolegal reports in the courts.

IV. MINIMUM TRAINING REQUIREMENTS FOR RESIDENCY

The curriculum for the Forensic Medicine Residency training is for four years, and it includes a basic medical sciences training in the first 19 months during the first and second years, followed by lecture series and training, journal club, weekly grand rounds, and case presentations. Residents are expected to prepare and present cases undertaken during their training. The program is designed to progress trainees' clinical and autopsy skills as well as contribute to their knowledge in the field of forensic medicine.

Forensic medicine trainees are expected to participate in research throughout their residency without compromising their daily residency responsibilities. They are also required to develop and conduct a research project in conjunction with a faculty member of their choice. The research project can be a prospective or retrospective study. The research activity may lead to important contributions to the field of forensic medicine, and trainees are expected to complete a logbook during their fourth year of training.

V. GENERAL UNDERSTANDING OF METHODS AND PROCEDURES

Scene investigation
The resident will study the investigation of violent and natural deaths. The resident is informed of work with members of a team investigating particular problems that require the expertise of interrelated disciplines, such as engineering in automobile and aircraft accidents, psychiatry in suicide investigations, anesthesiology in operating room deaths in hospitals, and radiation biology in deaths from therapeutic or accidental exposure to radioactive substances.

Forensic autopsy
The resident will study medicolegal autopsies under supervision during his/her training period. The cases would be carefully selected for variety and subsequently reviewed by senior staff members. The resident will also learn the fundamentals of external examination of a body and the proper certification of death without autopsy. Categories of difficult and unusual cases, such as decomposed bodies and criminal abortion deaths, are explained to the trainee.

Jurisprudence
The resident may observe selected legal material covering aspects of evidence, torts, and the science of proof, discussing cases with members of the Saudi Bureau of Investigation (public prosecutor). The trainee may be required to become familiar with relevant laws in his/her own jurisdiction and with the recent pertinent statutes, as well as review the model Medical Examiner's Law. The resident may attend court hearings. The resident will accompany senior members during their medical testimony in selected homicide trials.

Death certification
The resident will become familiar with the intricacies of the proper certification of the cause of death and classification of the manner of death.

Forensic toxicology and serology
The resident is afforded observation in the toxicology laboratory to learn analytical methodology through actual processing of current cases in the department. The trainee will be familiar with the common drugs, such as barbiturates, alcohol, and carbon monoxide. She/he will become familiar with lethal levels of most toxic agents, learn the proper removal and preservation of tissues and fluids derived from the autopsy, and submit specimens for optimal results in recovery and interpretation. The resident may spend time with a qualified serologist, with emphasis placed on the examination of dried stains, seminal fluid identification, elementary paternity testing, and methodology regarding liability for human blood group interpretation.

Forensic anthropology
The resident will become acquainted with the principles of osteology, with emphasis on the identification of skeletal and dental remains relating to body parts, age, race, sex, and disease. The resident may incorporate this portion of study with the special procedures recommended in the medicolegal investigation of mass disasters (e.g., Al-hajj 2015 disaster).

Forensic science
The resident observes selected techniques in ballistics, scene investigation from the view of preservation of evidence (with emphasis placed on the custodial chain of evidence), examination of fingerprints, hair, fiber, and questioned documents, as well as other relevant and related topics.

VI. SPECIFIC REQUIREMENTS

Consultation
Interaction with forensic medicine seniors and other professionals concerning the aspects of individual cases

Clinical correlation
Integration of scene findings, forensic science data, toxicology data, and autopsy results to prepare a final report after consulting with mentor

Quality assurance
Residents are expected to participate actively in the quality control and quality assurance aspects of the forensic department center.

Role of Forensic Medicine in Media
The role of Forensic Medicine in the media is extremely important for both educational and preventive purposes.

- Seminars and conferences to educate both health professionals and the public; main topics in forensics should be discussed, such as topics that they might encounter at work (e.g., how to write a death certificate, drugs and antidotes frequently encountered society, such as insecticides and intoxicants).
- Lectures and journals with other health professionals to discuss new topics and research areas
- Pamphlets with useful information on child and family abuse need to be circulated in the most needed places, such as hospitals, schools, and universities, to alert people about the signs and symptoms they might see and thus encourage the public to report them.
- International conferences and collaborative research for the sake of empowering the public with knowledge of forensic medicine

VII. DEFINITIONS

Forensic pathology
It is a subspecialty of pathology that focuses on determining the cause of death by examining a corpse. The autopsy is performed by a physician, usually during the investigation of criminal law cases in certain jurisdictions.

Clinical forensic medicine
It is a subspecialty of forensic medicine concerned with the medicolegal assessment of living individuals. It includes age estimation, injury assessment, sexual and physical assault examination, and malpractice.

Medicolegal cases
These are cases of violence, sudden unexpected death, identification, death due to drugs, sudden infant death syndrome, death in pregnancy, death in custody, and other suspicious deaths.

Shari'ah Law
This set of specific provisions and roles provides guidance for civil and criminal matters. It is based on the Quran, Sunna, Ijtihad, and other subsidiary sources.

Physical evidence
Physical evidence denotes any material that can be used to link a suspect, weapon, and crime scene. It includes two main categories: (a) biological evidence, such as: (blood, semen, hair, tissue, nails, saliva) and (b) non-biological evidence, such as clothing, bullets, wads, shotgun pellets, fibers, paint, glass, and soil.

Forensic science
It is the scientific method of gathering and examining information about the past, which is then used in court.

Human anatomy
The branch of medical science concerned with the bodily structure of humans, especially as revealed by dissection and separation of parts.

Forensic toxicology
The use of toxicology and other disciplines, such as analytical chemistry, pharmacology, and clinical chemistry, to aid medical or legal investigations, particularly in cases of poisoning and drug use.

VIII. RESIDENT ROTATIONS

The program is divided into two levels:

Junior level

First Year	
Basic Human Anatomy	**14 weeks**
Pathology	**34 weeks**
Vacation	**4 weeks**
Second Year	
Pathology	**34 weeks**
Forensic Medicine	**14 weeks**
Vacation	**4 weeks**
Third Year	
Forensic Medicine	**36 weeks**
Toxicology and Forensic Chemistry	**8 weeks**
Islamic Shari'ah and Forensics Ethics Course	**2 weeks**
Statistical Analysis and Basis of Scientific Research	**2 weeks**
Vacation	**4 weeks**

Senior level

Fourth Year	
Forensic Medicine	**36 weeks**
Forensic Radiology	**8 weeks**
Forensic Science	**4 weeks**
Vacation	**4 weeks**

IX. STATEMENT OF PURPOSE AND POLICIES

Statement of Purpose

- To provide trainees with a sound knowledge of forensic practice within the Kingdom of Saudi Arabia
- To prepare trainees in undertaking their medicolegal responsibility with confidence and competence
- To ensure the proper forensic service provided by medicolegal centers within the Kingdom in aid of the administration of justice

Policies

- Following to policy and general admission requirements outlined by SCFHS bylaw.
- The number of available slots will be decided annually by the Forensic Scientific Committee depending on the country's demand for forensic physicians and the capacity of the teaching centers in the country.
- Throughout the program, the trainees must attend all medicolegal activities within medicolegal centers.
- The trainees are required to maintain a logbook containing all their attended activities and practice; their supervisors must sign each activity admitted in the logbook to confirm trainees' attendance of such activities.

X. PROGRAM REQUIREMENT

There must be a sufficient number of qualified forensic consultants (three consultant) to provide teaching and supervision in the program.

There must also be professional staff (trained forensic senior registrar and registrar) involved in the program to assist residents and provide teaching in basic and clinical sciences related to forensic medicine.

The program must provide each trainee opportunity to perform the following minimum requirement cases, documented and evaluated by a supervisor:

50	**Scenes of death**
100	External post-mortem examination cases
100	Completed medicolegal post-mortem autopsy, including infants, children, and adults, for cases of a complex nature (homicides and criminally suspicious deaths)
100	Clinical forensic cases, including sexual assault, family abuse, and court consultation or other investigative department consultation

- Trainees should complete and perform the minimum requirements during the program period.
- Trainees should attend all medicolegal cases during their duty as decided by the program director.
- The training center should provide the opportunity for residents to complete the minimum requirements.
- The training center can commission an additional interim period or repeat the fourth year. for trainees to complete the minimum required cases.
- Under any circumstances, a trainee is not considered to have completed the requirements of the program without the completion of the minimum required cases.
- The program director must ensure that residents participate in reviewing death scene information and clinical history, establishing the identity of a body, examining a body, dissecting organs, and collecting samples.
- There must be interaction with toxicology laboratories or other laboratories or units to interpret reports and test results.
- Trainees must be given the opportunity to provide their interpretation of post-mortem and laboratory findings to clinical colleagues, police, and medicolegal death investigators.
- The program must also ensure that trainees are able to interact with toxicology laboratories and other laboratories or units for them to be able to interpret reports and test results.
- Trainees must have access to appropriate radiological resources.

Duties of the trainee

First year

Attend training (theoretical and practical) in the Department of Anatomy and Pathology under the regulations of each department

Second year

- Attend training (theoretical and practical) in the Department of Anatomy and Pathology under the guidance and regulations of each department
- Attend all forensic medicine cases as observer during the period of forensic medicine rotation.

Third year

- Attend first on-call duty for death scene examination, under the supervision of a consultant, specialist, or trainer, who will evaluate trainees' performance
- Attend all assigned clinical forensic cases
- Attend all assigned forensic post-mortem examinations.
- Attend academic activities; prepare academic forensic-related research

Fourth year

- Perform tasks of a registrar on-call forensic doctor, but submit reports to the trainer or supervisor of the program for continuous evaluation
- Gain familiarity with the operation of a medicolegal death investigation system and the vital role that pathologists play in such operations
- Assist in and perform forensic autopsies to learn how to perform forensic autopsies
- Gain insight into alternate methods of dissection and be exposed to dissection procedures.

XI. TEACHING AND LEARNING

Teaching and learning are designed for delivery through various methods by mixing formal didactic lectures and self-learning processes through a structured and programmatic core education program (CEP):

Formal Teaching and Learning Activities

- Core specialty topics will be delivered as
  - Basic science courses
  - Specialty topics
- Universal topics

Practice-Based Learning (PBL)

- Morning reports and autopsy and case presentations
- Clinical forensic medicine (OPD)
- Journal club presentation
- Case presentation
- Grand round/guest speakers on core specialty topics

Work-Based Learning (WBL)

- Daily rounds
- On-call duty
- Clinic-based learning
- Workshops and courses
- Tutorials

General Principles

- Teaching and learning will be structured and programmed with more responsibility for self-directed learning
- Every week, at least four hours of formal training time should be reserved. A formal teaching time is an activity that is planned in advanced with an assigned tutor, time slot, and venue.
- Core education program (CEP) includes the following three formal teaching and learning activities:
  - Universal topics: 10%
  - Core specialty topics: 50%
  - Trainee-selected topic: 40%
- For one hour per week, trainees will meet with mentors for portfolio review (follow up on attendance at the clinic, autopsy room, and duty, as well as on student evaluation, including problem-solving skills).

Universal Topics

These are high-value, interdisciplinary topics of utmost importance to the trainee. The reason for delivering the topics centrally is to ensure that every trainee receives high-quality teaching and develops essential core knowledge. Each topic is covered for about 1.5 hours. Each Learning Unit is followed by online formative assessment. After completion of all topics, a combined summative assessment is conducted in the form of context-rich MCQ. All trainees must attain minimum competency in the summative assessment. Alternatively, these topics can be assessed in a summative manner along with specialty examination.

YEARS	UNIVERSAL TOPIC	OBJECTIVES
1st year	Management of acute chest pain Management of upper GI bleeding	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 tests e) Provide appropriate immediate management to patients f) Refer patients to the next level of care, if needed
2nd year	Ethical issues: transplantation and withdrawal of care	a) Apply key ethical and religious principles governing organ transplantation and withdrawal of care b) Be familiar with the legal and regulatory guidelines regarding organ transplantation and withdrawal of care c) Counsel patients and families in light of applicable ethical and religious principles d) Guide patients and families in making informed decision
	Ethical issues: treatment refusal; patient autonomy	a) Predict situations in which a patient or family member is likely to decline prescribed treatment b) Describe the concept of "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 Counsel patients and families declining medical treatment in light of the best interest of the patient
3rd year	Occupational hazards of health care workers (HCWs)	a) Recognize common sources and risk factors of occupational hazards among HCWs b) Describe common occupational hazards c) Develop familiarity with the legal and regulatory frameworks governing occupational hazards among HCWs d) Develop a proactive attitude in promoting workplace safety e) Protect yourself and colleagues against potential occupational hazards

	Patient advocacy	a) Define patient advocacy b) Recognize patient advocacy as a core value governing medical practice c) Describe the role of patient advocates in the care of patients d) Develop a positive attitude toward patient advocacy e) Be a patient advocate in conflicting situations f) Be familiar with local and national patient advocacy groups
4th Year	Role of doctors in death and dying	a) Recognize the important role a doctor can play during the dying process b) Provide emotional as well as physical care to a dying patient and his/her family c) Provide appropriate pain management for a dying patient d) Identify patients suitable for reference to palliative care services
	Blood transfusion	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 of, risks, and alternatives to transfusion d) Obtain consent for specific blood product transfusion e) Perform the steps necessary for safe transfusion f) Develop understanding of special precautions and procedures necessary for massive transfusions Recognize transfusion-associated reactions and provide immediate management.

Courses

Basic and Applied Human Anatomy

Basic Anatomy is a comprehensive and intensive course in Human Anatomy that will be held in departments of Human Anatomy for three months at the beginning of the residency program. It represents a series of didactic lectures in Anatomy. Attendance is compulsory for residents in all residency programs in the Kingdom.

Rotation consists of lectures, anatomy laboratory demonstrations, regular quizzes, access to the university library, and assigned self-study time.

Course description
The course covers the study of the anatomical structure of the human body. The body structure will be studied by organ system, involving a balance between gross anatomical study and histology. Form–function relationships will be emphasized. The laboratory study will involve working with human skeletal collections and dissection of cadavers and preserved specimens.

Learning objectives
- Use the process of dissection to investigate anatomical structure
- Learn how to study, interpret, and care for anatomical specimens
- Be aware of laboratory safety and application of safe practice in the laboratory
- Be able to obtain desired information on human structures, functions, or pathology using common references

Training center
Anatomy departments in faculties of medicine contribute to this program.

Supervision
Staff member from anatomy departments in faculties of medicine

Aim of training
The trainee is educated and trained in human anatomy.

General topics
- Embryology
- Regional anatomy
- Human skeleton
- Anatomy of the upper and lower limbs
- Anatomy of the head
- Anatomy of the neck
- Anatomy of the thorax
- Anatomy of the abdomen
- Anatomy of the pelvis
- Human remains identification and aging

Anatomy faculty members will have the following responsibilities:
- Coordination of the anatomy rotation and schedules
- Giving lectures on the abovementioned topics
- Giving laboratory hands-on training in the anatomy laboratory
- Scheduling periodic quizzes and revisions
- Ensuring that trainees access the university library and facilities, including access to journal websites

Basic Human Anatomy Course Structure

BASIC HUMAN ANATOMY	STRUCTURE
UPPER LIMB	Bones, main nerves and injuries, main blood vessels, main muscles, forensics conditions in the upper limb
THORAX	Entire organ
ABDOMEN	Entire organ, blood supply, forensics conditions in the abdomen, "general prospective without muscle origin and insertion")
PELVIS	Main organs and blood supply, "without pelvic ligaments and specific details", forensics conditions in the pelvis
LOWER LIMB	Bones Main nerves ("general prospective") Main blood vesicles ("without muscle origin and insertion") Main muscles
HEAD AND NECK	Skull and mandible Cranial cavity and meninges Face and scalp Parotid and orbital regions Temporal and infratemporal regions Triangles of the neck Submandibular region and versa of the neck Oral cavity, palate, and tongue Nose and paranasal sinuses Pharynx and larynx Great vessels and nerves of the neck Brain stem Cranial nerves

Course Evaluation
By the faculty of the anatomy department

During the course period
Assess the trainee with any or a combination of the following:

- At least two quizzes during the course period
- Short essay
- Questions on slides

At the end of the course period

- Fill out of trainees' evaluation form.
- Knowledge related to this rotation will be further assessed in annual promotion exams as well as in part-1 and final specialty examinations exam.

