Forensic Medicine

2026

V.2

الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

In The Name of Allah

PREFACE

- Curriculum is a vital component of learning and teaching. In addition to informing trainees, trainers, and training supervisors about the goals and objectives of training, the curriculum substantially impacts program planning, execution, and the quality of training outcomes.
- The Saudi Commission for Health Specialties (SCFHS) is the national regulatory body for postgraduate training programs in all health professions in Saudi Arabia.
- This manual is intended to function as a guide for members of the "Curriculum Development Committee" (CDC) and "Curriculum Review Committee" (CRC) in writing the curriculum for their respective specialties.
- Members of the CDC and CRC are expected to adhere to the curriculum structure outlined in this manual and to the standards specified in the accompanying materials. The CDC is responsible for developing subject matter content, whereas the CRC is responsible for overseeing educational design and conducting reviews to ensure the overall quality and integrity of the curriculum.
- The CDC must develop a blueprint of the curriculum content, which must then be submitted for approval by the Scientific Council/Committee of the program.
- This manual provides pre-written sections and materials that are universally applicable to SCFHS programs. CDC and CRC members are advised to follow the instructions outlined herein to help customize curriculum content based on program needs.

- This template should be used with the accompanying materials and reference documents to ensure consistency, quality, and alignment with the best practices in curriculum development.
- For any additional support, please do not hesitate to contact us at curricula@scfhs.org.sa
- The primary goal of this document was to enrich the experience of postgraduate trainees by outlining the learning objectives and competencies necessary for them to become independent and competent practitioners.
- This curriculum may contain sections outlining training regulations; however, such regulations must be sought from the "General Bylaws of Training in Postgraduate Programs" and "Executive Policies" published by the SCFHS, which can be accessed online through the official SCFHS website. In the case of discrepancies in the regulation statements, the statement in the most updated bylaws and executive policies must be considered.
- This curriculum is subject to periodic refinement; therefore, please refer to the electronic version posted online for an updated edition at www.scfhs.org.sa

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II. COPYRIGHT STATEMENTS

We acknowledge that the CanMEDS framework is a copyright of the Royal College of Physicians and Surgeons of Canada and that many of the competencies described have been acquired from their resources. Please refer to Frank, J. R., Snell, L., Sherbino, J., & Boucher, A. (2015). Can-MEDS 2015 Physician Competency Framework Series I. Ottawa: Royal College of Physicians and Surgeons of Canada.

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IV. INTRODUCTION

The medico-legal death investigation system in the Kingdom of Saudi Arabia (KSA) is unique worldwide, as it is exclusively derived from the Islamic judiciary based on Shari'ah Law, the definitive Islamic legal doctrine. This law applies to both Saudi citizens and foreign nationals. This differs from that in other Islamic countries, which have a combination of Islamic and other judicial systems. (1)

Therefore, it is essential to develop a program specifically tailored to the medico-legal investigation system in the KSA. This program reflects the distinct nature of the Saudi judicial system and represents an initial step toward developing new subspecialties in forensic medicine.

The SCFHS has recognized and accredited several centers for residency training in forensic medicine. (2)

1. Context of Practice:

The Forensic Medicine program aims to establish high academic standards and train graduates with sound knowledge and practical skills in medico-legal principles. Graduates will be prepared to deliver forensic medicine services that support justice and public health within the context of Arab society and the unique legal framework of Saudi Arabia.

Forensic medicine involves the application of medical knowledge (including all medical specialties and laboratory sciences) to the administration of law and justice. It is a branch of forensic science in which medical expertise is applied to legal processes in KSA.

Forensic medicine is a relevant new specialty and age-old one, and the urge to solve medical mystery had s 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 KSA, established in 2005, was a 4-year program granting graduates a certificate equivalent to a doctorate in forensic medicine. Forensic and Legal Medicine Program graduates have consistently demonstrated the success of the program. These are important assets for forensic and legal medical specialties worldwide.

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

The medico-legal death investigation system in the KSA is unique. It is exclusively derived from the Islamic judiciary based on Shari'ah Law, which is the definitive Islamic law or doctrine. This law applies to both Saudi citizens and foreign nationals. This differs from other Islamic countries, which have a combination of Islamic and other judicial systems. (1)(6)

Therefore, it is extremely important to create a unique program that suits the medico-legal investigation system in the KSA, which is a unique judicial system influenced by the Islamic judiciary (Shari'ah Law). We consider the proposed program to be the first step toward developing new subspecialties in the field of forensic medicine.(1)(6)

Forensic Medicine is a constantly evolving specialty, and proper training of candidates is an important step in the sustainability of this specialty. The context of practice is defined as the 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), availability of equipment (e.g., dissecting tables and radiology equipment), educational staff (certified and competent consultants), transportation (e.g., transportation to the crime scene), and any other resources available. The context of practice involves many sectors (e.g., forensic toxicology laboratories, forensic pathology laboratories, the Ministry of Justice, and Ministry of the Interior). (6)

2. Goals and Responsibilities of Curriculum Implementation:

Ultimately, this curriculum aims to guide trainees to become *competent and fit for practice* in their respective specialties. Accordingly, achieving this goal requires significant effort and coordination from all stakeholders involved in postgraduate training. As *"adult-learners,"* trainees must be proactive, fully engaged, and exhibit the following: a careful understanding of learning objectives, self-directed learning, problem solving, an eagerness to apply learning through reflective practice based on feedback and formative assessment, a growth mindset and self-awareness, and a willingness to seek support when needed. Program directors, trainers, accreditors, and training stakeholders play vital roles in ensuring the successful implementation of this curriculum. Moreover, training committee members, particularly program administrators and chief residents, substantially affect the program implementation. Trainees should be called upon to share their responsibilities for curriculum implementation.

The strategic direction of the SCFHS applies a recognized competency model of training governance to achieve the highest training quality, and postgraduate programs are required to cover research and evidence-based practices in their curriculum. Additionally, academic affairs in training centers and regional supervisory training committees play key roles in training supervision and implementation. The Specialty Scientific Committee guarantees that the curriculum content is regularly updated to align with the highest standards in postgraduate education for each specialty of the trainee.

Graduates of the Forensic and Legal Medicine Residency Program are expected to demonstrate the Forensic program competencies required for independent, high-quality, ethical, and legally defensible forensic services consistent with national regulations, ministerial policies, and quality standards. They should be able to conduct comprehensive medico-legal death investigations independently and prepare clear, accurate, and defensible medico-legal death reports that meet the documentation and evidentiary requirements of the Saudi courts, prosecution services, and relevant governmental authorities. They must be able to perform independent clinical forensic evaluations with the proper interpretation and documentation of injuries. Thus, they produce medico-legal clinical reports that are well structured, evidence-based, and aligned with relevant Saudi laws, regulations, and ministerial quality standards and policies governing forensic and legal medicine practices. This framework ensures that Forensic Medicine program graduates are fully prepared for independent practice as forensic medicine specialists within the KSA, meeting the expectations of the SCFHS, MOH, and judicial authorities.