Pathology

Weekly formal lectures on general and systemic pathology are given during the first and second years of the residency program. This ensures that residents are sufficiently taught the importance of pathology.

Training center

Histopathology departments in faculties of medicine contribute to the program, in collaboration with histopathology departments in hospitals of the Ministry of Health, which pathologically examine specimens taken from dead bodies, or any selected hospital as discussed with the program director.

Supervision

Staff of pathology departments in faculties of medicine

Learning objectives: Knowledge and understanding

Demonstrate applied knowledge of pathology by describing the four aspects of the major disease processes covered in the course and their relation to forensic medicine:

- Cause (etiology)
- Mechanisms of development (pathogenesis)
- Functional consequences of molecular and morphologic changes (clinical significance)
- Apply basic and clinical supportive sciences appropriate to pathology (such as anatomy, histology/histopathology, and physiology)
- Demonstrate the ability to find additional information when confronted with a question or unfamiliar term, particularly when preparing for case-based exercises

Learning objectives: Skills

Demonstrate the ability to support self-education (i.e., active learning) in sample proceeding and grossing

Pathology faculty will have the following responsibilities:

- Coordination of the pathology rotation and schedules
- Lectures on the respective topics
- Laboratory hands-on training in the pathology laboratory
- Scheduling of periodic quizzes and revisions
- Ensure that trainees access the university library and facilities, including access to journal websites

This course will be divided into two parts

- General pathology
  - Held in the first year of residency
  - Duration: 32 weeks
- Systemic pathology
  - Held in the second year of residency
  - Duration: 32 weeks

General Pathology Course Structure

PATHOLOGY	OBJECTIVES
Introduction to pathology	a. Define important pathologic terminology b. Identify various surgical procedures for obtaining specimens c. Identify variable types of specimens d. Recognize the value of obtaining skills in describing pathological specimens
Cell injury	At the end of the lecture, the trainee should be able to: a. Identify the normal ionic state of the cell (homeostasis) b. Differentiate between adaptation, reversible cell injury, and irreversible cell injury c. Enumerate the most common examples of adaptation with respect to their mechanisms d. Identify the causes of cell injury, particularly hypoxia and ischemia e. Identify the common sites of the cell affected by injurious agents f. Identify the factors that influence cell damage
Adaptation of cellular growth and differentiation	a. Define various types of adaptation b. Differentiate between hypertrophy and hyperplasia c. Differentiate between atrophy, agensis, aplasia, and hypoplasia d. Understand the relationship between hyperplasia and tumor development e. Understand the relationship between metaplasia and tumor development
Reversible and irreversible cell injuries	By the end of the lecture, the trainee should be able to: a. Differentiate between reversible and irreversible cell injuries b. Understand the effect of injurious agents for both lesions c. Identify morphological and ultra-structure changes d. Understand and discuss fatty liver e. Discuss different types of necrosis
Mechanism of cell injury	a. Identify the intracellular systems, especially those vulnerable to cell injury b. Understand the role of ATP depletion in cell damage c. Explain the cell response in both reversible and irreversible injuries

PATHOLOGY	OBJECTIVES
	d. Identify the role of mitochondria in apoptosis and free radical formation
Apoptosis	a. Define apoptosis b. Classify apoptosis into physiological and pathological types with examples c. Discuss the mechanism of apoptosis and explain the role of mitochondria and growth factors in apoptosis d. Describe its morphology e. Explain its physiological values
Cell deposition	At the end of the lecture, the trainee should be able to: a. Classify cell deposition into intracellular and extracellular types b. Identify the type of substances that cause intracellular and extracellular accumulation c. Discuss the mechanisms of each type d. Identify the diseases related to excess substance accumulation (e.g., fatty liver, atherosclerosis, hypertension, hemosiderosis, kidney stone, gout, Addison's disease, and jaundice)
Introduction to inflammation	a. Define inflammation b. Overview of inflammation c. Historical highlights of inflammation d. Discuss the ultimate outcome of inflammation e. Common causes and potential harmful effects of inflammation f. Classify inflammation into different types g. List the cardinal signs of acute inflammation h. Most important pathological process (emphasis on this point)
Inflammation	Vascular event a. Describe the vascular events in acute inflammation b. Reactions of blood vessels in acute inflammation c. Describe changes in vascular flow and caliber d. Describe increased vascular permeability and its mechanisms e. Correlate vascular changes to the cardinal signs of inflammation f. Responses of lymphatic vessels g. Reactions of leukocytes in inflammation (cellular events) h. List the steps in the cellular events of acute inflammation

PATHOLOGY	OBJECTIVES
	i. Describe the process of leukocyte events in acute inflammation j. Margination and rolling k. Adhesion and transmigration l. Chemotaxis m. Activation n. Phagocytosis and degradation o. List the chemical mediators involved in each step
Chemical mediators of acute inflammation	1. List the major groups of mediators of acute inflammation 2. List the plasma mediators 3. List the cell mediators 4. Describe the role of different mediators in acute inflammation
Outcomes of acute inflammation	a. List the outcomes of acute inflammation and conditions that lead to resolution or fibrosis b. Discuss abscess formation and its outcome c. Discuss how chronic inflammation follows acute inflammation d. Morphologic patterns of acute inflammation e. List the morphologic patterns of acute inflammation f. Define: abscess, furuncle, carbuncle, and cellulitis; identify their etiology and morphology
Types of inflammation	a. Catarrhal inflammation b. Pseudo-membranous inflammation c. Serous inflammation d. Fibrinous inflammation e. Hemorrhagic inflammation f. Gangrenous inflammation g. Localized abscess h. Cellulitis
Chronic inflammation	a. Define chronic inflammation b. Causes of chronic inflammation c. Describe the characteristic features of chronic inflammation d. Describe the mechanism of chronic inflammation e. Role of macrophages in chronic inflammation f. List the cells of chronic inflammation g. List the biologically active products secreted by the activated macrophage h. Define granulomatous inflammation i. List the systemic effects of inflammation

PATHOLOGY	OBJECTIVES
Healing and repair	a. Introduction; cell cycle and its regulation b. Revision and regulatory mechanisms of cell cycle c. Role of growth factors in healing: origin and actions d. Importance of extracellular matrix: composition and role in healing e. Proliferative capacity of different tissues and their role in regeneration and repair **Regeneration, repair mechanisms, and types** a. Definition of regeneration and repair b. Angiogenesis and its mechanisms c. Primary and secondary healing and the differences between the two. d. Granulation tissue formation, gross and microscopic view e. Scar formation, wound contraction, and wound tensile strength f. Timeline of healing Systemic and local factors affecting healing and the pathological aspects of healing a. List of systemic factors and explanation of their role in healing b. Local factors and explanation of their role in healing c. Complications of wound healing
Hemodynamic disorders, thromboembolic disease, and shock	**Hyperemia and congestion** a. Define and classify hyperemia with examples b. Identify the clinical association of hyperemia (examples) c. Define and classify venous congestion (localized and generalized, then acute and chronic subtypes) d. Recognize the causes of venous congestion in each type e. Describe the morphology in each type f. Identify the most common pathological effects of venous congestion g. Recognize the most common clinical settings associated with both types, especially in the lung, liver, kidney, and spleen **Edema and hemorrhage** a. Recognize the causes, morphologic features, and clinical consequences of edema b. Understand the pathophysiology of edema c. Understand causes, types, and effects of hemorrhage

PATHOLOGY	OBJECTIVES
	Ischemia and Infarction a. Define the causes, morphologic features, and clinical consequences of ischemia b. Understand the morphologic features of infarction in various organs c. Understand the clinical presentation associated with infarction in different organs and outcome of infarctions **Hemostasis and thrombosis** a. Define normal hemostasis and thrombus b. Identify the mechanism of normal hemostasis c. Mention the role of the endothelium, platelets, and coagulation cascade in hemostasis d. Identify the coagulant and anti-coagulant factors e. Define the causes, pathogenesis, and clinical consequences of thrombosis **Embolism and shock** a. Define the classification, morphologic features, and clinical consequences of embolism b. Define shock, its causes, and types
Introduction to infectious diseases and tuberculosis	By the end of the lecture, the trainee must be able to a. Define infectious diseases and subclinical infections b. Identify the mode of infection of various microbial agents c. Define and classify pyemia, bacteremia, toxemia, and septicemia d. List the causative agents, route of infection, and pathogenesis of TB e. Understand tissue reaction to TB and tubercle formation **Primary and secondary TB in different organs** By the end of the lecture, the trainee must be able to a. Identify the components of primary complex TB b. Identify the sites and morphology of secondary TB c. Identify the correlation between the pathogenesis and clinical presentation of TB d. List the complications of secondary TB in different organs e. Identify the morphological and clinical presentation of TB in immunocompromised patients

PATHOLOGY	OBJECTIVES
	Syphilis By the end of the lecture, the trainee must be able to a. Define and identify the mode of infection of syphilis b. Identify and list the different stages of syphilis c. Identify the morphological and clinical presentation of syphilis in different body organs d. Understand congenital syphilis **Sarcoidosis and leprosy** By the end of the lecture, the trainee must be able to a. Define and identify the mode of infection of leprosy b. Identify and list the differences between TB and sarcoidosis c. Identify the types and morphological and clinical presentation of leprosy in different body organs **Actinomycosis and viral infections** By the end of the lecture, the trainee must be able to a. Define and identify the mode of infection of actinomycosis b. Identify the types and morphological and clinical presentation of actinomycosis c. Identify the mode of infection and transmutation of viral diseases d. Understand the pathological effects of viral infection in different cells e. Understand and diagnose common viral infections, such as herpes, measles, German measles, chicken pox, and HIV **Intestinal and urinary schistosomiasis** By the end of the lecture, the trainee must be able to a. List the different types of causative agents and mode of transmission of schistosomiasis b. Discuss the pathogenesis of both urinary and intestinal schistosomiasis c. List the complications of both urinary and intestinal schistosomiasis d. Discuss the relation between malignant and urinary schistosomiasis e. Discuss the diagnosis of schistosomiasis f. Liver, spleen, and lung schistosomiasis **Vitamin deficiency** By the end of the lecture, the trainee must be able to a. Identify the different types and sources of vitamins

PATHOLOGY	OBJECTIVES
	b. Identify the causes of vitamin deficiency c. Discuss the common diseases caused by vitamin deficiency d. Identify common pathological changes and clinical manifestations in different types of vitamin deficiency
Neoplasia	**Nomenclature and characteristics of benign and malignant tumors** By the end of the lecture, the trainee must be able to a. Define the terminology given to different types of neoplasm according to cell of origin b. Define the characteristics of benign and malignant neoplasms c. Differentiate between benign and malignant tumors d. Identify the difference between dysplasia and invasive carcinoma e. Identify the different pathways of spreading of malignant tumors **Etiology of cancer, carcinogenic agents, and clinical aspects of neoplasia** By the end of the lecture, the trainee must be able to a. Discuss the mechanism of action of carcinogenic substances b. Explain the initiator-promoter action of chemical carcinogenesis c. Identify the source and types of radiation and its role in chromosomal abnormalities d. Discuss the relation between viruses/microbes and carcinogenesis e. Identify the different effects of tumors on the host, including local and systemic f. Identify cancer cachexia g. Discuss paraneoplastic syndromes h. Recognize the importance of tumor grading and clinical staging in the management of malignant tumors i. Discuss the diagnoses of malignant tumors

Course Evaluation
By the faculty of the pathology department

During the course period
Assess the trainee with a combination of the following:

- At least four quizzes
- Short essay
- Questions on slides
- Logbook discussion

At the end of course period

- Fill out trainees' evaluation form.
- Knowledge related to this rotation will be further assessed in annual promotion exams as well as in part-1 and final specialty examinations.

Systemic Pathology

SYSTEMIC PATHOLOGY (CVS)	**Rheumatic valvular heart disease** a. Identify the pathogenesis of rheumatic fever b. Identify the pathological lesions of rheumatic fever c. Discuss rheumatic valvulitis d. Discus the clinical manifestation and complications of rheumatic fever **Endocarditis** a. Define endocarditis and identify its types b. Compare between the different types c. Identify the pathological lesions of sub-acute endocarditis d. Discuss the clinical manifestation and complication of sub-acute endocarditis e. Myocarditis, pericarditis, and cardiomyopathy f. Identify the different types of cardiomyopathy g. Identify the causes of myocarditis h. Identify the causes of pericarditis **Ischemic heart diseases** a. Define ischemic heart diseases b. Identify the causes of myocardial infarction c. Discuss the pathological changes of myocardial infarction d. Discuss the complications of myocardial infarction e. Understand the different types of angina **Heart failure** a. Illustrate heart failure pathology b. Identify the causes of right- and left-sided heart failure c. Discuss compensated and de-compensated heart failure

	Congenital heart disease a. Identify the different congenital heart diseases b. Identify the causes of congenital heart diseases c. Discuss the pathological changes in different types of congenital heart diseases d. Identify the clinical manifestations of different congenital heart diseases **Vascular wall cells and their response to injury; hypertension** a. Define hypertension b. Know the effects of hypertension on blood vessels c. Identify the causes of hypertension d. Discuss the complications of hypertension e. Identify the pathological effects of hypertension on the kidney **Atherosclerosis** a. Define atherosclerosis b. Identify the predisposing factors for atherosclerosis c. Discus the pathogenesis of atherosclerosis d. Identify the effects of atherosclerosis on blood vessels e. Discuss the complications of atherosclerosis **Aneurysms and varicose veins** a. Define aneurysm and its types b. Know the morphology of each type c. Define varicose veins and their causes d. Discuss the complications of varicose veins **Vasculitis and tumors** a. Know the types of vasculitis b. Differentiate between the types of vasculitis on pathological bases c. Discuss the benign and malignant tumors of the heart and BV
Respiratory system	**Upper respiratory (laryngitis, tumors of the larynx, diphtheria, and ear infection)** a. Understand the different types of laryngitis b. Identify the causes and pathological changes of the singer's nodes c. Discuss the pathology of laryngeal tumors d. Understand the complications of diphtheria e. Understand the pathology and complications of the suppurative otitis media

	Lower respiratory (chronic obstructive pulmonary disease (COPD)) a. Identify the classification, causes, and pathogenesis of COPD b. Discuss the gross and microscopic morphologic features of COPD c. Discuss the clinical features and complications of COPD **Lower respiratory (bronchial asthma)** a. Identify the classification and pathogenesis of bronchial asthma b. Discuss the gross and microscopic morphologic features of bronchial asthma c. Discuss the clinical features and complications of bronchial asthma **Lower respiratory (bronchiectasis)** a. Identify the causes and pathogenesis of bronchiectasis b. Discuss the gross and microscopic morphologic features of bronchiectasis c. Discuss the clinical features and complications of bronchiectasis **Lower respiratory (pneumonia)** a. Identify the classification of pneumonia b. Discuss the gross and microscopic morphologic features of lobar pneumonia c. Discuss the clinical features of lobar pneumonia d. Discuss the complications of pneumonia e. Discuss the gross and microscopic features of bronchopneumonia f. Discuss the clinical features of viral pneumonia g. Discuss the complications of bronchopneumonia **Lower respiratory (lung cancer)** a. Identify the classification of lung cancer b. Discuss the gross and microscopic morphologic features of lung cancer c. Discuss the clinical features and complications of lung cancer **Lower respiratory (pleural diseases)** a. Discuss the pathological types of pleural effusion b. Discuss the causes and pathogenesis of pleural effusion c. Identify the clinical manifestations and radiological presentation of effusion d. Identify the complications of pleural effusion

	e. Discuss the predisposing factors and pathological features of malignancies **Respiratory distress syndrome** a. Identify adult and infant respiratory distress syndromes b. Describe its histological presentation c. Define its pathogenesis
Gastrointestinal tract (GIT)	**Pathology of the esophagus** a. Identify different patterns of esophagitis b. Describe Barrett's esophagus c. Explain the relation of Barrett's esophagus to adenocarcinoma d. Know the types of esophageal cancer e. Distinguish between types **Pathology of the stomach** **Acute and chronic gastritis** a. Identify acute and chronic gastritis b. Differentiate between types of chronic gastritis c. Understand the role of helicobacter pylori in gastritis d. Identify peptic ulcer e. Discuss the predisposing factors for peptic ulcer f. Sites and types of peptic ulcer g. Peptic ulcer and gastric cancer h. Discuss the microscopic features of peptic ulcer i. Discuss the complications of peptic ulcer j. Identify the predisposing factors for stomach cancer k. Discuss the complications of stomach cancer **Pathology of appendix and peritoneal cavity** a. Identify the predisposing factors for acute appendicitis b. Define acute appendicitis on clinical and histological bases c. Identify tumors in the appendix d. Define peritonitis **Pathology of the small and large intestine** **Malabsorption** a. Define malabsorption b. Identify the causes of malabsorption c. Discuss hernia, intussusception, and volvulus d. Identify the pathology of diverticulosis **Crohn's disease and ulcerative colitis** Identify the causes of inflammatory bowel diseases Distinguish between the pathological features of Crohn's disease and ulcerative colitis

	Polyps and colorectal cancer a. Identify the different types of colon polyps b. Discuss familial polyposis coli c. Understand the genetic role in colon cancer d. Identify the predisposing causes for colon cancer **e.** Discuss the microscopic types of colorectal cancer
Liver and gallbladder	**Liver failure and hepatic coma** a. Describe hepatic lobule and acini b. Understand liver cell injury and necrosis c. Describe liver failure d. Recognize hepatic encephalopathy e. Understand hepatic coma and its clinical features **Pathology of cirrhosis** a. Define cirrhosis and biliary cirrhosis b. Discuss the pathogenesis of cirrhosis c. Describe the morphology, clinical features, and complications of cirrhosis **Acute and chronic viral hepatitis** a. Discuss the types and the pathological features of acute and chronic viral hepatitis b. Assess the grading and staging of chronic hepatitis **Metabolic disorders** a. Recognize metabolic disorders of the liver b. Discuss the pathogenesis and morphology of hemochromatosis c. Discuss the pathogenesis and morphology of Wilson's disease **Tumors of the liver** a. Discuss liver cell adenoma and its morphology b. Identify the risk factors for primary tumor of the liver c. Discuss the pathogenesis and clinical presentation of hepatocellular carcinoma and cholangiocarcinoma d. Discuss the morphology of hepatocellular carcinoma and cholangiocarcinoma
Pancreatic diseases	a. Discuss the morphology and pathogenesis of pancreatitis b. Discuss the clinical features and complications of pancreatitis **c.** Discuss the etiology, morphology, spread, and clinical presentation of pancreatic carcinoma
Kidney disorders	**Glomerular diseases** a. Identify the histopathological alterations of

	glomerulopathies b. Discuss the pathogenesis of glomerular injury c. Understand how kidney disorders are classified and give an example for each type **Nephritic syndrome** a. Discuss the morphology and clinical presentation of diffuse proliferative glomerulonephritis b. Discuss the morphology and clinical presentation of rapidly progressive glomerulonephritis **Nephrotic syndrome** Discuss the morphology and clinical presentation of a. Lipoid nephrosis (minimal change disease) b. Membranous glomerulonephritis c. Focal segmented glomerulosclerosis d. Membranoproliferative glomerulonephritis and its types e. IgA nephropathy (Berger's disease) Tubulointerstitial nephritis Discuss the pathogenesis, morphology, clinical features, and complications of pyelonephritis **Obstructive uropathy** a. Discuss the pathogenesis, morphology, clinical features, and complications of renal stones b. Discuss the pathogenesis, morphology, clinical features, and complications of hydronephrosis c. Discuss the pathogenesis, morphology, clinical features, and complications of polycystic kidney disease **Renal tumors** a. Identify the classification of renal cell carcinoma **b.** Discuss the morphology and clinical features of renal cell carcinoma and Wilms' tumor
PATHOLOGY OF THE FEMALE GENITAL SYSTEM	**Diseases of the vulva and vagina** a. Recognize the different types and morphological and clinical features of vulvitis b. Define non-neoplastic epithelial disorders of the vulva c. Understand vulvar and vaginal tumors, including the different types, precancerous conditions, morphological features, and spread d. Recognize pelvic inflammatory diseases: Causes, morphological features, and clinical features

	Diseases of the cervix a. Understand the causes and morphological features of cervical inflammation b. Recognize the morphological and clinical features of endocervical polyps c. Understand the importance of cervical cytology and pap screening **Diseases of the uterus** a. Recognize the causes, morphological features, and clinical features of abnormal uterine bleeding b. Recognize the causes, pathogenesis, and morphological features of endometrial hyperplasia **Ovarian diseases** a. Recognize the different types and morphological features of non-neoplastic ovarian cysts b. Classify ovarian tumors according to site of origin c. Classify ovarian epithelial tumors according to differentiation and extent of cellular proliferation d. Recognize the morphological features, clinical course, and clinical detection of different types of ovarian epithelial tumors e. Recognize the different types of ovarian germ cell tumors f. Recognize the morphological and clinical features of different types of ovarian germ cell tumors g. Recognize the different types of sex cord-stromal cell tumors h. Recognize the morphological and clinical features of different types of sex cord-stromal cell tumors i. Identify the common sites and routes of spread of ovarian metastatic tumors **Pregnancy disorders and gestational trophoblastic diseases** a. Recognize the microscopic and macroscopic indicators of pregnancy and abortion b. Recognize the maternal floor infarction of the placenta c. Examine the embryo and fetus d. Differentiate between maceration and putrefaction e. Identify the indicators of types of criminal or therapeutic abortion

	f. Recognize the sites, predisposing conditions, and morphological and clinical features of ectopic pregnancy g. Describe the causes of **maternal death** and its pathological features h. Identify the routes and morphological features of placental infections i. Describe the pathogenesis, morphological and clinical features, and complications of pre-eclampsia j. Recognize the different types and morphological and clinical features of gestational trophoblastic disease
PATHOLOGY OF THE ENDOCRINE GLANDS	**Pituitary and hypothalamic pathology** a. Identify the types of pituitary adenoma b. Describe the morphologic features of pituitary adenoma c. Mention the clinical course of pituitary lesions and clinical forms of hypopituitarism **Thyroid gland diseases** a. Identify the causes and clinical features of hyperthyroidism b. Identify the causes and clinical features of hypothyroidism c. Describe the causes, pathogenesis, and morphological and clinical features of different types of thyroiditis d. Describe the causes, pathogenesis, morphological and clinical features, and laboratory findings of Graves' disease e. Describe the causes, pathogenesis, and morphological and clinical features of goiter f. Describe the risk factors, pathogenesis, morphological and clinical features, and prognosis of thyroid neoplasms **Parathyroid gland diseases** a. Identify the causes of hypercalcemia and hyperparathyroidism b. Describe the morphological and clinical features of hyperparathyroidism and hypoparathyroidism Pancreatic endocrine diseases a. Identify the different types of diabetes b. Describe the morphological features of complications of diabetes

	Adrenal gland diseases a. Identify the causes and morphological and clinical features of Cushing's syndrome b. Identify the causes of Conn's and adrenogenital syndromes c. Mention the types and causes of adrenocortical insufficiency d. Mention the types of adrenal tumors e. Describe the morphological features of adrenal tumors **Urinary bladder disorders** Urothelial tumors a. Discuss the epidemiology and morphology of urothelial tumors b. Discuss the predisposing factors of urothelial tumors **Diseases of the bone and joints** Introduction to bones (list, physiology) a. Identify the histological structure of bones b. Identify the blood supply of bones c. Identify the histology of bone cells d. Identify the function of bone cells
Diseases of the central nervous system (CNS)	**Space-occupying lesions** a. Describe the pathology of diffuse and focal brain swelling b. Enumerate the clinical presentations and complications of brain swelling c. Describe the pathology of raised intracranial pressure d. Determine the pathology of concussions **CNS trauma and hydrocephalus** a. Identify the pathology of extradural Hg b. Identify the pathology of subdural Hg c. Identify the pathology of subarachnoid Hg d. Identify the pathology of hydrocephalus e. Identify the clinical presentation and complications of hydrocephalus f. Identify the pathology of cerebral aneurysm **CNS infections** a. Identify the pathology of meningitis b. Identify the complications of meningitis c. Identify the pathology of brain abscess d. Identify the pathology of encephalitis **e.** Identify the clinical presentation and complications of poliomyelitis **CNS tumors** a. Identify the pathology of internist and extrinsic brain tumors b. Identify the pathology of astrocytomas

	c. Identify the pathology of oligodendroglioma d. Identify the clinical effects of primary brain tumors e. Identify the pathology of ependymoma f. Identify the pathology of medulloplastoma g. Identify the pathology of meningioma and neurofibroma **h.** Identify the pathology of metastatic brain tumors
Diseases of the lymph nodes and spleen	Hodgkin's lymphoma and non-Hodgkin's lymphoma a. Identify the normal histology of the lymph nodes and spleen b. Identify the pathology of the different types of Hodgkin's Lymphoma c. Identify the clinical presentation and complications of Hodgkin's Lymphoma d. Identify the classifications of non-Hodgkin's lymphoma **e.** Identify the clinical presentation and complications of Hodgkin's lymphoma
Diseases of the blood	a. Identify normal hemopoiesis b. Identify the histology of bone marrows and normal blood cells c. Identify normal blood smears d. Identify the different types of anemia e. Identify the morphology and clinical presentation of iron deficiency anemia f. Identify the morphology and clinical presentation of megaloblastic anemia g. Perform workup of hemolytic anemia h. Identify the pathology of leukemia **Bleeding disorders** a. Perform lab workup of platelet disorders b. Perform lab workup of deficiency of coagulation factors **Disseminated intravascular coagulopathy** a. Describe this disorder b. Identify the causes **c.** Identify the clinical and post-mortem presentation of the disease
Diseases of the skin	**Inflammatory disorders of the skin** a. Identify how to diagnose inflammatory diseases of the skin b. Identify the pathology of inflammatory skin diseases c. Identify specific diseases, such as psoriasis d. Identify the different types of dermatitis

Special techniques and immunostaining	• Immunohistochemistry • Flow cytometry • Western blotting • Enzyme-linked immunosorbent assay • Immuno-electron microscopy With reference to their benefits in forensic medicine cases
Special conditions related to forensic medicine	• Sudden infant death syndrome (SIDS) • Sickle cell disease • Differentiating electrical and thermal burns • Aging of brain contusions • Microscopic changes in heat stroke • Microscopic changes related to toxicity and poisoning • Microscopic changes related to drug abuse • Changes related to alcohol toxicity • Intracellular markers of poisoning Battered child syndrome: microscopic examination of eye fundus

Course evaluation
By the faculty of the pathology department

During the course period
Assess the trainee with a combination of the following:

- At least four quizzes during the course period
- Short essay
- Questions on slides
- Logbook discussion

At the end of course period

- Fill out trainees' evaluation form.
- Knowledge related to this rotation will be further assessed in annual promotion exams as well as in part-1 and final specialty examinations.

This rotation serves as an introduction to forensic pathology and covers issues in sufficient depth to give residents a general understanding of the methods and procedures employed in pathology and its relation to forensic pathology.

The residents will be distributed to hospitals' pathology labs according to the rotation period. They will attend and work like a pathology resident, aiming to adopt the knowledge of basic grossing skills, dictating, and microscopic techniques, such as sample inking, slide reading, and organ identification.

Islamic Shari'ah and Forensics Ethics

Course	Objective
Two-week attachment course held by lecturers from Saudi University	Understanding forensic ethics in the Kingdom of Saudi Arabia Correlation between Islamic Shari'ah law and forensic medicine

Forensic Medicine

Training center

One of the Kingdom's forensic medicine centers contributes to the program.

Supervision

Consultant and staff members of the forensic medicine center

Aim of the training

To ensure that trainees acquire basic knowledge and skills in clinical forensics, forensic autopsy, examination of dead bodies, examination of the scene of death, and diagnosis of death

Forensic Medicine	Objective
Forensic medicine and pathology	Definition The medical examiner system The coroner system
Pathophysiology of death	Definition of death Types; somatic vs. cellular death Brain vs. brainstem death Manner, cause, and mechanism of death Post-mortem changes • Post-mortem cooling • Hypostasis • Rigor mortis • Putrefaction • Formation of adipocere • Mummification Estimation of time since death Post-mortem chemistry Stomach emptying in timing death Vitreous humor chemistry in timing death Post-mortem damage by predators Entomology (brief) Exhumations
Forensic autopsy	Types of autopsy Objectives of an autopsy Procedures for a forensic autopsy (theory and practice) External, internal examinations Collection and preservation of samples Examination of clothes

Forensic Medicine	Objective
	Autopsy radiology (brief) Post-mortem artifacts, especially resuscitation Explain and interpretation the autopsy artifact Precautions regarding potential infective conditions Autopsy report Second autopsies
Crime scene examination	Definition of a crime scene Scene teams Entrance to a scene Role of medicolegal examiner in the crime scene Bloodstain patterns interpretation Biological evidence Trace evidence
Identification of human remains	Characteristics for identifying dead bodies • Facial, hair, eye, and skin appearance • Identify scars and tattoo, and estimate their age • Occupational stigmata • Finger, palm, foot, and lip prints Identification of skeletonized remains Determination of sex Estimation of stature from skeletal remains Estimation of age from skeletal structures Estimation of age according to teeth count and type Determination of race from skeletal remains Personal identity from skeletal materials Dating of skeletal remains Photo superimposition techniques for identification DNA identification Other methods of comparison • Frontal sinus radiograph • Forensic odontology
Death due to natural disease (sudden unexpected death)	Definitions Cardiovascular diseases • Coronary atherosclerosis • Bridging • Dissecting coronary aneurysm • Coronary artery spasm • Hypertensive cardiovascular disease • Cardiomyopathy • Valvular disease • Coronary artery anomalies • Myocarditis aortic dissection Central nervous system • Deaths due to intracranial lesions • Epilepsy • Non-traumatic subarachnoid hemorrhage and

Forensic Medicine	Objective
	berry aneurysms, intra-cerebral hemorrhage • Meningitis • Reyes syndrome • Hydrocephalus Respiratory system • Epiglottitis • Pulmonary thromboembolism • Respiratory obstruction • Asthma • Pneumonia • Hemoptysis • Spontaneous pneumothorax of newborns Gastrointestinal tract • Gastrointestinal hemorrhage • Fatal abdominal catastrophes • Spleen, pancreas, liver, and adrenals Urogenital system Trauma and disease
Pathology of wounds	Definition of wounds Classification of wounds Mechanism of wounding Forensic anatomy of the skin Blunt force injury • Abrasion • Contusion • Laceration • Skeletal injuries • Fractures of the face • Fractures of the extremities • Fractures from direct application of force • Fractures caused by indirect application of force • Pelvic fractures • Healing of fractures Sharp force injury • Cutting wound • Stabbing wound • Identification of weapons and wound direction Chop wounds Survival period after wounding Healing of wounds Dating of a wound Defense wounds Self-inflicted injury Post-mortem bruising Determination of whether a wound is ante- or post-mortem

Forensic Medicine	Objective
	Falling from a height
Head and spinal injuries	Forensic anatomy of the scalp Injury to the scalp Types and mechanisms of skull fractures Forensic anatomy of the brain membranes Epidural hemorrhages Subdural hematomas Subarachnoid hemorrhage Contusions of the brain Lacerating, penetrating, and perforating wounds of the brain Acceleration/deceleration injuries and diffuse axonal injury Death due to cerebral concussion Vertebral artery injury laceration Traumatic injury of the carotid artery Traumatic dissection of intracranial arteries Traumatic brain swelling and edema Brain herniation Cerebral hypoxia Boxing injuries Facial injuries Occipito-cervical injuries Brainstem lacerations and secondary brainstem lesions Traumatic intracranial aneurysms Spinal injuries • Hyper-flexion and hyperextension injury • Compression damage • Spinal cord injury
Chest and abdominal injuries	Forensic anatomy Injuries to the chest wall Hemorrhage and infection in the chest Pneumothorax Injuries of the lungs Injuries of the heart Hemopericardium and cardiac tamponade Injuries to the great vessels Injuries of the Liver Injuries of the spleen Injuries of the kidney and pancreas Injuries to the intestine Injuries to the colon Injuries to the pelvis and pelvic organs Complications of abdominal injury
Deaths caused by motor vehicle accidents	Motor vehicle crash scenes Causes of motor vehicle accidents

Forensic Medicine	Objective
	Dynamics of vehicular injuries Natural disease as a cause of motor vehicle accidents Categories of motor vehicle accidents • Front impact crashes • Side impact crashes • Rollovers • Rear impact crashes Role of seat belts Role of air bags Determination of who was driving Motor vehicle fires Cause of death in traffic accidents Motorcycle and pedal cyclists accidents Railway injuries Suicide by motor vehicles Toxicology in motor vehicle accidents Pedestrian deaths Relationship between speed at impact and injuries Child and adult pedestrians
Airplane crashes	Crashes involving light planes Crashes of commercial aircraft Causes of crashes Crash scene Crash patterns In-flight fire
Gunshot and explosion deaths	Mechanics of missiles Types of weapon, bullet variations, cartridge components, primer types, and gunpowder modulations Wounds inflicted by a smooth-bore shotgun Wounds from rifled weapons Exit wounds Distinguishing entrance from exit wounds Firearm damage to internal organs and bones Estimating the range of discharge Deaths from explosion
Pregnancy	Pulmonary artery thromboembolism Amniotic fluid emboli Venous air emboli Peripartum cardiomyopathy Pregnancy and the long QT syndrome Coronary artery dissection and aortic dissection Intracerebral hemorrhage Hemoperitoneum Splenic artery aneurysm rupture Uterine rupture Preeclampsia/Eclampsia

Forensic Medicine	Objective
	HELLP syndrome/liver rupture Hepatic infarction Acute fatty liver of pregnancy Disseminated intravascular coagulation Fetal effects of maternal injury Complications of maternal and fetal injuries
Asphyxia	Suffocation Entrapment/environmental suffocation Smothering Choking Mechanical asphyxia Suffocating gases Strangulation • Ligature strangulation • Manual strangulation Chemical asphyxiants Sexual asphyxia (autoerotic asphyxia, autoerotic deaths)
Death by drowning	Physiology of drowning Autopsy findings Tests for drowning Drowning in bathtubs Scuba divers
Hyperthermia and hypothermia: Effects of heat and cold	Heat cramp, heat exhaust, and heat stroke Malignant hyperthermia Exercise, body temperature, humidity, and exhaustion hypothermia Hypothermia in water Hypothermia on land

Course evaluation
By the staff of the forensic medicine center

During the course period
Assess the trainee with a combination of the following:

- Quizzes
- Short essay
- Questions on slides
- Seminars, case report, and morning meeting assessment
- Forensic medicine reports
- Practical assessment

At the end of course period

- Fill out trainees' evaluation form
- Knowledge related to this rotation will be further assessed in annual promotion exams as well as in part-1 and final specialty examinations.