V. GENERAL FORENSIC ABBREVIATIONS:

Abbreviation	Full Form	Description/Context
SCFHS	Saudi Commission for Health Specialties	National regulatory body overseeing postgraduate health training in Saudi Arabia
CDC	Curriculum Development Committee	Responsible for developing subject-matter content for SCFHS curricula
CRC	Curriculum Review Committee	Oversees educational design and quality of curricula
CBME	Competency-Based Medical Education	Framework emphasizing outcomes-based medical training
CBE	Competency-Based Education	Educational approach focusing on defined competencies and outcomes
ACGME	Accreditation Council for Graduate Medical Education	US body providing competency models referenced in the curriculum
RCPSC	Royal College of Physicians and Surgeons of Canada	Source of CanMEDS framework adopted by SCFHS
CanMEDS	Canadian Medical Education Directions for Specialists	Framework describing physician competencies (roles such as Medical Expert, Communicator, etc.)
R1	Residency year 1	Resident level by years
R2	Residency year 2	Resident level by years

Abbreviation	Full Form	Description/Context
R3	Residency year 3	Resident level by years
R4	Residency year 4	Resident level by years
COD	Cause of Death	Medical reason for death
MOD	Manner of Death	Classification (homicide, suicide, etc.)
DOA	Dead on Arrival	Deceased at time of hospital arrival
PM	Post-Mortem	After death
PMI	Post-Mortem Interval	Time elapsed since death
TOI	Time of Injury	Estimated time of injury
TOA	Time of Assault	When the assault took place
TSD	Time Since Death	Time between death and discovery
OSCE	Objective Structured Clinical Examination	Practical exam format assessing clinical skills
OSPE	Objective Structured Practical Examination	Used for procedural/practical skills
SOE	Structured Oral Examination	Oral assessment used in final training evaluations
WBA	Work-Based Assessment	Assessment tool evaluating trainees in workplace settings
WPBA	Workplace-Based Assessment	Alternative term for WBA

Abbreviation	Full Form	Description/Context
SLE	Supervised Learning Event	Newer term related to workplace-based assessments
EA	Educational Activity	Non-workplace training and learning exercises (e.g., journal clubs, research)
EYPT	Early Year Progress Test	Adaptive written assessment method
SAQ	Short Answer Questions	Written exam format assessing applied knowledge
CRM	Crisis Resource Management	Simulation-based teamwork and communication training
OB/GYN	Obstetrics and Gynecology	Simulation theme example for obstetric emergencies
AHA	American Heart Association	Cited in neonatal resuscitation guidelines
US	Ultrasound	Diagnostic imaging method used in training simulations
CT	Computed Tomography	Imaging technique in forensic radiology
MRI	Magnetic Resonance Imaging	Imaging technique used in virtopsy (virtual autopsy)
RUQ	Right Upper Quadrant	Anatomical region referenced in ultrasound training
IRB	Institutional Review Board	Ethics committee for research approval
H&E	Hematoxylin and Eosin	Common histological stain used in pathology

Abbreviation	Full Form	Description/Context
TB	Tuberculosis	Disease reference within infectious pathology section
HCC	Hepatocellular Carcinoma	Common malignant liver tumor
CNS	Central Nervous System	Category for brain and spinal pathology
ICP	Intracranial Pressure	Neuropathology term for pressure inside the skull
CSF	Cerebrospinal Fluid	Fluid surrounding brain and spinal cord
ALS	Amyotrophic Lateral Sclerosis	Degenerative motor neuron disease listed in CNS pathology
MS	Multiple Sclerosis	Demyelinating CNS disorder
ADEM	Acute Disseminated Encephalomyelitis	Inflammatory demyelinating disease of CNS

VI. PROGRAM ENTRY REQUIREMENTS

Please refer to the executive policy of the SCFHS on admission and registration and ensure that there is a statement advising candidates to refer to the SCFHS website.

VII. LEARNING AND COMPETENCIES

1. Introduction to Competency-Based Education

Training should be guided by well-defined "*enabling competencies*" that are developed based on "*competencies*" of a particular program to serve specific specialty needs. Enabling competencies are supposed to reflect the professional "*competencies*" and tasks that are aimed to be "*entrusted*" to trainees upon graduation. This ensures that graduates fulfill the expected demands of the healthcare system and patient care related to their specialties. *Competency-based education* (CBE) is an approach to "*adult-learning*" that is grounded in achieving *pre-defined*, *fine-grained, and well-paced* sub-competencies that are derived from complex professional competencies.

Professional competencies associated with healthcare are usually complex and contain multiple learning domains (knowledge, skills, and professional behavior). CBE is expected to change the traditional approaches to postgraduate education. For instance, although it is a precious resource, training time should not be considered a proxy for *competence* (e.g., the time of rotation in certain hospital areas is not the primary marker of competence achievement). Furthermore, CBE emphasizes the critical role of informed judgment in assessing a competency progress of the trainee based on their staged and progressive performance, using data collected from multiple educational and assessment encounters, methods, and workplace-based observations. Several CBE models have been developed for postgraduate education in healthcare (e.g., CanMEDS by the Royal College of Physicians and Surgeons of Canada, the CBME-Competency model by the Accreditation Council for Graduate Medical Education (ACGME), Tomorrow's Doctor in the UK, and multiple others). The concepts associated with the CBE are as follows:

a) **Competency:** Competency refers to the observable ability of a healthcare professional to encompass knowledge, skills, values, and attitudes/professional behaviors. It reflects the potential to perform efficiently in a given situation based on the standards of the profession and involves the practical application of these components in real-world settings. Professional roles (e.g., Medical Experts, Health Advocates, Communicators, Leaders, Scholars, Collaborators, And Professionals) are used to define competency roles that make them malleable for learning and assessment.

b) **Milestones**: Milestones represent stages in the developmental journey along the competency continuum. Throughout their learning journey, trainees from junior to senior levels assist in transitioning from novice/supervised to master/unsupervised. This should not undermine the role of supervisory/regulatory bodies toward the malpractice of independent practitioners. Milestones are expected to enhance the learning process by pacing training/assessment to match the developmental levels of the trainees (junior vs. senior).

c) **Learning-Domains:** The categories or dimensions of learning encompass the development of the abilities and attributes of a learner. These domains are commonly divided into three key areas: K = Knowledge, S = Skills, and A = Attitude (also known as professional behavior).

Principles of Competency-Based Medical Education (CBME)

These include:

1. **Focused Outcomes:** CBME emphasizes defining and achieving clear outcomes based on societal needs and ensuring that graduates fulfill these standards.
2. **Competencies as a Framework:** The curriculum defines abilities or competencies that integrate knowledge, skills, and attitudes/behaviors.
3. **Learner-Centered Approach:** It promotes individualized learning by allowing trainees to progress at their own pace according to their ability to demonstrate competency.
4. **Integrated Assessment**: This uses multiple assessment methods to evaluate competencies comprehensively and continuously.
5. **Flexibility in Learning Pathways**: It encourages adaptable learning experiences tailored to individual needs while fulfilling the established competency standards.
6. **Focus on Real-World Application**: This emphasizes the ability to apply knowledge and skills in practical, real-world contexts.

7. **Supervision and Feedback**: It incorporates close supervision and regular feedback to promote continuous improvement and ensure safety.
8. **Emphasis on Lifelong Learning**: It prepares learners for ongoing self-directed learning and adaptation to a rapidly evolving healthcare environment.
9. **Accountability**: This ensures that training aligns with societal needs and prepares competent professionals.

The SCFHS endorses CanMEDS for articulating professional competencies. The curriculum applies CBME principles. CanMEDS/ACGME/OTHER is a globally accepted framework that outlines competency roles. The "CanMEDS 2015 framework" was adopted in this section.

2. Program Duration

The duration of Forensic Medicine program is 4 years.

3. Program Rotations

Stage	Training Year	Mandatory core rotations*		
		Rotation name	Duration	Setting
Junior	R1	Forensic Medicine	24 weeks	Forensic Medicine Center (FMC)
		Pathology	20 weeks	Pathology Department
		Research	2 weeks	FMC
		Islamic Shari'ah and forensics ethics	2 weeks	FMC
		Annual Vacation	4 weeks	
	R2	Forensic Medicine	28 weeks	FMC
		Pathology	12 weeks	Pathology Department
		Toxicology	8 weeks	Toxicology Regional Lab
		Annual Vacation	4 weeks	
Senior	R3	Forensic Medicine	40 weeks	FMC
		Forensic Sciences	4 weeks	Forensic Sciences lab in ministry of interior
		Forensic Radiology	4 weeks	FMC and Radiology department
		Annual Vacation	4 weeks	
	R4	Forensic Medicine	48 weeks	FMC
		Annual Vacation	4weeks	

4. Mapping of Competencies, roles, assessment, and educational activities to program rotations:

CanMED Competencies:

Medical Expert:

Definition:

As Medical Experts, forensic medicine experts integrate all CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes to their provision of services. A Medical Expert plays the central role of a physician in the CanMEDS framework.

Key and Enabling Competencies: Forensic physicians are able to:

Competencies	Enabling Competencies
1. Function effectively as specialists, integrating all 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 medico-legal 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 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.

Competencies	Enabling Competencies
2. Establish and maintain clinical knowledge, skills, and attitudes appropriate to their practice	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. 2.1.1 Apply knowledge of 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 post-mortem examination in such investigations. 2.1.1.4 Use procedures effectively (including maintaining the legal chain of custody of evidence) in death investigation. 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 the death scene based on information provided by investigators. 2.1.1.7 Conduct a death investigation effectively, including the determination of the identity of the deceased, cause, and manner of death. 2.1.2 Post-mortem examinations

Competencies	Enabling Competencies
	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 an appropriate description of the external and internal findings, including gross examination. 2.1.2.6.1 Post-mortem examinations must include active participation. 2.1.2.6.2 Reviewing the death scene information and clinical history. 2.1.2.6.3 Establishing the identity of the body. 2.1.2.6.4 External examination of the body. 2.1.2.6.5 Organ evisceration and gross dissection. 2.1.2.6.6 Microscopic examination and review of toxicology or other ancillary test results, where appropriate. 2.1.2.6.7 Preparation of written descriptions of the external, internal findings. 2.1.2.6.8 Preparation of conclusions regarding cause and mechanism of death.

Competencies	Enabling Competencies
	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 actions 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 neuropathology, 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

Competencies	Enabling Competencies
	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 on 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. 2.1.2Describe the CanMEDS framework of competencies relevant to forensic medicine.

Competencies	Enabling Competencies
	2.1.3 Contribute to the enhancement of the quality of services and safety in forensic medicine practice by integrating the best available evidence and practices. 2.1.4 Clinical forensic 2.1.4.1 Apply the clinical forensic medicine in the evaluation of living individuals involved in legal investigations. 2.1.4.2 Master medico-legal interviewing techniques in the clinic with sensitivity, objectivity and respect. 2.1.4.3 Obtain informed consent and ensure privacy, dignity, and emotional support for the victim throughout the examination. 2.1.4.4 Document detailed medical history, physical or sexual examinations with logs, charts, diagrams, and photographs. 2.1.4.5 Demonstrate professional ethics and impartiality when dealing with victims and suspects. 2.1.4.6 Document and assess the type of different injuries from blunt, sharp, firearm, thermal, and other trauma mechanisms. 2.1.4.7 Assessment of the severity and age of the injuries and differentiation between accidental, self-inflicted, and assault-related injuries. 2.1.4.8 Differentiate between injuries based on causation and weapon characteristics. 2.1.4.9 Perform genital and anal examinations, identify signs of trauma or disease and differentiate normal variants. 2.1.4.10 Collect, preserve, and document biological evidence (e.g., blood, urine, swabs, clothing, fingernail scrapings, and trace evidence) for laboratory tests

Competencies	Enabling Competencies
	for semen, DNA, sexually transmitted infections, and pregnancy, as indicated. 2.1.4.11 Formulate and justify opinions regarding the consistency between history and observed findings. 2.1.4.12 Recognize patterns of abuse and provide appropriate referrals for victim protection and psychosocial support. 2.1.4.13 Recognize the need for medical support and coordinate as indicated. 2.1.5 Permanent infirmity. 2.1.5.1 Demonstrate knowledge of national guidelines and the guidelines of the Council of Ministers of Saudi Arabia to assess permanent infirmity and disability. 2.1.5.2 Obtain informed consent and ensure privacy, dignity, and emotional support for the patients throughout the examination. 2.1.5.3 Document detailed medical history and examination of permanent infirmity, disability, disfigurement, and loss of function. 2.1.5.4 Perform functional assessments to determine the percentage of disability using the approved national reference tables and prepare objective medico-legal opinions for the courts and compensation committees. 2.1.5.5 Differentiate between pre-existing conditions and injury-related sequelae. 2.1.5.6 Demonstrate knowledge of referring patients for multidisciplinary evaluations with orthopedic, neurological, or psychiatric specialists when needed.

Competencies	Enabling Competencies
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 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 accurately assess the cause, manner, and mechanism of death. 4.2 Document and appropriately disseminate information related to the procedures performed and their outcomes. 4.3 Ensure that adequate follow-up is arranged for the procedures performed.

Collaborator

Definition:

As Collaborators, forensic physicians effectively work within a medico-legal team to achieve optimal services.

Key and Enabling Competencies: Forensic physicians are able to

Competencies	Enabling Competencies
1. Participate effectively and appropriately in a medico-legal team	1.1. Identify and describe the role, expertise, responsibilities, and limitations of all members of the medico-legal team. 1.2. Describe the roles and responsibilities of other members of the medico-legal team (i.e., police, public prosecution, forensic science, toxicology, and pathology experts). 1.3. Recognize and respect the diversity of roles, responsibilities, and competences of other members of the medico-legal 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 reviews, or administrative responsibilities. 1.6. Participate effectively in death investigation team meetings when needed, demonstrating the ability to consider and respect the opinions of other team members. 1.7. Enter into interdependent relationships with other professions to provide 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 medico-legal team as appropriate.

Competencies	Enabling Competencies
2. Work with other members of the medico-legal team effectively to prevent, negotiate, and resolve inter-professional conflicts	2.1 Demonstrate a respectful attitude toward colleagues and other members of the medico-legal 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 medico-legal team. 2.3 Participate in death investigation team meetings when needed, demonstrating the ability to consider and respect the opinions of other team members. 2.4 Work with other members of the medico-legal team to prevent conflicts. 2.5 se collaborative negotiation to resolve conflicts. 2.6 Respect differences and address misunderstandings and limitations of other members of the medico-legal team. 2.7 Recognize one's own differences, misunderstandings, and limitations that may contribute to tension in the medico-legal team. 2.8 Demonstrate awareness of medico-legal death investigation as a collaborative effort among individuals and groups with different skills and experience working toward a common goal.

Communicator

Definition:

As Communicators, forensic medicine physicians effectively facilitate 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:

Competencies	Enabling Competencies
1 Develop rapport, trust, and ethical relationships with colleagues, healthcare professionals, and the medico-legal 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 improve 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 being examined. 1.4 Listen effectively. 1.5 Be aware of and responsive to nonverbal signals. 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 medico-legal death investigations in Saudi Arabia. 2.2 Seek out and synthesize relevant information from other sources, such as medico-legal death investigators and other experts.

Competencies	Enabling Competencies
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 misunderstandings.
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 differences, including but not limited to the impact of sex, religion, and cultural beliefs on decision-making. 4.3 Encourage discussion, questions, and interaction 4.4 Engage clients, 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 misunderstandings.
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 effective written and oral forms. 5.2 Present verbal reports of forensic encounters and plans effectively.

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

Health Advocate

Definition:

As Health Advocates, forensic physicians responsibly use their expertise and influence to advance the health and well-being of individuals, communities, and populations.