Toxicology and Forensic Chemistry

Training center

Forensic chemistry units in forensic medicine centers and pharmacological laboratories in faculties of medicine

Supervision

Consultants and specialists of forensic chemistry and toxicology in the Ministry of Health

Aim of training

Impart sound theoretical knowledge and practical skills in toxicology and various methods of detection of poisons from different body fluids and tissues.

Toxicology and forensic chemistry	Subjects
Introduction to methods of screening and sampling	Immunoassays, radio-immunoassay, enzyme-immunoassay, thin layer chromatography, gas chromatography, high performance liquid chromatography, ultraviolet spectrophotometry, mass spectroscopy
Collection and preservation of body fluids and tissue samples	
Pharmacokinetics	Pharmacokinetics, pharmacodynamics, pharmacogenetics, adverse drug reaction, toxicokinetics, LD50, bioavailability, volume of distribution, half-life, PKa, blood concentration, and clearance Body compartment models: single compartment model, multi-compartment model Absorption: oral, dermal, inhalation, intramuscular, intravenous, rectal, and other routes Distribution: volume of distribution, protein binding Metabolism: First pass effect, biotransformation, enzyme induction, and inhibition Clearance: first order and zero order kinetics Excretion **Objectives:** Study the changes in the body drug concentration with respect to absorption, distribution, metabolism, and excretion Discuss factors affecting each group of drugs and interpret results
General toxicology	**Discuss** the general approach to acutely poisoned patient, general principles of management of acute poisoning, primary assessment of poisoned patient, diagnosis of poisoning, toxidromes, toxicological investigation, decontamination, and

Toxicology and forensic chemistry	Subjects
	enhancement of elimination **Objectives:** Study basic knowledge of different subjects in general toxicology and their relation to the cause of death of a person
Drug abuse	**Subjects:** Amphetamines, amphetamines-related compounds, opioids, cocaine, cannabis, sedative hypnotics, hallucinogens, and volatile abused substances **Discuss:** Licit and illicit, specific agents, pharmacology, clinical presentation, diagnostic testing management, antidote (if present), post-mortem pictures, method of detection, and post-mortem estimation **Objectives:** Study basic knowledge of abused drugs and their role in causing or contributing to the death of a person Methods of detection and estimation in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data Interpret investigation results
Pesticides	**Subjects:** Insecticides (organophosphates, carbamates, organochlorines, pyrethroids), rodenticides, herbicides, and fungicides **Discuss:** Physical and chemical properties, mechanism of action and pathophysiology, pharmacokinetics, clinical presentation, causes of death, differential diagnoses, diagnostic tests, management, and specific antidotes (if present) **Objectives:** Study basic knowledge of pesticides and their role in cause of death Methods of detection and estimation in pre- and post-mortem cases Correlate clinical and pathological findings with

Toxicology and forensic chemistry	Subjects
	laboratory data Interpret investigation results
Alcohols	**Ethyl alcohol** Subjects: ethyl alcohol intoxication and alcoholism **Discuss:** sources, pharmacology, pharmacokinetics, drug interaction, clinical presentation, alcohol withdrawal, laboratory findings, and management **Objectives:** Study basic knowledge of ethyl alcohol and their role in causing or contributing to the death of a person Methods of detection and estimation in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data Interpret post-mortem results **Toxic alcohol** **Subjects:** Methanol, ethylene glycol, and isopropyl alcohol **Discuss:** Sources and forms, physical properties, mechanism of action, pathophysiology, clinical presentation, differential diagnosis, laboratory analysis, treatment, and specific antidotes **Objectives:** Study basic knowledge of toxic alcohols and their role in causing or contributing to the death of a person Methods of detection and estimation in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data Interpret investigation results
Gases	**Subjects:** Carbon monoxide, cyanide, nitrogen oxide, and hydrogen sulfide **Discuss:** Sources and forms of toxin, mechanism of action, pharmacology and pharmacokinetics, clinical presentation, laboratory analysis, management, and specific antidote **Objectives:** Study basic knowledge of toxic gases and their

Toxicology and forensic chemistry	Subjects
	role as cause of death in forensic toxicology Methods of detection and estimation in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data Interpret investigation results
Therapeutic drugs	**Subjects:** Analgesics, anticonvulsant, antihypertensive, antidepressant and antipsychotic drugs **Discuss:** Properties of the agent, mechanism of action and pathophysiology, pharmacokinetics, clinical presentation, differential diagnosis, laboratory analysis, management, and specific antidote **Objectives:** Study basic knowledge of therapeutic drugs and their role in causing or contributing to death in forensic toxicology Methods of detection and estimation in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data Interpret investigation results
Corrosives	**Subjects:** Acids and alkalis **Discuss:** Properties of agents, sources and forms, mechanism of injury, time course of injury, location of injury, clinical presentation, laboratory analysis, management, and diagnostic procedures **Objectives:** Study basic knowledge of corrosives and their role in causing or contributing to death in forensic toxicology Methods of detection and estimation in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data Interpret investigation results
Hydrocarbon	**Subjects:** Petroleum distillates and turpentine and pine oil **Discuss:**

Toxicology and forensic chemistry	Subjects
	Properties of agents (sources and physical properties), pathophysiology, clinical presentation, routine studies, radiologic studies, and management **Objectives:** Study basic knowledge of hydrocarbons and their role in causing or contributing to death in forensic toxicology Methods of detection in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data
Natural toxins	**Discuss:** Envenomation by snakes, scorpions, and spiders; plant intoxication and herbal toxicity **Objectives:** Study basic knowledge of envenomation by snakes, scorpions, and spiders, as well as plant intoxication and herbal toxicity, and their role in causing or contributing to death in forensic toxicology Methods of detection in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data
Metals	**Subjects:** Lead, mercury, arsenic, cadmium, iron, phosphorus, and thallium **Discuss:** Epidemiology, sources, forms, pharmacokinetics, pathophysiology, clinical manifestation, laboratory findings and screening, Roentgenography, detection in hair and tooth, treatment, and specific antidote **Objectives:** Study basic knowledge of metals and their role in causing or contributing to death in forensic toxicology Methods of detection and estimation in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data

Toxicology and forensic chemistry	Subjects
	Interpret investigation results
Chemical weapons	**Subjects:** Nerve, vesicant (mustard, lewisite and phosgene oxime), blood, choking, and riot control agents **Discuss:** Properties, pathophysiology, clinical effects, clinical diagnoses, laboratory diagnoses, differential diagnoses, management, and specific antidote **Objectives:** Study basic knowledge of chemical weapons and their role in causing or contributing to death in forensic toxicology Methods of detection and estimation in pre- and post-mortem cases Correlate clinical and pathological findings with laboratory data

Course evaluation
By the staff of the toxicology department

During the course period
Assess the trainee with a combination of the following:

- Quizzes
- Short essay
- Questions on cases
- Seminar assessment

At the end of course period

- Fill out trainees' evaluation form.
- Knowledge related to this rotation will be further assessed in annual promotion exams as well as in part-1 and final specialty examinations.

Forensic Radiology

Training Center
Radiological department in the hospitals of universities and the Ministry of Health

Topics
Radio diagnosis of different types of fracture and their healing process
Diagnosis of cerebral hemorrhage
Diagnosis of retained bullet in firearm injury
Estimation of age and determination of sex
Radiologic evidence of child abuse
Radiologic evidence of air embolism, pneumothorax, and hemothorax

Course Evaluation

- Fill out trainees' evaluation form.
- Knowledge related to this rotation will be further assessed in annual promotion exams as well as in part-1 and final specialty examinations

Statistical Analysis and Basis of Scientific Research

Training center

Community medicine department in faculties of medicine included in the program.

Supervision:

Community medicine staff or consultant.

Learning Objectives:

At the end of the course, the trainer will be able to:

- Define different types of study designs and choose a suitable design for his/her research.
- Analyze the data presented in the course using common statistical tests

Instructional Methods:

- Interactive Lectures.
- Practical Sessions.

Aim of training:

Impart sound knowledge of statistical analysis and methods of scientific research.

Topics
• Starting out health research • How to formulate a research question, objectives & hypotheses? • IRB form • Overview of research methodology • Qualtative studies • Observational studies • Experimental studies • selecting study subjects • study subjects you need. • presenting the data of a research study. • Data entry • Data analysis

Course Evaluation

- Fill out trainees' evaluation form.
- Knowledge related to this rotation will be further assessed in annual promotion exams as well as in part-1 and final specialty examinations.

Forensic Science

Training center

Criminal evidence laboratories in the Ministry of Interior.

Supervision

Consultant and staff of forensic science departments.

Forensic science	Objectives
Introduction to forensic serology	Blood grouping, identification of blood stains - DNA patterning - Grouping of body fluids and tissues - Disputed paternity
Examination of clothes	
Examination of dried stains	Dried blood stain Dried seminal stain Detection of saliva on clothes, paper, and envelop Urine and stool stains Meconium stain Examination of hair
Ballistics	Classification of weapons Classification of ammunition Gunpowder and detection of gunshot residue
Identification of hair and fibers	
Fingerprint	

Course evaluation

- Fill out trainees' evaluation form.
- Knowledge related to this rotation will be further assessed in annual promotion exams as well as in part-1 and final specialty examinations.

XII. FORENSIC MEDICINE COMPETENCIES

At the completion of training, the resident will have acquired the following competencies and will function effectively as

Medical Expert

Definition

As *Medical Experts*, forensic medicine experts integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of services. *Medical Expert* is the central physician Role in the CanMEDS framework.

Key and Enabling Competencies: Forensic physicians are able to

1. Function effectively as consultants, integrating all of the CanMEDS Roles to provide optimal, ethical, and client-centered services

1.1. Perform a consultation, including the presentation of well-documented assessments and recommendations in oral, written, and/or electronic form in response to a request from another expert

1.1.1. Demonstrate effective consultation services regarding medicolegal death investigation, education, and legal opinions

1.1.2. Act as a consultant to clinical colleagues, judges, and lawyers, on the interpretation and relevance of findings (requiring the approval of investigative authorities)

1.2. Demonstrate use of all CanMEDS competencies relevant to Forensic Medicine

1.3. Identify and appropriately respond to relevant ethical issues arising in center's services

1.4. Demonstrate the ability to prioritize professional duties when faced with multiple cases and problems

1.5. Demonstrate compassionate and case-centered service

1.6. Recognize and respond to ethical dimensions in medical decision making

1.7. Demonstrate medical expertise in forensic medicine by providing expert legal testimony or advising governments, as needed

2. Establish and maintain clinical knowledge, skills, and attitudes appropriate to their practice

2.1. Apply knowledge of the clinical, socio-behavioral, and fundamental biomedical sciences relevant to forensic medicine, including the following:

2.1.1. Death investigation

2.1.1.1. Apply the principles of the various types of death investigation systems in Saudi Arabia.

2.1.1.2. Demonstrate knowledge of the laws and regulations in Saudi Arabia in relation to death investigation.

2.1.1.3. Apply the principles of death investigation and the role of the post-mortem examination in such investigations.

2.1.1.4. Employ personnel and procedures effectively (including maintaining the legal chain of custody of evidence) in the investigation of death.

2.1.1.5 Function in the role of a forensic medicine physician at the scene of a fatality if requested by investigators.

2.1.1.6 Assess a death scene based on information provided by investigators.

2.1.1.7 Conduct a death investigation effectively, including determination of the identity of deceased, cause, and manner of death.

2.1.2. Post-mortem examinations

2.1.2.1 Outline the steps necessary to establish positive identification

2.1.2.2 Apply knowledge of normal anatomy, physiology, and post-mortem changes

2.1.2.3 Describe the limitations of time of death determination to a post-mortem exam

2.1.2.4 Describe the relevant laws and regulations in relation to tissue/organ procurement, tissue retention, principles of consent, privacy, and confidentiality

2.1.2.5 Ensure appropriate legal authority is obtained for procedures

2.1.2.6 Perform a complete post-mortem examination in a range of natural and unnatural deaths, with appropriate description of the external and internal findings, including gross examination

2.1.2.6.1. The post-mortem examinations must include active participation.

2.1.2.6.1.1 Reviewing the death scene information and clinical history.

2.1.2.6.1.2 Establishing the identity of the body.

2.1.2.6.1.3 External examination of the body.

2.1.2.6.1.4 Organ evisceration and gross dissection.

2.1.2.6.1.5 Microscopic examination and review of toxicology or other ancillary test results, where appropriate

2.1.2.6.1.6 Preparation of written descriptions of the external, internal findings

2.1.2.6.1.7 Preparation of conclusions regarding cause and mechanism of death

2.1.2.7. Identify the circumstances when toxicological and other ancillary investigations/tests may be appropriate, and apply the procedures for evidence and such additional investigations

2.1.2.8. Perform special examinations and sample procurement in cases of sexual assault and child abuse fatalities

2.1.2.9 Recognize the need for and perform the following effectively:

2.1.2.9.1. Specialized autopsy dissections (including anterior layer-by-layer neck dissection with tongue removal)

2.1.2.9.2. Dissection of face

2.1.2.9.3. Posterior neck dissection

2.1.2.9.4. Layered dissection of posterior torso

2.1.2.9.5. Dissection of extremities

2.1.2.9.6. Orbital roof and middle ear exploration

2.1.2.9.7. Cerebral spinal fluid collection

2.1.2.9.8. Spinal cord removal

2.1.2.9.9. Pelvic block dissection

2.1.2.9.10. Vertebral artery evaluation

2.1.2.10. Recognize the need for neuropathologic, cardiovascular, forensic anthropology, and/or forensic odontology consultations, and retain appropriate specimens for these consultations.