Key and Enabling Competencies: Forensic physicians are able to

Competencies	Enabling Competencies
1. Respond to population health needs and issues as part of societal well-being	1. Respond to population health needs and issues as part of societal well-being. 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 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 medico-legal 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 to them appropriately.

Competencies	Enabling Competencies
4. Promote the health of individuals, communities, and populations	4.1 Describe an approach to implement changes in the health determinants of the populations served. 4.2 Describe how public policy impacts the health of the population served. 4.3 Identify points of influence in the healthcare system and its structures. 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 Health Advocates 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.

Leader

Definition:

As Managers, forensic physicians are integral participants in healthcare organizations and/or

medico-legal systems, organizing sustainable practices, making decisions on resource allocation, and contributing to the effectiveness of the healthcare organization and medico-legal system.

Key and Enabling Competencies: Forensic physicians are able to

Competencies	Enabling Competencies
1. Participate in activities that contribute to the effectiveness of their healthcare organizations and/or medico-legal 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 medico-legal 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 Use information technology appropriately to optimize death investigations 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.

Competencies	Enabling Competencies
3. Allocate finite healthcare and/or medico-legal resources appropriately	3.1 Recognize the importance of just allocation of healthcare and/or medico-legal resources, balancing effectiveness, efficiency, and access to 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 medico-legal services

Scholar

Definition: Forensic physicians demonstrate a lifelong commitment to reflective learning and the creation, dissemination, application, and translation of medical knowledge.

Key and Enabling Competencies: Forensic Physicians are able to

Competencies	Enabling Competencies
1. Maintain and enhance professional activities through ongoing learning	1.1. Describe the principles of competence maintenance. 1.2. Describe the principles and strategies for implementing a personal knowledge management system. 1.3. Recognize and reflect on learning issues in practice. 1.4. Conduct personal-practice audits. 1.5. Pose appropriate learning-related questions. 1.6. Access and interpret the relevant evidence. 1.7. Integrate new learning into practice. 1.8. Evaluate the impact of any changes 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 the retrieved evidence to address a medico-legal question. 2.3 Integrate critical appraisal conclusions into forensic practices.
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 medico-legal team and others, as appropriate	3.1 Describe the 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 medico-legal team. 3.3 Select effective teaching strategies and content to facilitate others' learning.

Competencies	Enabling Competencies
4. Contribute to the development, dissemination, and translation of new knowledge and practice	3.4 Demonstrate effective lecturing or presentation skills. 3.5 Assess and reflect on the teaching encounters. 3.6 Provide effective feedback. 3.7 Describe the principles of ethics on teaching. 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 a systematic evidence search. 4.5 Select and apply appropriate methods to address the questions. 4.6 Disseminate the findings of the study appropriately.

Professional

Definition:

As Professionals, forensic physicians are committed to the health and well-being of individuals and

society through ethical practices, professional led regulations, and high personal standards of behavior.

Key and Enabling Competencies: Forensic physicians are able to

Competencies	Enabling Competencies
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 maintaining competence. 1.2.1 Appreciate the crucial role of forensic medicine in death investigation, including knowledge of findings, limitations of certain findings, individual professional limitations, and 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 forensic information in a medico-legal setting. 1.5 Recognize the principles and limits of confidentiality and privacy of the person examined as defined by professional practice guidelines and the law. 1.6 Maintain appropriate relationships with the person being examined.

Competencies	Enabling Competencies
2. Demonstrate a commitment to physician health and sustainable practice	2.1 Balance personal and professional priorities to ensure personal health and sustainable practice. 2.2 Strive to heighten personal and professional awareness and insights.

Forensic Medicine Rotation:

Aim of the training

Ensure that trainees acquire foundational knowledge and practical skills in clinical forensic medicine, forensic autopsy, examination of the deceased, death scene investigation, and determination of the cause and manner of death.

Forensic Medicine	Objective
Forensic medicine and pathology	• Define forensic medicine and pathology. • Describe the medical examiner system. • Compare the coroner and medical examiner systems. • Explain the pathophysiology of death and differentiate the types of death (somatic vs. cellular). • Identify criteria for brain and brainstem death. • Analyze the manner, cause, and mechanism of death. • Describe post-mortem changes including cooling, hypostasis, rigor mortis, putrefaction, adipocere formation, and mummification. • Apply scientific methods to estimate the post-mortem interval.
Pathophysiology of death	Define the types of death; 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 Estimate time since death Post-mortem chemistry

Forensic Medicine	Objective
	Stomach emptying in timing death Vitreous humor chemistry in timing death Post-mortem damage by predators Entomology (brief) Exhumations
Forensic autopsy	• Differentiate types of autopsies. • Outline the objectives of an autopsy. • Perform and document forensic autopsy procedures (theory and practice). • Conduct external and internal examinations. • Collect and preserve samples according to legal standards. • Inspect and record the condition of clothing. • Explain the role of radiology in autopsy practice. • Interpret autopsy artifacts and evaluate the effects of resuscitation procedures. • Apply safety precautions for potential infectious conditions. • Prepare comprehensive autopsy reports.
Crime scene examination	• Define the crime scene and illustrate its components. • Organize scene teams and demonstrate correct entrance procedures. • Execute the role of medico-legal examiner by documenting evidence accurately. • Analyze and interpret bloodstain patterns. • Collect, preserve, and classify biological and trace evidence.
Death due to natural disease (sudden unexpected death)	Define the following: Cardiovascular diseases • Coronary atherosclerosis • Bridging • Dissecting coronary aneurysm

Forensic Medicine	Objective
	• 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 berry aneurysms, intracerebral 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

Forensic Medicine	Objective
Forensic pathology of wounds	• Define and classify wounds. • Describe the mechanisms of wounding and forensic anatomy of the skin. • Distinguish between abrasions, contusions, lacerations, and skeletal injuries. • Identify fracture types in the face, extremities, pelvis, and determine mechanisms (direct vs. indirect force). • Explain fracture healing and estimate the age of injuries. • Differentiate between sharp, cutting, stabbing, and chop wounds, and identify weapon type and wound direction. • Assess survival periods after wounding and evaluate the healing patterns. • Determine whether wounds are ante-mortem or post-mortem and analyze defense or self-inflicted injuries. • Investigate post-mortem bruising and apply the dating criteria.
Burns and scalds	• Classify burns by severity and type. • Describe moist and dry thermal injuries and recognize gross autopsy appearances. • Differentiate ante-mortem from post-mortem burns. • Evaluate the inhalation of soot and the effects of fumes and fires. • Interpret atypical localized burning or spontaneous combustion.
Electrical fatalities	• Analyze the physical and electrical factors leading to death. • Identify characteristic external and internal injuries. • Explain the mechanism of muscle effects and determine the mode of death. • Recognize cutaneous electric marks and correlate them with histological appearances.

Forensic Medicine	Objective
	• Assess the circumstances of accidental, suicidal, and homicidal electrocution cases.
Complications of injury	• Describe common complications such as hemorrhage, infection, pulmonary embolism, disseminated intravascular coagulation (DIC), air embolism, fat and bone marrow embolism, adrenal hemorrhage, Acute respiratory distress syndrome, and renal failure. • Interpret autopsy findings to correlate trauma with the physiological outcomes.
Head and spinal injuries	• Describe forensic anatomy of the scalp and brain structures. • Identify and classify skull fractures by type and mechanism. • Evaluate brain contusions, hematomas, and lacerations. • Explain acceleration–deceleration and diffuse axonal injuries. • Analyze vascular injuries, cerebral hypoxia, and brain herniation. • Assess spinal injuries, including hyperflexion, hyperextension, and compression.
Chest and abdominal injuries	• Describe the forensic anatomy of the chest and abdomen. • Identify and classify injuries to the chest wall. • Assess hemorrhage and infection in the chest. • Recognize pneumothorax and analyze its forensic implications. • Examine lung injuries and evaluate their causes. • Investigate heart injuries and interpret hemopericardium and cardiac tamponade. • Differentiate injuries to the great vessels and determine their mechanisms. • Inspect injuries to the liver, spleen, kidney, pancreas, intestines, and colon. • Evaluate injuries to the pelvis and pelvic organs.