2.1.2.11. Demonstrate pediatric autopsy techniques

2.1.2.12. Demonstrate safe techniques for high-risk autopsies, including infections (viral hepatitis, HIV infection, tuberculosis,

Creutzfeldt-Jakob disease, drug-resistant bacteria) and exposure to noxious agents

2.1.2.13. Describe biosafety considerations for post-mortem examinations

2.1.2.14. Demonstrate the ability to take satisfactory external gross photographs of the post-mortem examination and any relevant tissues

2.1.2.15. Demonstrate the ability to interpret post-mortem findings in light of the clinical history and/or scene investigation and appreciate potential limitations of such interpretations

2.1.2.16. Demonstrate knowledge of the basis of and recognize embalming artifacts

2.1.3. Ancillary training

2.1.3.1. Describe elementary issues of medical jurisprudence

2.1.3.2. Describe the principles of pathology, specifically, forensic neuropathology, forensic anthropology, and forensic odontology

2.1.3.3. Describe the principles of interpreting toxicological results

2.1.3.4. Describe the principles of the various fields of forensic sciences, including toxicology, chemistry, biology (including DNA), document examination, firearm and tool mark examination, entomology, forensic photography, fingerprint analysis, trace evidence, and alternative light source examinations

2.2. Describe the CanMEDS framework of competencies relevant to forensic medicine

2.3. Contribute to the enhancement of the quality of services and safety in forensic medicine practice, integrating the available best evidence and best practices

3. Perform a complete and appropriate assessment of a case

3.1. Identify and explore issues to be addressed in a case encounter effectively, including the case context and preferences

3.2. Elicit a history that is relevant, concise, and accurate to the context for the purposes of prevention and health promotion from a public health perspective

3.3. Perform a focused post-mortem examination that is relevant and accurate for the purposes of prevention and health promotion, diagnosis, and/or management

3.4. Select medically appropriate investigative methods in a resource-effective and ethical manner

3.5. Demonstrate effective clinical problem solving and judgment to address problems, including interpreting available data and integrating information to generate differential diagnoses and management plans

4. Demonstrate proficient and appropriate use of diagnostic and procedural skills

4.1. Demonstrate effective, appropriate, and timely performance of diagnostic procedures relevant to forensic medicine to assess accurately the cause, manner, and mechanism of death

4.2. Document and disseminate appropriately information related to procedures performed and their outcomes

4.3. Ensure adequate follow up is arranged for procedures performed

5. Seek appropriate consultation from other experts, recognizing the limits of their expertise

5.1. Demonstrate insight into the limits of their expertise

5.2. Demonstrate effective, appropriate, and timely consultation with other experts as needed

Communicator

Definition:
As Communicators, the forensic medicine physician effectively facilitates the relationships with a case and dynamic exchanges that occur before, during, and after a case.

Key and Enabling Competencies: Forensic medicine physicians are able to

1. Develop rapport, trust, and ethical relationships with colleagues, healthcare professionals, and the medicolegal team

1.1. Recognize that being a good communicator is a core clinical skill for forensic physicians, and that effective communication can foster case, colleagues', and others' satisfaction and improved outcomes
1.2. Establish positive relationships with every case and others, characterized by understanding, trust, respect, honesty, and empathy
1.3. Respect the confidentiality, privacy, and autonomy of those examined
1.4. Listen effectively
1.5. Be aware of and responsive to non-verbal cues
1.6. Facilitate a structured forensic encounter effectively

2. Accurately elicit and synthesize relevant information and perspectives of clients, colleagues, and others

2.1. Gather information about a disease or injury and the beliefs, concerns, and expectations of the person being examined
2.1.1. Demonstrate the ability to incorporate cultural and ethnic perspectives in the conduct of medicolegal death investigations in Saudi Arabia
2.2. Seek out and synthesize relevant information from other sources, such as medicolegal death investigators and other experts

3. Convey relevant information and explanations accurately to clients, colleagues, and others

3.1. Deliver information to colleagues and others in a humane manner and in such a way that it is understandable and encourages discussion and participation in decision making
3.1.1. Communicate forensic information (opinions, conclusions) effectively to the police, coroners/medical examiners, judges, and lawyers to minimize misunderstanding

4. Develop a common understanding on issues, problems, and plans with clients, colleagues, and others to develop a shared plan of action

4.1. Identify and explore problems to be addressed from a case encounter effectively, including the context, responses, concerns, and preferences of the person being examined
4.2. Respect diversity and difference, including but not limited to the impact of gender, religion, and cultural beliefs on decision making
4.3. Encourage discussion, questions, and interaction
4.4. Engage client, families, and relevant others in shared decision making to develop a plan of action
4.5. Address challenging communication issues effectively, such as obtaining legal authority, delivering bad news, and addressing anger, confusion, and misunderstanding

5. Effectively convey oral, written, and/or electronic information on a forensic encounter

5.1. Maintain clear, concise, accurate, and appropriate records of forensic encounters and plans
5.1.1. Communicate post-mortem findings in an effective written and oral fashion
5.2. Present verbal reports of forensic encounters and plans effectively

5.2.1. Describe the importance of appropriately communicating information (opinions, conclusions) to the police, coroners/medical examiners, and lawyers, to minimize misunderstanding
5.3. Present medical information effectively to the public and media on a medical issue
5.4. Describe the information and limitations that forensics or pathology can provide in a given situation and communicate it effectively in oral and written form

Collaborator

Definition:
As Collaborators, the forensic physician effectively works within a medicolegal team to achieve optimal services.

Key and Enabling Competencies: Forensic physician are able to

1. Participate effectively and appropriately in a medicolegal team

1.1. Identify and clearly describe the role, expertise, responsibilities, and limitations of all members of the medicolegal team
1.2. Describe the roles and responsibilities of other members of the medicolegal team (i.e., police, public prosecution, and forensic science, toxicology, and pathology experts)
1.3. Recognize and respect the diversity of roles, responsibilities, and competences of other members of the medicolegal team in relation to their own
1.4. Work with others to assess, plan, provide, and integrate services
1.5. Work with others to assess, plan, provide, and review other tasks, such as research problems, educational work, program review, or administrative responsibilities
1.6. Participate effectively in death investigation team meetings when needed, demonstrating the ability to consider and respect the opinion of other team members
1.7. Enter into interdependent relationships with other professions for the provision of quality services
1.8. Describe the principles of team dynamics
1.9. Respect team ethics, including confidentiality, resource allocation, and professionalism
1.10. Demonstrate leadership in a medicolegal team, as appropriate

2. Work with other members of the medicolegal team effectively to prevent, negotiate, and resolve inter-professional conflicts

2.1. Demonstrate a respectful attitude toward colleagues and other members of the medicolegal team
2.2. Demonstrate a multidisciplinary approach to a death investigation (scene investigation, post-mortem examination, history, ancillary investigations) in collaboration with other members of the medicolegal team
2.3. Participate in death investigation team meetings when needed, demonstrating the ability to consider and respect the opinion of other team members
2.4. Work with other members of the medicolegal team to prevent conflicts
2.5. Employ collaborative negotiation to resolve conflicts
2.6. Respect differences and address misunderstandings with and limitations in other members of the medicolegal team
2.7. Recognize one's own differences, misunderstanding, and limitations that may contribute to tension in the medicolegal team
2.8. Demonstrate awareness of medicolegal death investigation as a collaborative effort among individuals and groups with different skills and experience working toward a common goal

Manager

Definition:
As Managers, forensic physicians are integral participants in healthcare organizations and/or medicolegal systems, organizing sustainable practices, making decisions on resources allocation, and contributing to the effectiveness of the healthcare organization and medicolegal system.

Key and Enabling Competencies: Forensic physician are able to

1. Participate in activities that contribute to the effectiveness of their healthcare organizations and/or medicolegal systems

1.1. Work collaboratively with others in their organizations
1.2. Participate in systemic quality process evaluation and improvement, as applied to forensic medicine
1.3. Describe the structure and function of the healthcare and/or medicolegal system as it relates to forensic medicine, including the roles of physicians

2. Manage their practice and career effectively

2.1. Set priorities and manage time to balance center services, practice requirements, outside activities, and personal life
2.2. Manage their practice, including finances and human resources
2.3. Implement processes to ensure personal practice improvement
    2.3.1. Apply the methods of professional quality assurance as applied to forensics
2.4. Employ information technology appropriately to optimize death investigation and other activities
2.5. Describe knowledge of the principles of autopsy management
    2.5.1. Apply the principles of autopsy safety and universal precautions

3. Allocate finite healthcare and/or medicolegal resources appropriately

3.1. Recognize the importance of just allocation of healthcare and/or medicolegal resources, balancing effectiveness, efficiency, and access with optimal client services
3.2. Apply evidence and management processes for cost-appropriate services

4. Serve in administration and leadership roles

4.1. Chair or participate effectively in committees and meetings
4.2. Lead or implement change in forensic pathology procedures and investigative approaches
4.3. Plan relevant elements of medicolegal services

Health Advocate

Definition:
As *Health Advocates*, forensic physicians responsibly use their expertise and influence to advance the health and wellbeing of individuals, communities, and populations.

Key and Enabling Competencies: Forensic physicians are able to

1. Respond to population health needs and issues as part of societal wellbeing

1.1. Identify the health needs of the population
    1.1.1. Identify hereditary diseases and inform family members to protect the health of living relatives, as appropriate
1.2. Identify opportunities for advocacy, health promotion, and disease prevention

2. Respond to the health needs of the communities they serve

2.1. Describe the practice communities they serve
2.2. Identify opportunities for advocacy, health promotion, and disease prevention in the communities they serve, and respond appropriately
2.3. Collaborate with public health officials to recognize infectious disease outbreaks, bioterrorism-related deaths, and other public health threats
2.4. Appreciate the possibility of competing issues between the communities served, other populations, and other members of the medicolegal team

3. Identify the determinants of health for the populations they serve

3.1. Identify the determinants of health, including barriers to access to services and resources
3.2. Identify vulnerable or marginalized populations within those served and respond appropriately

4. Promote the health of individuals, communities, and populations

4.1. Describe an approach to implement change in a health determinant of the populations served
4.2. Describe how public policy impacts the health of the populations served
4.3. Identify points of influence in the healthcare system and its structure
4.4. Describe the ethical and professional issues inherent in health advocacy, including altruism, social justice, autonomy, integrity, and idealism
4.5. Appreciate the possibility of conflicts inherent in their role as a health advocate for an individual or community with that of manager or gatekeeper
4.6. Describe the role of the medical profession in advocating collectively for health and population safety

Scholar

Definition:
As *Scholars*, forensic physicians demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application, and translation of medical knowledge.

Key and Enabling Competencies: Forensic Physicians are able to

1. Maintain and enhance professional activities through ongoing learning

1.1. Describe the principles of maintenance of competence
1.2. Describe the principles and strategies for implementing a personal knowledge management system
1.3. Recognize and reflect learning issues in practice
1.4. Conduct personal practice audits
1.5. Pose appropriate learning questions
1.6. Access and interpret relevant evidence
1.7. Integrate new learning into practice
1.8. Evaluate the impact of any change in practice
1.9. Document the learning process

2. Critically evaluate medical information and its sources, and apply appropriately to practice decisions

2.1. Describe the principles of critical appraisal
2.2. Critically appraise retrieved evidence to address a medicolegal question
2.3. Integrate critical appraisal conclusions into forensic practice

3. Facilitate the learning of cases, families, students, residents, other health professionals, the public, law enforcement personnel, coroners, attorneys, lawyers, and other members of the medicolegal team and others, as appropriate

3.1. Describe principles of learning relevant to medical education
3.2. Identify collaboratively the learning needs and desired learning outcomes of others, including law enforcement personnel, coroners, lawyers, and other members of the medicolegal team
3.3. Select effective teaching strategies and content to facilitate others' learning
3.4. Demonstrate effective lecture or presentation skills
3.5. Assess and reflect on teaching encounters
3.6. Provide effective feedback
3.7. Describe the principles of ethics with respect to teaching

4. Contribute to the development, dissemination, and translation of new knowledge and practice

4.1. Describe the principles of research and scholarly inquiry
4.2. Describe the principles of research ethics
4.3. Pose scholarly questions
4.4. Conduct systematic evidence search
4.5. Select and apply appropriate methods to address questions
4.6. Disseminate the findings of a study appropriately

Professional

Definition:
As Professionals, forensic physicians are committed to the health and wellbeing of individuals and society through ethical practice, profession-led regulation, and high personal standards of behavior.

Key and Enabling Competencies: Forensic physician are able to

1. Demonstrate a commitment to their cases, profession, and society through ethical practice

1.1. Exhibit appropriate professional behavior in practice, including honesty, integrity, commitment, compassion, respect, responsibility, and altruism
1.2. Demonstrate a commitment to delivering the highest quality services and maintenance of competence
1.2.1. Appreciate the crucial role of forensic medicine in death investigation, including knowledge of findings, limitations of certain findings, and individual professional limitations, as well as the necessity of seeking appropriate second opinions
1.3. Recognize and appropriately respond to ethical issues encountered in practice
1.4. Manage conflicts of interest appropriately
1.4.1. Recognize the need for a balanced approach when addressing competing issues and presenting forensics information in a medicolegal setting
1.5. Recognize the principles and limits of the confidentiality and privacy of the person examined as defined by professional practice guidelines and the law
1.6. Maintain appropriate relations with the person being examined

2. Demonstrate a commitment to physician health and sustainable practice

2.1. Balance personal and professional priorities to ensure personal health and a sustainable practice
2.2. Strive to heighten personal and professional awareness and insight

Forensic Medicine Clinical and Autopsy Requirements

Upon completion of residency training, trainees should accomplish within the 4 years of training the performance of the practical procedures and clinical requirements as specified below.

Training level	Autopsy
R1	Anatomy and Pathology studies
R2	Preforming External, internal examinations and main autopsy procedure, examination of clothes, Classification of wounds, Identification of human remains.
R3	Preforming several Types of ordinary autopsies and special autopsy of the following systems: Cardiovascular, Respiratory, Gastrointestinal and Urogenital system. Clinical practice. Preforming clinical practice cases.
R4	Preforming several Types of ordinary autopsies and special autopsy of the following systems: Central nervous system, Reproductive system, Trauma, disease, and second autopsies. Preforming clinical practice cases.

Evaluation

Residents' evaluation and assessment throughout the program is undertaken in accordance with the Commission's training and examination rules and regulations. This includes the following:

XIII. ASSESSMENT

Annual Assessment

Continuous Appraisal

This assessment is conducted toward the end of each training rotation throughout the academic year and at the end of each academic year as continuous assessment in the form of formative and summative evaluation.

Formative Continuous Evaluation

To fulfill the CanMEDS competencies based end of rotation evaluation, the resident's performance will be evaluated jointly by the section staffs for the following competencies:

1) Observed performance of the trainee during the daily work.
2) Performance in the academic activities (see the "Evaluation of the Presenter by Staff Supervisor" form below)
3) Participation in the different academic activities based on the logbook contents.
4) Performance of the trainee while performing Autopsy and clinical procedure skills, A timely and specific feedback to the trainee after each procedure is mandatory.
5) The CanMEDS based competencies end of rotation evaluation form "preferably electronic" must be completed following each rotation and signed by at least 2 consultants. The Program Director will discuss the evaluation with the resident, as necessary. The evaluation form will be submitted to the Regional Training Supervisory Committee of the SCFHS within 4 weeks following the end of rotation.

Summative Continuous Evaluation:

This is a summative continuous evaluation report prepared for each resident at the end of each academic year, which might also involve clinical/OSCE examination.

In-Training Evaluation Report (ITER)

This is a summative continuous evaluation report prepared for each resident at the end of each academic year.

Each residency level; trainees are required to attend all medicolegal courses and activities. fulfilling the in-training evaluation report by providing an evaluation after each required rotation.

In-Training Evaluation Report Based on:

- **CER** Continues Evaluation Report: Apply once every three months.
- **DOPS** Direct Observation of Procedural Skills Rating Form: Apply at least once every three months.
- **Mini-CEX** Mini-Clinical Evaluation Exercise Rating Form: Apply at least once every three months.
- **CBD** Case Based Discussion (Educational Portfolio): Apply at least once every month.
- **OSCE** Objective Structured Clinical Examination: Apply at least twice in the last quarter of each year. (Each exam consists of at least two OSCE questions).

At the end of each approved academic year of training, Supervisors will submit a completed ITER to the Scientific Council (SCFHS).

Continuous assessment formats consist of:

TRAINEE'S LEVEL		R1 THROUGH R4			
EVALUATION	Period	1st period Oct- Nov- Dec	2nd period Jan- Feb- Mars	3rd period April- May- June	4th period July- Aug- Sep
	Types and Number	1 CER 1 DOPS 1 Mini-CEX 3 CBD	1 CER 1 DOPS 1 Mini-CEX 3 CBD	1 CER 1 DOPS 1 Mini-CEX 3 CBD	2 OSCE
	End of year	ITER and FITER			

If any other assessment format (not mentioned above) is used the CAC must agree to its implementation.