Forensic Medicine	Objective
	• Correlate complications of abdominal injuries with their mechanisms and outcomes.
Deaths caused by motor vehicle accidents	• Analyze motor vehicle crash scenes and interpret physical evidence. • Identify and classify the causes of motor vehicle accidents. • Describe the dynamics of vehicular injuries and relate them to injury patterns. • Evaluate the contribution of natural diseases to vehicular accidents. • Categorize types of motor vehicle accidents, including front impact, side impact, rollovers, and rear impact crashes. • Assess the role of seat belts and airbags in preventing injuries. • Determine who was driving through forensic evidence. • Investigate causes of death in traffic accidents, including fire and thermal injuries. • Analyze motorcycle, pedal cyclist, and railway injuries. • Evaluate suicides involving motor vehicles. • Interpret toxicological findings in vehicular deaths. • Assess pedestrian injuries and correlate impact speed with injury severity. • Compare child versus adult pedestrian injuries.
Airplane crashes	• Differentiate crashes involving light planes from commercial aircraft. • Identify the causes of aircraft crashes. • Describe crash scenes and analyze crash patterns. • Evaluate evidence of in-flight fire and interpret related autopsy findings.
Gunshot and explosion deaths	• Explain the mechanics of missiles and differentiate types of weapons, bullet variations, and cartridge components. • Describe wounds inflicted by smooth-bore shotguns and rifled weapons.

Forensic Medicine	Objective
	• Distinguish entrance from exit wounds and interpret firearm damage to internal organs and bones. • Estimate range of discharge through pattern analysis. • Evaluate deaths caused by explosions and document the characteristic injuries.
Pregnancy-related Deaths	• Identify causes such as pulmonary thromboembolism, amniotic fluid emboli, and venous air emboli. • Recognize cardiovascular complications, including peripartum cardiomyopathy, long QT syndrome, and coronary or aortic dissection. • Describe neurological causes, including intracerebral hemorrhage. • Evaluate intra-abdominal causes such as hemoperitoneum, splenic artery aneurysm rupture, and uterine rupture. • Explain pregnancy complications including pre-eclampsia, eclampsia, HELLP syndrome, hepatic infarction, acute fatty liver, and DIC. • Correlate maternal and fetal injuries and assess the resulting complications.
Infanticide and stillbirth	• Define stillbirth and differentiate it from live birth. • Outline the functions of a pathologist in suspected infanticide. • Establish criteria for live births and separate existence. • Analyze the concealment of birth cases. • Conduct autopsy examinations in suspicious cases of neonatal deaths. • Evaluate the evidence of infanticide by omission or neglect. • Determine the proof of separate existence and estimate fetal maturity.
Sudden death in infancy	• Define sudden infant death syndrome (SIDS). • Describe the incidence and analyze risk factors influencing SIDS. • Document relevant case history and evaluate the scene and external findings.

Forensic Medicine	Objective
	• Interpret autopsy appearances and identify histological findings in SIDS. • Compare theories of causation and apply them to medico-legal cases. • Conduct SIDS autopsies according to forensic protocols. • Discuss medico-legal issues and list organizations for family counseling.
Fatal child abuse	• Describe general aspects and classify modes of death in child abuse. • Identify and evaluate types of injuries, including surface bruising, skeletal damage, and visceral trauma. • Differentiate between inflicted and accidental bone fractures in infants. • Assess head, facial, and ocular injuries, and interpret related findings. • Investigate burns, bite marks, and other injuries. • Perform autopsy examinations in suspected child abuse deaths and document findings accurately.
Asphyxia	• Define and differentiate various forms of asphyxia, including suffocation, smothering, choking, and mechanical asphyxia. • Classify types of suffocating gases and evaluate their effects. • Examine ligature and manual strangulation cases and interpret the related forensic signs. • Analyze chemical asphyxiants and determine their toxicological impacts. • Assess sexual asphyxia (autoerotic deaths) and correlate the findings with the intent and circumstances.
Death by drowning	• Describe the physiology and stages of drowning. • Perform autopsy procedures and identify key findings. • Apply specific tests to confirm drowning. • Differentiate drowning scenarios, such as bathtub, pool, and scuba-related cases.

Forensic Medicine	Objective
Hyperthermia and hypothermia: Effects of heat and cold	• Identify conditions such as heat cramps, heat exhaustion, and heat stroke. • Explain mechanisms of malignant hyperthermia. • Correlate environmental and physiological factors, such as exercise, humidity, and exhaustion, with hypothermia. • Differentiate hypothermia in water from that on land. • Assess post-mortem findings related to extreme environmental temperatures.
Neglect, dehydration, malnutrition, and starvation	• Recognize and classify the signs of dehydration and malnutrition. • Describe the “hide-and-die” syndrome. • Assess forensic indicators of elderly abuse and neglect.
Deaths associated with surgical procedure	• Conduct autopsy examinations for deaths linked to surgery and anesthesia. • Determine the mode and cause of death following the surgical procedures. • Evaluate anesthetic complications and analyze malignant hyperthermia cases.
Dysbarism and barotrauma	• Describe physical damage due to pressure changes. • Perform autopsies in dysbarism and barotrauma-related deaths and interpret the findings.

Forensic Medicine	Objective
Forensic Anthropology and Identification of human remains	• Identify external characteristics for body identification, including facial, hair, eye, and skin features. • Recognize scars and tattoos, and estimate their age. • Determine occupational stigmata. • Analyze fingerprints, palms, feet, and lip prints. • Identify skeletonized remains. • Determine sex, estimate stature, and calculate age from the skeletal and dental structures. • Differentiate racial features from skeletal remains. • Establish personal identity from skeletal material and evaluate the dating of the remains. • Apply photo-superimposition and genetic/DNA techniques for identification. • Compare alternative identification methods, including frontal sinus radiography.
Forensic Odontology (Forensic dentistry for the pathologist)	• Identify bite marks and analyze dental evidence for identification. • Interpret the radiological applications in forensic dentistry. • Recognize conditions leading to pink teeth and relate findings to post-mortem changes.
Clinical Forensic Medicine	• Perform comprehensive examinations to assess the ability of a person to commit a crime, including the assessment of alcohol and drug misuse. • Document and interpret injuries accurately. • Collect forensic samples according to legal standards. • Examine adult complainants of serious sexual assault and the alleged perpetrators. • Evaluate alleged child victims of neglect, physical abuse, or sexual abuse. • Assess victims of domestic violence or police assault.

Forensic Medicine	Objective
	• Examine alleged victims of torture or custodial violence. • Provide expert opinions to courts and tribunals.
Forensic Psychology	• Define forensic psychology and distinguish it from clinical psychology. • Explain forensic and clinical factors in the assessment of psychopathy. • Apply principles of criminal forensic psychology. • Evaluate criminal responsibility and assess the offenders. • Analyze child sexual abuse evaluations and conduct assessments of sex offenders. • Interpret the findings in battered woman evaluations.
Evaluation of Permanent Infirmity	• Define permanent infirmity. • Assess the impairment or disability resulting from occupational adversity. • Evaluate impairment or disability following different types of injuries.
Forensic Radiology	• Define forensic radiology and apply radiological methods in forensic practice. • Perform radiological identification using anthropological parameters (age, sex, race, and stature). • Interpret radiological findings in gunshot injuries. • Assess radiologic evidence of abuse, including child, spousal, and elderly abuse. • Detect body packing in smuggling cases. • Conduct virtual autopsies (virtopsy) for radiological examination of the remains.

Duration: 140 weeks over the 4-year program

- 24 weeks in R1
- 28 weeks in R2
- 40 weeks in R3
- 48 weeks in R4

Setting: Forensic Medicine department

Educational Activities: Half-day activities, journal clubs, practical learning, skills training and procedures, professional and personal development, and scholarly projects.

Assessment Tools: CBD, OSCE, DOPS, ITER

Basic and Applied Human Anatomy:

Anatomy is a comprehensive and intensive course that will be held in the Department of Forensic Medicine for 2 months at the beginning of the residency program. It represents a series of didactic lectures on the anatomy. Attendance is compulsory for the residents of all residency programs in Saudi Arabia. The rotations included lectures, dissection demonstrations on cadavers from forensic medicine cases, regular quizzes, and assigned self-study time.

Course description

This course covers the study of anatomical structures of the human body. The body structure will be examined using the organ system, maintaining a balance between gross anatomical studies and histology. Form-function relationships will be emphasized.

Learning objectives

- Use the process of dissection to analyze anatomical structures.
- Demonstrate the ability to study, interpret, and preserve anatomical specimens.
- Apply safety principles and maintain safe practices in the morgue.
- Retrieve and interpret information on human structures, functions, and pathologies using common reference.

Aim of training

The trainee will be educated and trained to accurately describe and interpret human anatomy.

General Topics

- Explain embryology.
- Describe regional anatomy.
- Identify the components of the human skeleton.
- Illustrate the anatomy of the upper and lower limbs.
- Analyze the anatomy of the head.
- Differentiate structures in the neck.
- Outline the anatomy of the thorax.
- Summarize the anatomy of the abdomen.
- Discuss the anatomy of the pelvis.
- Apply anatomical knowledge to human remains identification and aging.

Consultants and staff members of the forensic medicine center will have the following responsibilities:

- Coordinate the anatomy rotation and schedule.
- Deliver lectures on the above mentioned topics.
- Provide hands-on anatomical training in the morgue.
- Organize periodic quizzes and revisions.
- Ensure that trainees access the forensic medical center libraries and facilities, including journal websites.

BASIC HUMAN ANATOMY	STRUCTURE
Upper Limb	Identify bones, main nerves, injuries, main blood vessels, and main muscles. Evaluate the forensic conditions in the upper limb.
Thorax	Identify thoracic organs and blood vessels and evaluate common forensic conditions affecting the thorax.
Abdomen	Analyze the organs and blood supply. Discuss forensic conditions in the abdomen, providing a general perspective without details of muscle origin or insertion.
Pelvis	Identify the main organs and blood supply (excluding pelvic ligaments and detailed structures). Evaluate forensic conditions of the pelvis.
Lower Limb	Describe the bones, main nerves (general perspective), main blood vessels (without muscle origin and insertion), and main muscles. Assess the forensic conditions in the lower limbs.
Head and Neck	Examine the skull and mandible, cranial cavity, meninges, face, scalp, parotid and orbital regions, temporal and infratemporal regions, triangles of the neck, submandibular and visceral regions, oral cavity, palate, tongue, nose, paranasal sinuses, pharynx, larynx, great vessels and nerves of the neck, brain stem, and cranial nerves.

Duration: 8 weeks from the 1st year forensic medicine rotation

Setting: Forensic Medicine department

Educational Activities: Half-Day Activities, Journal Club, Practical Learning, Skill Training, and Procedures

Assessment Tools: CBD, OSCE, DOPS, ITER

Pathology Rotation:

Overview

Day-to-day work in Anatomic Pathology, including weekly formal lectures on general and systemic pathology, is delivered during the first and second years of the residency program. This structure ensures that residents are sufficiently trained to recognize common disease pathologies and appraise their importance.

This rotation introduces forensic pathology and covers issues in sufficient depth to provide residents with a broad understanding of the methods and procedures used in pathology and their relationship with forensic pathology.

Residents were assigned to hospital pathology laboratories according to their rotation schedules. They participated and worked as pathology residents to acquire basic grossing skills, dictation practices, and microscopic techniques, including sample inking, slide reading, and organ identification skills.

Learning objectives: Knowledge and understanding

- Describe the applied knowledge of pathology for the four aspects of the major disease processes covered in the course and their relationship with forensic medicine.
- Apply basic and clinically supportive sciences appropriate for pathology (such as anatomy, histology/histopathology, and physiology).
- Analyze the ability to locate additional information when confronted with a question or unfamiliar term, particularly when preparing for case-based exercises.
- Cause (etiology)
- Mechanisms of development (pathogenesis)
- Functional consequences of molecular and morphologic changes (clinical significance)

Learning objectives: Skills

- Demonstrate the ability to support self-education (active learning) in understanding histology, disease morphology, sample processing, grossing and slide reading.
- Identify normal histology.
- Differentiate between biopsy types, their advantages, and limitations.
- Explain the concept and role of cytology and frozen sections, including their uses and limitations.
- Perform simple specimen grossing under supervision (e.g., appendix, gallbladder, small amputations, and products of conception) with progressive complexity during training.
- Identify general pathological processes by microscopic examination (e.g., infarction, inflammation, and neoplasia).
- Compose a simple preliminary diagnostic report (with progression) and sign it with the corresponding consultant.
- Select and suggest special stains pertinent to the cases according to the training level.

Pathology faculty will have the following responsibilities:

- Coordinate pathology rotation and schedules.
- Deliver lectures/teachings on the respective topics.
- Provide laboratory hands-on training in pathology laboratories.
- Schedule periodic quizzes and revisions.
- Ensure that trainees access university libraries and facilities, including journal websites.

Participation in academic departmental activities:

Each trainee is expected to:

- Present at least one journal club presentation and one slide seminar session.
- Attend all other academic departmental activities (morning consensus meetings, journal clubs and slide seminars).
- Present in morning consensus meetings as training progresses if requested.

Rotation Structure:

1. General pathology
2. Anatomical pathology

General Pathology Rotations Structure

PATHOLOGY	OBJECTIVES
Foundation knowledge and skills	• Recognize the macroscopic and microscopic features of normal tissues and the pathological basis of diseases and tissue death. • Explain aspects of normal physiology and pathophysiology relevant to anatomical pathology. • Explain aspects of genetics and epigenetics relevant to anatomical pathology. • Explain the interactions between the molecular profile and morphology in tumor classification. • Apply clinical knowledge to formulate clinicopathological correlations. • Explain the principles of specimen dissection, macroscopic description, and block selection. • Explain the principles of tissue fixation. • Explain principles of manual and automated tissue processing. • Demonstrate an understanding of staining principles when performing and interpreting routine stains, such as: • Report hematoxylin and eosin (H&E)-stained sections. • Detect and correct technical errors resulting in defects in the H&E sections. • Perform and report frozen sections, acknowledging their use, limitations, and artifacts. • Describe the basic cytology and immunopathological changes in biopsies from kidney, bone marrow, skin, blood vessels, and lymphoid system.