Summary of Evaluations

R1	%	R2	%	R3	%	R4	%
ITER	25	ITER	25	ITER	25	ITER	25
Promotion Exam	50	Promotion Exam	50	Promotion Exam*	35	Autopsy Exam**	50
Annual OSCE	15	Annual OSCE	15	Annual OSCE	30	Annual OSCE***	25
S. Academic Tasks	10	S. Academic Tasks	10	S. Academic Tasks	10	logbook	****

*In this year promotion ratio is 35% of total year score, because most of the trainee's duties in R3 are practical.
**The Scientific Council decides to be in-house at the educational center or central in the region.
*** During the end of each academic year of the forensic medicine rotation; there will be an OSCE assessment exam that will be covering the clinical/practical level requirements. These requirements are mentioned in Forensic medicine residency level practical requirements.
**** Successfully passing the Logbook is mandatory requirement to complete 4th year.

End-of-year Examination

The end-of-year examination (promotion) will be limited to R1, R2, and R3. The number of exam items, eligibility, and passing score will be in accordance with the commission's training and examination rules and regulations.

Promotion Exam

Promotion from one level to the next requires:
1. An annual overall evaluation of 60% or greater.
2. No less than 50% score in the end of rotation evaluations, and no less than 50% score in the in-training annual written examination.
3. Attendance to teaching activities of not less than 80% (excluding approved leaves)

Objectives:

- The general objective of the annual promotion assessment is to evaluate that the trainee has satisfactorily acquired the theoretical knowledge and clinical competences that he/she should have acquired during the relevant year(s).
- The annual promotion assessment consists of the following components:

a. Written examination
b. Continuous Assessment

Eligibility for Written Examination:

- Valid registration with the SCFHS.
- Approval of the specialty local supervisory committee.

Written Examination Format:

- A written examination shall consist of one paper with 120 MCQs with a single best answer (one correct answer out of four options).
- The examination shall contain type K1 questions (recall and comprehension) and type K2 questions (interpretation, analysis, reasoning and decision-making).
- The examination shall include basic concept and clinical questions relevant to Forensic Medicine (see blueprint below).

Passing Score for Promotion:

- An average of 60% score in the annual promotion assessment with a minimum of 50% in each component (written and continuous assessment) is required for passing.
- In written examination, if the same paper is used for all training levels (i.e. junior or senior), pre-determined passing score to reflect the level difference in residency training shall be made where applicable. Example: R1=50%, R2=55% and R3= 60%.

Score Report:

- All written examination score reports shall go through a post-hoc item analysis before being approved by both the Assistant of General Secretary for Postgraduate studies of SCFHS and SEC, and then reported to the scientific council for the specialty for promotion decisions for all trainees, within two weeks of the examination.
- Every SEC is encouraged to provide the scientific council for the specialty with results feedback represent the performance of all residents based on each section of the exam according to the test blueprint, and based on their training center if possible.

General Rules:

- The written examination shall be held once a year within 4-6 weeks of completion of nine months of training in that particular year.
- There shall be no re-sit examination.
- Promotion written examination and continuous assessment results are valid for the specific year in which they were conducted.

Examination Conduct and Duration:

The duration of the exam is 2½ hours and the exam will be delivered as a computer based test when available, otherwise paper and pencil.

Suggested References for Saudi Board Promotion Exam:

1) Knight's Forensic Pathology
2) M. Tsokos .Forensic Pathology Reviews
3) Vincent JM Di Maio and Suzanna E.Dana, Forensic pathology
4) Burkhard Madea ,Handbook of Forensic Medicine
5) Spitz, Medicolegal investigation of deaths
6) Forensic patholgy of trauma
7) Handbook of Pediatric autopsy pathology, Edited by: Humana Press Arnold
8) Jason Payne James and Roger Byard. Encyclopedia of Forensic and legal medicine
9) Antony Busutil and Jason Payne James .Forensic medicine ,clinical and pathological aspect
10) Pathological Basics of Diseases. Robbins and Cotran
11) Journal of forensic and legal medicine
12) American Journal of forensic medine and pathology
13) Forensic science international journal

MCQ Test Blueprint for Forensic Medicine Board Promotion exam for (R1)

No.	Sections	Proportion (in ranges)
1	Pathology	80-85
2	Anatomy	30-35
Total		120

MCQ Test Blueprint for Forensic Medicine Board Promotion exam for (R2)

No.	Sections	Proportion (in ranges)
1	Pathology	
2	Examination of dead body	60-70
3	Wounds and its interpretation and Complication of injuries	10-15
4	Death due to pregnancy and abortion, Sudden infant death	5-8
5	Infanticide and stillbirth	5-8
6	Sudden unexpected death	15-10
7	Injuries due to physical agents	15-10
8	Others[1]	2-4
Total		120

[1]Others: includes, road traffic accident, Forensic Autopsy and immersion death

MCQ Test Blueprint for Forensic Medicine Board Promotion exam for (R3)

No.	Sections	Proportion (in ranges)
	Forensic Toxicology	15-20
1	Forensic radiology	10-15
2	Identification of living	10-13
3	Transportation injuries	3-5
4	Hyper and hypothermia, Burn and scald, Electrical fatalities	10-12
5	Neglect and starvation	1-3
6	Gunshot and explosions injuries	10-15
7	Examination of child abuse	4-6
8	Sexual Offences	15-18
9	Regional injuries	10-15
10	Forensic odontology	3-5
11	Permanent infirmity	1-3
12	Statistical analysis and basis of scientific research	9-10
13	Violent Asphyxia	7-10
	Shari'ah and Forensic Ethics	3-5
14	Others[1]	3-5
Total		120

[1]Others: include: Medical ethics, Medical reporting and certification, Legal aspect of mental disorders

Requirements for completion of training in the fourth year

1-Successfully Passing evaluation

1-1. Final In-Training Evaluation Report (FITER): 25 % of the year score.

The candidate must have successfully completed the residency training and receive satisfactory final in-training evaluation report (FITER) from the Program director at the end of his/her final academic year (R4).

1-2. Successfully passing annual OSCE: 25 % of the year score.

1-3. Successfully passing autopsy exam: 50 % of the year score.

2- Minimum cases requirements

2-1. Trainees should complete and perform the minimum cases requirements during the program period (Table in page 12).

2-2. The trainee prepares a list of cases that he has initiated by himself, whether the death scene, external examination, autopsies or the clinical forensic cases in tables, including the forensic number, year and the name of the case. These tables should be submitted to the program director.

2-3. The training center, local Committee or Scientific Council can commission an additional interim period or repeat the fourth year for trainees to complete the minimum required cases.

3- Successfully submitted, accepted and discussion of casebook

3-1. Number of Logbook cases throughout the year (R3 and R4) that include clinical forensic cases of the living referred to the center, external examination and post-mortem dissection of medicolegal cases, the form of the logbook is provided in the appendix.

3-2. Number of 15 postmortem cases and 5 clinical forensic cases.

3-3. Trainee in R3 should submit 5 cases of casebook, while trainee in the R4 will submit the complete 20 cases.

3-4.- General casebook terms and conditions

- 20 different cases attended by residents during their training years
- Each case should consist of an abstract, introduction, discussion, conclusion, and references (The form of the logbook is provided in the appendix).
- Subject to the conditions and requirements relating to the casebook Issued by the Examinations Committee.
- The trainee will not pass the fourth year unless the Examination Committee approves the casebook.

3-5 The casebook acceptance:

- A dissertation in the form of a casebook must be submitted by the trainee in the middle of the fourth year of the program, as a condition for passing the fourth year and taking the final examination.
- Residents are required to submit a casebook on 1st May of the fourth residency year. The dissertation will contain 20 different medicolegal cases that were observed and/or performed by the trainee during his/her practical training and shall be evaluated by both internal and external examiners who will participate in the final examination. The dissertation should entail a review of the literature, reporting, and discussion of each case with a list of references given at the end of each chapter. Submission of the dissertation will ensure the exposure of the candidate to a variety of post-mortem materials during the period of his/her training.

3-6- Casebook discussion:

- After submitting and reviewing the provided casebook, the candidates will discuss the cases with the forensic medicine scientific committee to assess the theoretical knowledge base (including recent advances) and problem-solving capabilities of candidates in the specialty of Forensic medicine.

Specialty Examinations

A- First Part Saudi Specialty Examination (Part I)

This exam is conducted in the form of a written examination with a MCQ format, and it is held at least once a year.

- Passing the first part Saudi Specialty Examination is mandatory to promote to a senior level (R4).
- Passing the Part I exam will replace the promotion exam which is in the same year (2nd year only in Forensic Program).
- Trainee in first year not allowed applying for the part 1 exam. (only in R2 and R3)
- Trainees with valid SCFHS registration and who have successfully completed at least nine (9) months of second year residency training are eligible to set for the examination.

Objectives:

- Part One Saudi Board Examination is designed to assess basic and clinical knowledge relevant to the Forensic Medicine specialty.
- Passing Saudi Board Part I Examination in Forensic Medicine is a prerequisite for any candidate to proceed to the senior level of training as determined by the specialty.

Eligibility:

- Current registration in the Saudi Board Forensic Medicine Training Program.
- Successful completion of at least nine months of training in any SCFHS residency training program.
- Completion of the registration form for the Saudi Board Part I Examination.

Rules:

- The Saudi Board Part I specialty examination will be held at least once each year on a date published on the SCFHS website.
- If the percentage of failures in the examination is 50%, the exam shall be repeated after 6 months. Upon the approval of the General Secretary and at the discretion of the SEC, the exam may be repeated even if failure is less than 50% with a maximum number of two exams per academic year.
- Candidates are allowed a maximum of four attempts to pass Saudi Board Part I specialty examination, then, the registration will be terminated.
- Passing Saudi Board Part I specialty examination is a prerequisite for any candidate to proceed to the senior level of training (R4).

Examination Format:

- A Saudi Board Part I specialty written examination shall consist of one paper with minimum 120 single best answer (SBA) MCQs. Ten unscored items can be added for pretesting purposes. Each question will have four options to choose from (A, B, C, D).
- Questions will be K2 (reasoning and application) and K1 (recall and comprehension).

- Clinical presentation questions include history, clinical finding and patient approach. Management questions; includes non-therapeutic, therapeutic, patient safety, complication. Health maintenance questions; includes health promotion, disease prevention, risk factors assessment, and prognosis, see examples below.
- The examination content cover topics relevant to Forensic Medicine as well as research, EBM, professionalism and medical ethics see blueprint below.

Examination Conduct and Duration:
The exam duration is 2½ hours and will be delivered as a computer based test when available, otherwise paper and pencil.

Passing Score:

- The passing score is 65%. However if the percentage of candidates passing the exam is less than 70%, the passing score can be lowered by one mark at a time aiming at achieving 70% passing rate or a score of 60% whichever comes first. Under NO circumstances, may the score can be reduced below 60%.
- No compensation is allowed between the annual CER and the Saudi Board Part I Specialty Examination passing scores.

Score Report:

- All score reports shall go through a post-hoc item analysis before being approved by both the Assistant of General Secretary for Postgraduate studies of SCFHS and SEC, and then issued by the SCFHS within two weeks of the examination.
- SEC shall provide the scientific council for the specialty with results feedback represent the performance of all fellows based on each section of the exam according to the test blueprint, and based on their training center if possible.

Exemption:
The SCFHS at present has no reciprocal arrangement with respect to this examination or qualification by any other college or board, in any specialty. Therefore, exemption from the examination due to the completion of any other previous postgraduate studies/examination has to be approved by the scientific council.

Suggested References for Saudi Board Part I: Principles of Forensic Medicine

1) Knight's Forensic Pathology
2) M. Tsokos .Forensic Pathology Reviews
3) Vincent JM Di Maio and Suzanna E.Dana, Forensic pathology
4) Burkhard Madea ,Handbook of Forensic Medicine
5) Spitz, Medicolegal investigation of deaths
6) Forensic patholgy of trauma
7) Handbook of Pediatric autopsy pathology, Edited by: Humana Press Arnold
8) Jason Payne James and Roger Byard. Encyclopedia of Forensic and legal medicine
9) Antony Busutil and Jason Payne James .Forensic medicine ,clinical and pathological aspect
10) Pathological Basics of Diseases. Robbins and Cotran
11) Journal of forensic and legal medicine
12) American Journal of forensic medine and pathology
13) Forensic science international journal

Note:
This list is intended for use as a study aid only. SCFHS does not intend the list to imply endorsement of these specific references, nor are the exam questions necessarily taken solely from these sources.

Blueprint outlines (Saudi Board Part I Examination: Principles of Forensic Medicine)

No.	Sections	Proportion (in ranges)
1	Pathology	25-30
2	Anatomy	10-15
3	Forensic autopsy ,Examination of dead body, and Identification	9-11
4	Wound and their interpretation	2-4
5	Head and spinal injuries	2-4
6	Chest and abdominal trauma	1-3
7	Gunshot and explosion injuries	5-7
8	Death associated with pregnancy, Sudden infant death and Infanticide	2-4
9	Violent asphyxia	3-5
10	Injuries due to physical agents	1-3
11	Postmortem artifacts	1-3
12	Sudden unexpected death	2-4
13	Complication of injuries	2-5
14	Forensic toxicology	7-10
15	Others [1]	3-6
16	Research, Ethics & Professionalism and Patient safety	8-10
Total		120

[1]Others: include road traffic accident, Immersion death.

B. Second Part (Final) Saudi Specialty Examination (PART II)

The final Saudi Specialty Examination is composed of:

B-1 Written examination:

Objectives:

- Determine the quantity and quality of specialty knowledge base ranked as competent, so that the individual can be used as a referral source for the specialty.
- Using theoretical data, determine the candidate's ability to think logically, to solve problems, to apply basic medical science to clinical problems, and to make judgments with valid comparisons.
- Screen candidates for the purposes of being allowed to take the final clinical examination.

Eligibility:

- Successful completion of the required period of residency training.

- Obtaining a training completion certificate (or equivalent) issued by the local supervisory committee based on a satisfactory Final In-Training Evaluation Report (FITER) and any other related requirements assigned by any mentioned scientific boards (e.g. research, publication, logbook, etc.). FITER example outlined in Appendix 6 in the exam rules and regulations document on SCFHS website.
- Any candidate missed a maximum of three (3) months of training of the whole residency program are allowed to sit for the exam (written and clinical), and his/her results will be suspended till that missing period is done.
- Registering for the examination at least one month before the exam date.

Rules:

- The Saudi Board Part II specialty written examination will be held once each year on a date published on the SCFHS website.
- Examination dates should be provided by the Specialty Examination Committee (SEC) in accordance with the fixed annual schedule submitted by the examination department.
- There shall be no reset examination.
- A candidate would remain eligible for Saudi Board Part II written examination for a period not longer than three years provided they could prove they had been clinically active.
- If the candidate did not pass within the three years, an exceptional attempt may be granted upon the approval of the scientific council, provided evidence of continuing clinical practice is presented.
- A candidate who failed to pass Saudi Board Part II written examination including the exceptional attempt has to repeat the final year of training, after which he/she is allowed to sit the Part II written examination twice after approval by the scientific council.
- After exhausting all the above attempts (maximum 6 attempts) the candidate will not be permitted to sit the Saudi Board Part II written examination.

Examination Format:

- A Saudi Board final written examination for Forensic Medicine shall consist of two papers. Paper one with 100 Single Best Answer (SBA) questions. Paper two with 10 Short Answer Questions (SAQ). Ten unscored items can be added for pretesting purposes.
- The examination shall contain mostly type K2 questions (interpretation, analysis, reasoning and decision making) and type K1 questions (recall and comprehension),
- Clinical presentation questions include history, clinical finding and patient approach. Diagnosis and investigation questions; includes the possible diagnosis and diagnostic methodologies (laboratory investigation, radiological imaging and clinical procedures), Management questions; includes treatment and clinical management non-therapeutic, therapeutic, patient safety, complication. Health maintenance questions; includes health promotion, disease prevention, risk factors assessment, and prognosis, see examples below.
- The examination shall include basic concept and clinical questions relevant to specialty, see blueprint below.

Examination Conduct and Duration:

Exam period shall be two hours for 100 question paper and two hours for 10 SAQ paper. The exam will be delivered as a computer based test when available, otherwise paper and pencil.

Passing Score:

a. The passing score is 70%. However, if the percentage of candidates passing the examination is less than 70%, the passing score can be lowered by one mark at a time aiming at achieving 70% passing rate or 65% passing score whichever comes first. Under no circumstances can the passing score be reduced below 65%.
b. Alternatively, to set the passing score a standard setting method that is supported by published scientific evidence can be used, for which the Angoff method is recommended. The process to arrive to the passing score requires prior review and approval. If standard setting is used the above passing score regulation does not apply. See appendix 7 for more details in the exam rules and regulations document on the SCFHS website.
c. To set a passing score using a standard setting method (b), the specialty examination committee must obtain approval of the process and passing score from the SCFHS Assistant General Secretary for Postgraduate Studies one month prior to exam administration.

Declaration of Result:

All score reports shall go through a post-hoc item analysis before being issued and approved by the SCFHS and SEC within two weeks of the examination.

Exemption:

SCFHS at present has no reciprocal arrangement with respect to this examination or qualification by any other college or board, in any specialty.

Suggested References for Saudi Board Final Written Examination of Forensic Medicine

1) Knight's Forensic Pathology
2) M. Tsokos .Forensic Pathology Reviews
3) Vincent JM Di Maio and Suzanna E.Dana, Forensic pathology
4) Burkhard Madea ,Handbook of Forensic Medicine
5) Spitz, Medicolegal investigation of deaths
6) Forensic patholgy of trauma
7) Handbook of Pediatric autopsy pathology, Edited by: Humana Press Arnold
8) Jason Payne James and Roger Byard. Encyclopedia of Forensic and legal medicine
9) Antony Busutil and Jason Payne James .Forensic medicine ,clinical and pathological aspect
10) Pathological Basics of Diseases. Robbins and Cotran
11) Journal of forensic and legal medicine
12) American Journal of forensic medine and pathology
13) Forensic science international journal

Note:

This list is intended for use as a study aid only. SCFHS does not intend the list to imply endorsement of these specific references, nor are the exam questions necessarily taken solely from these sources.

Blueprint outlines

No.	Section	%
1	Anatomy	3-5%
2	Pathology	8-10%
3	Forensic toxicology	3-5%
4	Burn, Road traffic accident Immersion death and Injuries due to physical agents	4-7%
5	Examination of dead body	3-5%
6	Identification of human remains	3-5%
7	Wounds and its interpretation	3-6%
8	Head and spinal injuries	4-7%
9	Chest and abdominal trauma	3-5%
10	Gunshot and explosions injuries	5-7%
11	Violent Asphyxia	5-7%
12	Complication of injuries	4-7%
13	Sudden infant death, Death due to pregnancy and abortion, Infanticide	3-5%
14	Sudden unexpected death	4-7%
15	Postmortem artifacts, Death associated with surgical procedures and Medical Malpractice	3-5%
16	Forensic DNA, Forensic odontology and Forensic radiology	2-4%
17	Statistical analysis and basis of scientific research	3-5%
18	Sexual offences	3-6%
19	Research, Ethics, Professionalism and Patient Safety	8-10%
Total		**100%**

B-2 Final Clinical / OSCE:

Objectives

- Determine the ability of the candidate to practice as a specialist and provide consultation in the general domain of his/her specialty for other health care professionals or other bodies that may seek assistance and advice.
- Ensure that the candidate has the necessary clinical competencies relevant to his/her specialty including but not limited to history taking, physical examination, documentation, procedural skills, communication skills, bioethics, diagnosis, management, investigation and data interpretation.
- All competencies contained within the specialty core curriculum are subject to be included in the examination.

II Eligibility:

Passing Saudi Board Part II (final) written examination

Candidates are allowed a maximum of three attempts to pass final specialty clinical examination within a period of 5 years provided that evidence of continuing clinical practice is presented and approved by the specialty scientific council.

If the candidate did not pass the three attempts in period of 5 years of passing the written exam, Trainee may re-enter the written exam upon the approval of the scientific and executive councils, provided evidence of continuing clinical practice should be presented.

A candidate who reenter the written exam will be allowed to enter the clinical exam only twice, provided evidence of continuing clinical practice is presented.

After exhausting above attempts candidate is not permitted to sit the Saudi board final specialty clinical examination.

III General Rules

Saudi board final specialty clinical examination will be held once each year within 4-6 weeks after Part II written examination (normally toward the end of calendar year).

If the percentage of failure in the clinical examination are 50 % or more the examination shall be repeated after 6 months.

Specialty clinical examinations shall be held on the same day and time in all centers, however if multiple consecutive sessions are used, suitable quarantine arrangements must be in place.

If examination is conducted on different days, more than one exam version must be used.

IV Exam Format

The Forensic Medicine final clinical examination shall consist of 8-12 graded stations each with 15-20 minute encounters.

The stations of Objective Structured Clinical Exam (OSCE) stations with one examiner each and Structured Oral Exam (SOE) stations with two examiners each.

All stations shall be designed to assess integrated clinical encounters.
SOE stations are designed with preset questions and ideal answers.

Each OSCE station is assessed with a predetermined performance checklist.

A scoring rubric for post- encounter questions is also set in advance.

Any clinical encounter scored below pass mark in an OSCE station will be independently reviewed and assessed by a second examiner after review of the video-recording. The average of both examiners` scores will be the final candidate score on that particular station. Final results will be approved by the specialty examination committee.

Final Clinical Exam Blueprint Example:

		DIMENSIONSS OF CARE				
		Forensic Pathology 4±1 Station(s)	Age Estimation in Living & Forensic Radiology 2±1 Station(s)	Clinical Forensic Medicine 2±1 Station(s)	Postmortem Examination 1±1 Station(s)	Stations
DOMAINS FOR INTEGRATED CLINICAL ENCOUNTER	Description of Finding Station(s)	2	-	-	1	2-3
	Autopsy Skills Station(s)	1	-	-	-	1
	Clinical Examination Skills Station(s)	1	1	1	-	2-3
	Postmortem Examination Skills Station(s)	-			1	1
	Total Stations	**3-4**	**1**	**1**	**2-3**	**6-8**

OSE

	Forensic Pathology	Forensic Toxicology	Clinical Forensic
Description and Interpretation of Finding	2-3	0-1	0-1

Definitions

Dimensions of Care	Focus of care for the patient, family, community, and/or population
Forensic Pathology	Medical investigation of death including post mortem changes, identification of remains, sudden death, asphyxia death, regional trauma, thermal injuries, wounds, complication of injuries, firearm injuries and blast injuries.
Age Estimation	Determining the age of a living case by parameters including general body examination, dentition and x-ray findings.
Clinical Forensic Medicine	Examination and investigation of physical and sexual assaults in living cases in all age groups both males and females.
Forensic Radiology	Detect fractures, bone injuries diagnostic of physical abuse, foreign body, firearm injuries
Domains	Reflects the scope of practice & behaviors of a practicing clinician
Description of findings	Detailed description of wounds in living and deceased cases, the causative object and an estimation of the timing of wound.
Autopsy skills	The correct procedure for exposing body cavities, removal and dissection of viscera including the brain, chest and abdominal organs, etc. Other maneuvers that are used for specific conditions.
Clinical examination skills	Different positions, techniques and instruments that are used for examining and documenting physical and sexual assault cases with the importance of each one and age estimation.
Investigation and diagnosis	Case related investigations that helps in reaching a final diagnosis including toxicological, radiological, histopathological, and other lab procedures and final opinion

Passing Score

- The pass/fail cut off for each OSCE/SOE station is determined by the exam committee prior to conducting the exam using a Minimum Performance Level (MPL) Scoring System.
- Each station shall be assigned a MPL based on the expected performance of a minimally competent candidate.
- The specialty exam committee shall approve station MPLs.
- At least one examiner marks each OSCE station and two examiners independently mark each part of the SOE.
- To pass the examination, a candidate must attain a score >/= MPL in at least 70% of the total stations with 60% on each component (OSCE & SOE).

Score Report

All score reports shall be issued by the SCFHS after approval of the Specialty Examination Committee.

Exemptions

SCFHS at present has no reciprocal arrangement with respect to this examination or qualification by any other college or board, in any specialty.

Certification

The successful candidate will be conferred a Saudi specialty certificate in forensic medicine upon the completion of all academic and practical requirements as well as the final examination.

XIV. GUIDELINES FOR MENTORS AND RESIDENTS

Guidelines for Mentors

Mentors are assigned faculty supervisors responsible for the professional development of residents. Mentoring is the process by which mentors provide support to residents. A mentee is the resident under the supervision of a mentor.

Post-graduate residency training is a formal academic program for residents to develop their full potential as future specialists. This program may be the last substantial training program they attend before they become independent specialists. However, unlike the undergraduate program with its well-defined structure, residency training is inherently less organized. Residents are expected to be in clinical settings delivering patient care. They are rotated through multiple sites and sub-specialties.
This structure of the residency program, while necessary for superior clinical exposure, also lacks opportunity for long-term professional relationship with a faculty member. Residents may feel lost without proper guidance. Moreover, without long-term longitudinal relationships, it is extremely difficult to identify the struggling resident. Residents may also struggle to develop their professional identity with the home program especially when they are rotating away in other disciplines for a long duration.

The new curriculum has a more substantial work-based continuous assessment scheme for clinical skills and professional attributes. Residents are expected to maintain a logbook, and chart meticulously their clinical experience. This requires a robust and structured monitoring system in place with clearer accountability and defined responsibility.

Nature of relationship

Mentorship is a formal yet friendly relationship. This is a partnership between a mentor and a resident (i.e., the mentee). Residents are expected to take the mentoring opportunity seriously and help the mentor achieve the desired outcomes. The mentor should receive copies of any adversarial report by other faculty members on the resident.

Goals

- Guide residents toward personal and professional development through continuous monitoring of progress
- Early identification of struggling as well as high-achieving residents
- Early detection of residents who are at risk of emotional and psychological issues
- Provide career guidance

Roles of the mentor

The primary role of the mentor is to nurture a long-term professional relationship with their assigned residents. Mentor is expected to provide an “academic home” for the residents so that the latter can feel comfortable in sharing their experiences, expressing their concerns, and clarifying issues in a non-threatening environment. The mentor is expected to keep sensitive information about the residents in confidence.
The mentor is also expected to make appropriate and early referral to the Program Director or Head of the Department if s/he determines a problem that would require expertise or resources beyond his/her capacity. Examples of such referral might include cases of:

- Serious academic problems
- Progressive deterioration of academic performance
- Potential mental or psychological issues

- Personal problems interfering with academic duties
- Professional misconduct, etc.

However, the following are NOT expected roles of a mentor:

- Provide extra tutorials, lectures, or clinical sessions
- Provide counseling for serious mental and psychological problems
- Involvement in residents' personal matters
- Provide financial or other material support

Guidelines for Residents

Roles of the resident

- Submit a resume at the start of the relationship
- Provide the mentor with medium (1–3 years) and longer term (3–7 years) goals
- Take primary responsibility in maintaining the relationship
- Schedule monthly meetings in a timely manner; dos not request for ad hoc meetings except only in emergencies
- Recognize self-learning as an essential element of residency training
- Report any major events to the mentor in a timely manner

Who can be a mentor?

Any consultant grade or higher faculty member within the residency program can be a mentor. There is no special training required.

Number of residents per mentor

As a guideline, each mentor should not have more than four to six residents as mentees. As much as possible, the residents should come from all year levels of training. This will create an opportunity for the senior residents to guide junior residents as well.

Frequency and duration of engagement

The recommended minimum frequency is once every four weeks. Each meeting might take 30 minutes to 1 hour. It is also expected that once assigned, the mentor should continue with the same resident preferably for the entire duration of the training program or at least for two years.

Tasks during the meeting

The following are suggested tasks to be completed during the meeting:

- Discuss overall clinical experience of the residents with particular attention to any concerns raised
- Review logbook or portfolio with the residents to determine whether the resident is on target to meeting the training goals
- Revisit earlier concerns or unresolved issues, if any
- Explore any non-academic factors seriously interfering with training
- Discuss consecutive absence from three scheduled meetings without valid reasons
- Discuss unprofessional behavior
- Discuss consistent underperformance in spite of counseling
- Discuss serious psychological, emotional, or health problems that may potentially cause unsafe patient care
- Discuss any other serious concerns by the mentor

Mandatory reporting

Mandatory reporting to the Program Director or Head of the Department is applicable for the following reasons:

- Consecutive absence from three scheduled meetings without valid reasons
- Unprofessional behavior
- Consistent underperformance in spite of counseling
- Serious psychological, emotional, or health problems that may potentially cause unsafe patient care
- Any other serious concerns by the mentor

Recommended textbooks

1) Knights Forensic Pathology (by P Saukko, B Knight)
2) Spitz and Fisher's Medicolegal Investigation of Death (edited by Werner U Spitz)
3) Forensic Pathology (by Vincent J DiMaio, Dominick DiMaio)
4) Forensic Medicine Clinical and Pathological Aspects (by J Payne-James, Anthony Busuttil, William Smock)
5) Forensic Pathology Principles and Practice (by David Donilak, Evan Matshes, Emma Lew)
6) Handbook of Forensic Pathology (by Vincent J DiMaio, Susanna Dana)
7) Simpson's Forensic Medicine (by J Payne-James, Richard Jones, Steven Karch, J Manlove)
8) Pathology of Trauma (by J. K. Mason, B. N. Purdue)
9) Forensic Pathology of Trauma (by Shkrum, Michael J., Ramsay, David A.)
10) Gunshot Wounds: Practical Aspects of Firearms, Ballistics, and Forensic Techniques, Practical Aspects of Criminal and Forensic Investigations (by: Vincent J.M. DiMaio)

XV. APPENDICES

The following are examples of evaluation forms for assessing the various aspects of resident performance during the residency programs.

Appendix A – Autopsy procedural skills assessment form

Forensic Medicine Program Autopsy Procedural Skills Assessment Form	
Trainee's Name:	
Level of training	
Case record number	
Procedure number	
Observed by	
Date & Time	
Signature of supervising doctor	

Description	Satisfactory	Unsatisfactory	Comment
Understood the indications for the Autopsy procedure.			
Good understanding of theoretical background to case procedure including anatomy, pathology and imaging.			
Good advance preparation for the Autopsy procedure.			
Communicated plan for procedure to relevant staff.			
Aware of risks of cross-infection and effective aseptic technique during procedure was demonstrated.			
Procedure successful understood in the current setting.			
Coped well with unexpected Autopsy problems.			
Skilful and handled documenting diagnostic signs and differential diagnosis.			
Maintained accurate and legible post procedure records.			

Colleting toxicology and pathology samples			
Sought at all times to work to the highest professional standards			
ASSESSMENT			
Practice was satisfactory			
Practice was unsatisfactory			
Example of good practice were: **Areas of practice requiring improvement were:** **Further learning and experience should focus on:**			

Appendix B – Continuous evaluation report (CER)

Continuous Evaluation Report (CER)

Trainee Name: **SCFHS#** **Training Center:**
Level of training: **Rotation Dates:**

Competencies	Meeting Expectations *					Score	Weight %
	Rarely	Inconsistently	Generally	Exceeds	N/A		
Medical Expert							
• Appropriate basic knowledge						Subtotal: /100	50%
• Accurate history and physical exam							
• Appropriate clinical decisions							
• Appropriate emergency management							
• Appropriate indication for procedures							
• Performance before, during, & after procedures							
• Clinical Skills Proficiency							
Communicator							
• Appropriate interaction with patient/family/others						Subtotal: /100	15
• Accurate documentation							
• Appropriate planning							
• Clear presentation							
Collaborator							
• Proper Interaction with health professionals						Subtotal: /100	5
• Proper consultations							
• Proper management of conflicts							
Manager							
• Proper use of information technology						Subtotal: /100	10
• Proper understanding of resources							
• Appropriate time management							
• Follow policies and procedures							
• Maximize benefits to patients							
Health Advocate							
• Appropriate response to patient health needs						Subtotal: /100	5
• Appropriate promotion and participation in patient safety							
Scholar							
• Participate in appropriate medical education activities						Subtotal: /100	10
• Implement an ongoing plan for self-education							
• Analyze and integrate medical information							
• Teach others							
• Completion of the electronic log-book							
Professional							
• Proper professional attitude						Subtotal: /100	5
• Understands medical and legal obligations							
• Punctual							
• Maintain ethics and morals							
• Accepts advices							
• Participates in professional organizations							
						Total Score: /100	100

Comment on the strengths and weaknesses of the candidate. Make direct reference to the objectives and give specific examples wherever possible.