PATHOLOGY	OBJECTIVES
Accession, management and processing of specimens	• Advise clinicians on the appropriate specimen types, special requirements, and investigative limitations. • Establish, monitor, and troubleshoot methods for specimen identification and laboratory accession of surgical specimens. • Handle fresh specimens and triage when ancillary tests are required. • Image the specimens where appropriate. • Select appropriate samples for cytogenetic analyses. • Dissect specimens and select blocks appropriately, including diagrams/images indicating block selection sites. • Fix, embed, and section specimens, and troubleshoot problems. • Explain methodology and interpretation of routine and special stains. • Select and use appropriate immunofluorescence and immunohistochemical techniques. • Contact the appropriate units/consultants for expert advice, as needed.
Analysis of laboratory data	• Interpret and describe the gross surgical specimens. • Apply sufficient clinical understanding to examine, interpret, and provide clinicopathological correlations for microscopic sections and specimens. • Access information resources to assist with specimen interpretation.
Developing and reporting a professional opinion	• Synthesize cytology, biopsy, and molecular data to record a professional opinion on the nature, causation, severity, and likely sequelae of pathological processes. • Construct and sign a written report that includes appropriate information and interpretation, reproducibility of findings, use of grading systems and responses to clinical queries.

PATHOLOGY	OBJECTIVES
	• Explain evidence-based advice, guideline development, prediction, and research, and describe the knowledge/information tools that support these tasks.
Introduction to pathology	• Define important pathological terminology. • Identify surgical procedures for obtaining specimens. • Identify variable specimen types. • Recognize the value of skills in describing pathological specimens.
Cell injury	• Identify the normal ionic state of the cell (homeostasis). • Differentiate adaptation, reversible cell injury, and irreversible cell injury. • Enumerate common examples of adaptations and their mechanisms. • Identify the causes of cell injury, particularly hypoxia and ischemia. • Identify cellular sites affected by injurious agents. • Identify the factors that influence cell damage.
Adaptation of cellular growth and differentiation	• Define types of cellular adaptation. • Differentiate hypertrophy from hyperplasia. • Differentiate atrophy, agenesis, aplasia, and hypoplasia. • Explain the relationship between hyperplasia and tumor development. • Explain the relationship between metaplasia and tumor development.
Reversible and irreversible cell injuries	• Differentiate reversible from irreversible cell injury. • Explain the effects of injurious agents on both types of lesions. • Identify morphological and ultrastructural changes. • Explain and discuss fatty liver. • Discuss different types of necrosis.

PATHOLOGY	OBJECTIVES
Mechanism of cell injury	• Identify intracellular systems that are vulnerable to cell injury. • Explain the role of ATP depletion in cell damage. • Explain cellular responses to reversible and irreversible injuries. • Identify the role of mitochondria in apoptosis and free radical formation.
Apoptosis	• Define apoptosis. • Classify apoptosis into physiological and pathological types, with examples. • Discuss mechanisms of apoptosis and explain the roles of mitochondria and growth factors. • Describe the apoptotic morphology. • Explain physiological values of apoptosis.
Cell deposition	• Classify cell deposition into intracellular and extracellular types. • Identify the substances that cause intracellular and extracellular accumulation. • Discuss mechanisms of each type. • Identify diseases related to excess substance accumulation (e.g., fatty liver, atherosclerosis, hypertension, hemosiderosis, kidney stones, gout, Addison's disease, and jaundice).
Introduction to inflammation	• Define inflammation. • Summarize inflammation. • Review the historical highlights of inflammation. • Discuss the outcomes of inflammation. • List the common causes and potentially harmful effects of inflammation. • Classify inflammation into different types. • List the cardinal signs of acute inflammation. • Emphasize the most important pathological processes.

PATHOLOGY	OBJECTIVES
Inflammation	Vascular event • Describe vascular events in acute inflammation. • Explain reactions of blood vessels in acute inflammation. • Describe changes in vascular flow and caliber. • Describe increased vascular permeability and its mechanisms. • Correlate vascular changes with the cardinal signs of inflammation. • Explain responses of lymphatic vessels. • Explain leukocyte reactions during inflammation (cellular events). • List the steps in cellular events of acute inflammation. • Describe leukocyte events in acute inflammation. • Define margination and rolling. • Explain adhesion and transmigration. • Explain chemotaxis. • Explain activation. • Explain phagocytosis and degradation. • List the chemical mediators involved in each step.
Chemical mediators of acute inflammation	• List the major mediator groups of acute inflammation. • List plasma mediators. • List cell mediators. • Describe the roles of different mediators in acute inflammation

PATHOLOGY	OBJECTIVES
Outcomes of acute inflammation	• List the outcomes of acute inflammation and conditions that lead to resolution or fibrosis. • Discuss abscess formation and its outcome. • Discuss progression from acute to chronic inflammation. • Describe the morphological patterns of acute inflammation. • List morphological patterns of acute inflammation. • Define abscesses, furuncles, carbuncles, and cellulitis, and identify their etiology and morphology.
Types of inflammation	• Define catarrhal inflammation. • Define pseudo-membranous inflammation. • Define serous inflammation. • Define fibrinous inflammation. • Define hemorrhagic inflammation. • Define gangrenous inflammation. • Define localized abscess. • Define cellulitis.
Chronic inflammation	• Define chronic inflammation. • List the causes of chronic inflammation. • Describe the characteristic features of chronic inflammation. • Explain mechanisms of chronic inflammation. • Explain the role of macrophages in chronic inflammation. • List the cells involved in chronic inflammation. • List the biologically active products secreted by activated macrophages. • Define granulomatous inflammation. • List the systemic effects of inflammation.

PATHOLOGY	OBJECTIVES
Healing and repair	• Introduce the cell cycle and its regulation. • Review the regulatory mechanisms of the cell cycle. • Explain the roles of growth factors in healing (origin and actions). • Explain the importance of extracellular matrix (composition and role) in healing. • Describe the proliferative capacity of different tissues and their roles in regeneration and repair.
Hemodynamic disorders, thromboembolic disease, and shock	Hyperemia and congestion • Define and classify hyperemia with examples. • Identify the clinical association of hyperemia (examples). • Define and classify venous congestion (localized and generalized, and acute and chronic subtypes). • Recognize the causes of venous congestion for each type. • Describe the morphology of each type. • Identify the most common pathological effects of venous congestion. • Recognize the most common clinical settings associated with both types, especially in the lung, liver, kidney, and spleen. Edema and hemorrhage • Recognize the causes, morphologic features, and clinical consequences of edema • Explain the pathophysiology of edema • Illustrate causes, types, and effects of hemorrhage

PATHOLOGY	OBJECTIVES
Regeneration and repair mechanisms	• Define regeneration and repair. • Explain angiogenesis and its mechanisms. • Differentiate primary healing from secondary healing. • Describe granulation tissue formation (gross and microscopic). • Describe scar formation, wound contraction, and tensile strength. • Outline the timeline of healing.
Factors affecting healing	• List the systemic factors and explain their roles in healing. • List the local factors and explain their roles in healing. • List complications of wound healing.

PATHOLOGY	OBJECTIVES
Hemodynamic disorders, thromboembolic disease, and shock	• Define and classify hyperemia with examples. • Identify clinical associations of hyperemia (examples). • Define and classify venous congestion (localized and generalized; acute and chronic). • Recognize causes of venous congestion for each type. • Describe morphology in each type. • Identify common pathological effects of venous congestion. • Recognize common clinical settings associated with venous congestion in lung, liver, kidney, and spleen. • Recognize the causes, morphological features, and clinical consequences of edema. • Explain the pathophysiology of edema. • Explain causes, types, and effects of hemorrhage. • Define causes, morphologic features, and clinical consequences of ischemia. • Explain the morphological features of infarction in various organs. • Explain clinical presentation and outcomes of infarction in different organs. • Define normal hemostasis and thrombus. • Identify mechanisms of normal hemostasis. • Summarize the roles of the endothelium, platelets, and coagulation cascade in hemostasis. • Identify coagulant and anticoagulant factors. • Define causes, pathogenesis, and clinical consequences of thrombosis. • Define classifications, morphologic features, and clinical consequences of embolism. • Define shock and classify its causes and types.