Evaluation methods	Mini-CEX	DOPS	OSCE	CBD	MSF	Others (specify):

Residency training committee approval		Meeting No.	Date
	Program Director Name:	Date	Signature
	Trainee Name:	Date	Signature

*** Rarely ≤30%, Inconsistently >30–60%, Generally >60–90%, Exceeds >90%**

Appendix C – Direct observation of procedural skills (DOPS) rating form

Direct Observation of Procedural Skills (DOPS) Rating Form

Trainee's Name		**Registration #**	
Procedure Observed			
Observed by		Date	
Signature of Observer			

Description	Satisfactory	Unsatisfactory	Comment
Understood the indications for the procedure and clinical alternatives			
Explained plans and potential risks to the patient clearly and in an understandable manner			
Good understanding of the theoretical background, including anatomy, physiology, and imaging, of the procedure			
Good advanced preparation for the procedure			
Communicated the procedural plan to relevant staff			
Explained procedure to the patient and obtained valid informed consent			
Aware of risks of cross infection and demonstrated an effective aseptic technique during the procedure			
Procedure success or failure was understood in the current setting			
Coped well with unexpected problems			
Demonstrated awareness through constant monitoring, maintained focus			
Demonstrated confidently correct procedural sequence, minimal hesitation			
Skillful and handled patient and tissues gently			
Maintained accurate and legible records including descriptions of problems or difficulties			
Issued clear post procedural instructions to the patient and/or staff			
Sought to work to the highest professional standards at all times			

ASSESSMENT	
Practice was satisfactory	
Practice was unsatisfactory	

Examples of good practice:

Areas of practice requiring improvement:

Further learning and experience should focus on the following:

Appendix D – Mini-clinical evaluation exercise (Mini-CEX) rating form

Mini-Clinical Evaluation Exercise (Mini-CEX) Rating Form

Trainee name: Registration no.: Residency level:
Date:
Mini-CEX time: min
Observing: min
Providing feedback: min

Brief summary of case:

☐**New Case** ☐**Follow-up Case**
Assessment setting:
☐Inpatient ☐Ambulatory ☐ICU ☐CCU ☐Emergency department ☐Other_____
Complexity:
☐Low ☐Moderate ☐High
Focus:
☐Data gathering ☐Diagnosis ☐Therapy ☐Counseling ☐Other_____

Assessment:

SCORE FOR STAGE OF TRAINING									
Questions	**Unsatisfactory**			**Satisfactory**			**Superior**		
	1	2	3	4	5	6	7	8	9
History taking									
Physical examination skills									
Communication skills									
Critical judgment									
Humanistic quality/professionalism									
Organization and efficiency									
Overall clinical care									

Suggestions for Development:
1-
2-
3-

Evaluator Name:

Evaluator Signature:

Question	Description
History taking	Facilitates patient's narrative; uses appropriate questions to obtain accurate, adequate information effectively; responds to verbal and nonverbal cues appropriately
Physical examination skills	Follows an efficient, logical sequence; examinations are appropriate for clinical problems; provides patients with explanations; is sensitive to patients' comfort and modesty
Communication skills	Explores patients' perspectives; jargon free speech; open and honest; empathetic; agrees management plans and therapies with patients
Critical judgment	Forms appropriate diagnoses and suitable management plans; orders selectively and performs appropriate diagnostic studies; considers risks and benefits
Humanistic quality/professionalism	Shows respect, compassion, and empathy; establishes trust; attends to patient's comfort needs; respects confidentiality; behaves in an ethical manner; is aware of legal frameworks and his or her own limitations

Trainer's Name:					
Date (dd/mm/yyyy)					
	R1	R2	R3	R4	Others (specify)
Assessor's Name:					
Assessor's Status:	Consultant		Residents (R1, R2, R3,R4)		Other (specify)

Clinical scenario (see study guide)			
Brief description of case:			
Overall difficulty of case:	Simple	Intermediate	Difficult

Topic	Poor	Fair	Good	V. Good	N/A
Medical Record Documentation					
Clinical Assessment					
Investigation and Referrals					
autopsy					
Professionalism					
Judgment					
Leadership/Manager Issues					

Overall performance in this assessment	Poor	Fair	Good	V. Good	

Meets expectations/Does not meet expectations (for stage of training)	
Anything especially good?	Suggestions for development:
Agreed action:	
Signature of Assessor: Signature of Trainee:	

Appendix E – Resident presentation evaluation (by staff supervisor)

Forensic Medicine Program Resident Presentation Evaluation by Staff Supervisor							
Trainee's name							
Level of training							
Number of presentation							
Topic							
Observed by							
Date of presentation							
Signature of supervising doctor							
Please use the following scale to evaluate the presentation:							
Very weak	**Weak**	**Acceptable**	**Good**			**Very good**	
1	**2**	**3**	**4**			**5**	
Forensic Medical Expert			1	2	3	4	5
– Demonstrate thorough knowledge of the topic							
– Presents at appropriate level and with adequate details							
Communicator							
- Provided objectives							
- Presentation was clear and organized							
- Used clear, concise and legible materials							
- Used an effective methods /style of presentation							
- Established good rapport with the audience							
Collaborator							
- Invite comments from learners and led discussion							
- Worked effectively with staff supervisor in preparing the session							
Health advocate							
- Manage time effectively							
- Was clearly audible							
Scholar							
- Posed an appropriate learning questions							
- Accessed and interpreted the relevant literature							
Professional							
- Maintains case/patient confidentiality if clinical material is used							
- Identified and managed relevant conflict of interest							
Comments (Optional):							

Appendix F – In-training competencies evaluation form

Forensic Medicine In-training Competencies Evaluation Form				
Name of Resident:				
Resident: PG Year:				
Service:				
Period of Evaluation:				
Ratings: 1) Fails to meet competencies for PGY level 2) Partly meets competencies for PGY level 3) Meets competencies for PGY level 4) Exceeds competencies for PGY level 5) Exceeds competencies and performs well above current PGY level **NA** = Not Assessed				
Rating: 1 _____3_____5				
MEDICAL EXPERT	Data Gathering (also Communicator) ☐	Poor interviewing skills. Obtains incomplete, disorganized, or inaccurate histories. Omits important information(Clinical) Summarize police report and circumstances (Autopsy)	Good interviewing skills. Obtains complete and accurate histories (Clinical) Understand what information should ask for (Autopsy)	Skilfully interviews difficult patients. Obtains complete, systematic, accurate, and concise histories. Understand what information should ask for and clinical relevant data (Autopsy)
	Physical Examination (External and Clinical) ☐	Conducts incomplete or technically deficient exams. Often misses significant findings.	Conducts complete and systematic exams. Recognizes all significant findings.	Conducts thorough, technically sound exams. Recognizes all normal and abnormal findings.
	Internal Examination ☐	Unable to localize pathological findings, extent of injury. Poor at formulating a differential diagnosis of problems.	Usually localizes pathology and extent of trauma correctly. Formulates reasonable differential diagnosis.	Displays very good ability to localize pathological finding and extent of trauma and derives appropriate differential diagnoses.
	Judgment and Decision Making ☐	Does not derive decisions logically from data. Often delays decisions inappropriately.	Shows good judgment resulting from logical reasoning. Makes decisions with little delay.	Makes correct and timely decisions (even on complex matters) from efficient analysis of information.
	Medical Knowledge ☐	Shows a limited fund of basic and clinical knowledge. Cannot explain mechanisms of basic pathological disease and trauma	Shows good basic and clinical knowledge and is able to explain mechanisms of most pathological diseases and trauma.	Shows an exceptional fund of basic and clinical knowledge. Consistently able to explain mechanisms of pathology and trauma.
	Performance in Emergencies ☐	Unable to assess emergencies independently. Often displays poor judgment. (Clinical, crime scene)	Makes appropriate emergency assessments and decisions. (Clinical, crime scene)	Makes appropriate, reliable, and independent assessments and decisions in emergencies. (Clinical, crime scene)
	Diagnostic Planning and Assessment ☐	Fails to order appropriate lab or imaging tests. Does not recognize significance of results. Cannot identify normal structures or abnormalities on x-rays. Cannot interpret toxicological analysis	Orders appropriate tests and recognizes the significance of results. Identifies normal structures and most abnormalities on x-rays. Can interpret most toxicological analysis	Orders appropriate tests and recognizes the significance of results. Identifies all normal structures and abnormalities on x-rays. Correctly interpret toxicological analysis

Rating: 1 _____3_____5				
COMMUNICATOR / COLLABORATOR	Patient Family Relationships ☐	Does not communicate effectively with victims and deceased family.	Communicate effectively with victims and deceased family.	Communicate effectively with victims and deceased family in difficult situation.
	Records and Reports ☐	Reports/records are incomplete and inaccurate and lack vital data.	Reports/records are usually complete, accurate, and systematic.	Reports/records are consistently accurate, organized, and comprehensive.
	Teaching ☐	Does not teach. Neglects students and contributes little to their education. Ignores students' needs. NA for juniors	Teaches students and residents effectively. Adapts teaching according to student level. NA for juniors	Always available /approachable. Involves students and stimulates them to learn. Skilful learner-centered teaching. NA for juniors
	Team Relationships ☐	Does not share information with others. Poor at resolving conflict. No leadership skills.	Reliable team member. Works well with others and has some leadership skills. Keeps co-workers well informed.	Active team member, recognized for leadership skills. Resolves conflict in difficult situations. Proactively shares information with co-workers.
MANAGER	Manager ☐	Poor time management skills. Unable to co-ordinate the work of the health care team	Good time management skills. Often co-ordinates the work of the health care team	Superb time management. Effectively supervises the work of the health care team. Actively promotes quality improvement of systems of care.
HEALTH ADVOCATE	Health Advocate ☐	Fails to counsel supervisors for conditions or risk factors. Ignores preventive medicine promotion for community need.	Appropriate counsel supervisors for conditions or risk factors.	Appropriate counsel supervisors for conditions or risk factors. Apply preventive medicine promotion for community need.
SCHOLAR	Continuing Education and Critical Appraisal ☐	Shows little intellectual curiosity. Does not read articles or monographs around victim\deceased problems. Little understanding of levels of evidence.	Reads articles or monographs around victim\deceased problems. Critically assesses the information and applies appropriately at the bedside.	Consistently searches the literature around victim\deceased. Superb critical thinker. Generates hypotheses and seeks evidence.
PROFESSIONAL	Responsibility ☐	Avoids responsibility. Needs repeated reminders. Fails to complete tasks.	Takes appropriate share of responsibility. Completes tasks and follows up on unresolved issues.	Eager to make extra effort when needed. Always completes tasks and is current on patient issues.
	Self-Assessment Ability ☐	Unaware of own limitations. Fails to request required assistance. Does not seek feedback. Unable to take advice. Has difficulty admitting errors.	Aware of own limitations. Seeks appropriate assistance and feedback. Accepts advice and admits errors.	Consistently recognizes own limitations and displays satisfactory behaviour. Regularly seeks and incorporates feedback to excel.
	Values & Ethics ☐	Fails to respect personal, cultural, or gender issues. Fails to deal appropriately with ethical issues.	Respects personal, cultural, and gender issues. Deals appropriately with ethical issues.	Integrates personal, cultural, and gender considerations. Keenly recognizes and skilfully manages ethical issues.
Overall performance				

Rating: 1 _____3_____5				
	Overall Performance ☐	Unsatisfactory performance for level of training. Fails or is borderline in meeting several competencies or commits egregious error(s).	Appropriate performance for level of training. Meets all or almost all competencies. Progressing at expected rate.	Excellent performance. Performing well above PGY level in most competencies.
Describe OUTSTANDING performances, FAILURES, or difficulties:				
Comments:				

Evaluator(s) Name: _____

Signature: _____ Date: _____

Resident: Has this evaluation been discussed with you? Yes No

I agree with this performance evaluation. Yes No

Resident's Signature: _____ Date: _____

Resident's comments on evaluation:

Appendix G –Casebook (Logbook)

Case Book (Logbook)

General Guidelines and Requirements

- All candidates are required to present a casebook for training completion.
- The casebook must include 20 case (5 clinical and 15 autopsy) of personal involvement during the candidate-training period.
- The cases should be varied and wide a spectrum of cases is required with minimum 3 clinical forensic medicine cases.
- Each case should not be reported in another candidate casebook.
- The privacy of cases should be maintained e.g. no names of the deceased, eliminating any part of a photograph that might identify the deceased.
- A supervisor should be assigned for each casebook. The supervisor will be assigned by the scientific council to follow and guide the candidate during the casebook writing and production.
- The candidate should follow the suggested timetable by the supervisor to progress in the casebook writing.
- The casebook must be authenticated by the candidate's Head of training centre.
- Each case should be presented in a systematic manner. It is essential to produce a detailed discussion for each case, critically analyzing the findings with relevant current published literature.
- Plagiarism is the presentation of another person's thoughts or words as if they were the writer's own. The casebook which is found to have plagiarised material in the casebook will be rejected. Candidates must make and sign a declaration that indicates the originality of his/her work. The declaration must be included in the casebook.

References

- The majority of references should be from recent literature published in recognized journals, however, references from textbooks and other resources are expected.
- The references should be numbered consecutively in the order that they are first mentioned in the text and placed in superscript each time the author is cited.
- The list of references should be arranged at the end of each case in numerical order.
- References should use the Vancouver style

Photographing

- The photos should be colored original and from the case itself.
- The photos should be in good quality, clear and significant.
- Should not have any identity feature.
- Descriptive illustration should be included below each photo.
- All photos should be numbered based on the case and photo number, example case 4 photograph 1 (4.1)
- Maximum number is 12 photos for each case.
- Each page should contain maximum of two photos.

PRODUCTION OF THE CASEBOOK

- The standard format should be followed, and it is important that this information is strictly adhered to.
- Language: The English language is the main language for the casebook. However, the abstract of each case should be written, at the beginning of the case, in both Arabic and English.

- Font: The text should be size 14 point, black, type of (TIMES NEW ROMANS NORMAL) 1.5 lines-spaced on double sides of A4 paper. The title of the case size 18 bold and subtitle size 14 bold. For the Arabic abstract should be written with size 18 and type Traditional Arabic font.
- Header: on the left side, number and the case title and page number on the middle of the header.
- Headers, footers and the left hand margin should be wide enough to accommodate the binding without obscuring text.
- Printing: The casebooks should be printed on both sides of white blank A4 paper with no layout or lines.
- Binding of 3 informal copies and soft copy (on flash memory) must be submitted by the deadline (first week of June for R4 trainee). Candidates should have all 3 copies bound by a printer using a soft (e.g. spiral) binding.
- Binding of final copy, on successful completion of the examination, candidates must have one copy of their casebook bound in a hard case cover. Covers should be black with gold lettering on the spine and cover.

Assessment

- ✓ The casebook will be evaluated by the examiners with particular reference to
- ✓ Diversity of the cases.
- ✓ Logical presentation.
- ✓ Quality of presentation (spelling, grammar and punctuation).
- ✓ Description (external and internal examination)
- ✓ Illustration (including photographs).
- ✓ Discussion (should be reasonable, logical, and related to the case).
- ✓ Quality and variety of references.
- ✓ Casebook discussion session will be held in July-August each year.

Casebook Format

1) The Cover: as in the example in the training centers.
2) Introductive pages: should be numbered in Romans style (I, II) and include:
   - The title page.
   - Acknowledgment.
   - Dedication
   - Declaration.
3) Table of Contents: should contain page numbers and case title.
4) Case presentation: abstract (Arabic and English), introduction, circumstances, scene investigation, external examination, internal examination, investigation, opinion and cause of death, figures, discussion, references.

Declaration
Name: _____ I certify that this casebook is entirely my own work and free from plagiarism. Signed: _____ Date _____

Assessment criteria

Item	Score
Diversity of the cases	10
Plagiarism	Pass or Fail
Follow the standard format, including references style	10
Logical presentation of the case	10
Quality of presentation (Spelling, grammar and punctuation)	10
Abstracts	5
Description	10
Photograph (relation to the case, clarity and illustration)	10
Opinion and cause of death	15
Discussion	15
References reliability, recentness and variety	5
Total	/100

Examiner 1 Name: Signature:	
Examiner 2 Name: Signature:	