PATHOLOGY	OBJECTIVES
Infectious diseases and tuberculosis	• Define infectious diseases and subclinical infections. • Identify the modes of infection of the microbial agents. • Define and classify pyemia, bacteremia, toxemia, and septicemia. • List the causative agents, routes of infection, and pathogenesis of tuberculosis. • Explain tissue reactions to tuberculosis and tubercle formation. • Identify the components of primary complex tuberculosis. • Identify the sites and morphology of secondary tuberculosis. • Correlate tuberculosis pathogenesis with its clinical presentation. • List the complications of secondary tuberculosis in different organs. • Identify the morphological and clinical presentations of tuberculosis in immunocompromised patients.
Neoplasia	• Define tumor nomenclature according to the origin of the cell. • Define the characteristics of benign and malignant neoplasms. • Differentiate benign from malignant tumors. • Identify differences between dysplasia and invasive carcinoma. • Identify pathways for the spread of malignant tumors. • Discuss mechanisms of action of carcinogenic substances. • Explain initiator–promoter actions in chemical carcinogenesis. • Identify the sources and types of radiation and their roles in chromosomal abnormalities. • Discuss relationship between viruses/microbes and carcinogenesis. • Identify the effects of tumors on the host (local and systemic). • Identify cancer cachexia. • Discuss paraneoplastic syndromes. • Recognize the importance of tumor grading and clinical staging in the management of malignant tumors. • Discuss diagnostic approaches for malignant tumors.

PATHOLOGY	OBJECTIVES
Syphilis, sarcoidosis, and leprosy Intestinal and urinary schistosomiasis	• Define and identify modes of syphilis infection. • Identify and list the stages of syphilis. • Identify the morphological and clinical presentations of syphilis in different organs. • Explain congenital syphilis. • Define and identify the modes of leprosy infection. • Differentiate tuberculosis from sarcoidosis. • Identify the types and morphological/clinical presentations of leprosy in different organs. • List types of causative agents and modes of transmission of schistosomiasis. • Discuss the pathogenesis of urinary and intestinal schistosomiasis. • List the complications of urinary and intestinal schistosomiasis. • Discuss the relationship between malignancy and urinary schistosomiasis. • Discuss methods of diagnosis of schistosomiasis. • Describe hepatic, splenic, and pulmonary schistosomiasis.
Actinomycosis and viral infections Vitamin deficiency	• Define and identify modes of infection of actinomycosis. • Identify the types and morphological/clinical presentations of actinomycosis. • Identify modes of infection and transmission of viral diseases. • Explain pathological effects of viral infections on different cells. • Diagnose common viral infections, such as herpes, measles, German measles, chickenpox, and HIV. • Identify the types and sources of vitamins. • Identify the causes of vitamin deficiency. • Discuss common diseases caused by vitamin deficiency. • Identify pathological changes and clinical manifestations of different vitamin deficiencies.

Duration: 20 weeks

Setting: Pathology department

Educational Activities: Half-day activities, journal clubs, practical-based learning, skills training and procedures, and professional and personal development

Assessment Tools: CBD, OSCE, DOPS, ITER

Anatomical Pathology Rotation:

PATHOLOGY	OBJECTIVES
Cardiovascular system Rheumatic valvular heart disease Endocarditis, myocarditis, and pericardial diseases Ischemic heart diseases	• Describe the structure and histology of the normal heart and vessels. • Explain mechanisms of cardiac hypertrophy, dilation, and failure. • Describe, define all CVS-related deaths. • Identify the pathogenesis of rheumatic fever. • Identify pathological lesions of rheumatic fever. • Discuss rheumatic valvulitis. • Discuss clinical manifestations and complications of rheumatic fever. • Summarize valvular heart diseases: rheumatic, degenerative (calcific aortic stenosis, mitral valve prolapse), and infective endocarditis. • Define endocarditis and identify its types. • Compare types of endocarditis. • Identify pathological lesions of subacute endocarditis. • Discuss clinical manifestations and complications of subacute endocarditis. • Summarize myocardial diseases include viral, bacterial, autoimmune, and hypersensitivity. • Summarize pericardial diseases include pericarditis, effusion, hemopericardium, and constrictive pericarditis. • Identify types of cardiomyopathies of all types • Summarize the causes and morphology of dilated, hypertrophic, and restrictive cardiomyopathies. • Identify the causes of myocarditis. • Identify the causes of pericarditis. • Define ischemic heart diseases. • Identify the causes of myocardial infarction. • Describe pathogenesis, morphology, and complications of ischemic heart disease.

PATHOLOGY	OBJECTIVES
Heart failure Congenital heart disease Hypertension, vascular injury responses, and vasculitis	• Describe gross and microscopic evolution of myocardial infarction, complications, and biomarkers. • Summarize chronic ischemic heart disease and sudden cardiac death. • Discuss pathological changes in myocardial infarction. • Discuss complications of myocardial infarction. • Differentiate types of angina. • Illustrate the pathology of heart failure. • Identify the causes of right- and left-sided heart failure. • Discuss compensated and decompensated heart failure. • Identify the congenital heart diseases (e.g., shunt lesions—atrial septal defect, ventricular septal defect, patent ductus arteriosus; cyanotic—Tetralogy of Fallot, Transposition of the Great Arteries; obstructive—coarctation). • Identify the causes of congenital heart disease. • Discuss pathological changes in congenital heart diseases. • Identify the clinical manifestations of congenital heart disease. • Define hypertension. • Explain effects of hypertension on blood vessels. • Identify the causes of hypertension. • Discuss complications of hypertension. • Identify the pathological effects of hypertension on the kidneys. • Summarize arteriosclerosis (Monckeberg, hyaline, and hyperplastic). • Summarize vasculitis: large-, medium-, and small-vessel types (e.g., giant cell arteritis, PAN, ANCA-associated).

PATHOLOGY	OBJECTIVES
Atherosclerosis Aneurysms, varicose veins, and vascular tumors	• Define atherosclerosis. • Identify the predisposing factors for atherosclerosis. • Discuss the pathogenesis of atherosclerosis. • Identify the effects of atherosclerosis on blood vessels. • Discuss the complications of atherosclerosis. • Summarize thrombosis, embolism, and infarction in the cardiovascular system. • Define the aneurysm and classify its types. • Describe the morphology of each aneurysm type. • Define the varicose veins and identify their causes. • Discuss the complications of varicose veins. • Classify the vasculitides and differentiate its types based on pathological findings. • Discuss the benign and malignant tumors of the heart and blood vessels.
Respiratory system	• Explain the normal histology of the respiratory tract. • Explain the types of laryngitis. • Identify the causes and pathological changes of singer's nodes. • Discuss the pathology of laryngeal tumors. • Explain the complications of diphtheria. • Explain the pathology and complications of suppurative otitis media. • Summarize the inflammatory diseases: rhinitis, sinusitis, laryngitis, tracheitis, bronchitis, bronchiolitis. • Identify the classification, causes, and pathogenesis of chronic obstructive pulmonary disease (COPD). • Discuss the gross and microscopic morphological features of COPD. • Discuss the clinical features and complications of COPD.

PATHOLOGY	OBJECTIVES
	• Identify the classification and pathogenesis of bronchial asthma. • Discuss the gross and microscopic morphological features of bronchial asthma. • Discuss the clinical features and complications of bronchial asthma. • Identify the causes and pathogenesis of bronchiectasis. • Discuss the gross and microscopic morphological features of bronchiectasis. • Discuss the clinical features and complications of bronchiectasis. • Identify the classification of pneumonia (lobar, bronchopneumonia, atypical, aspiration, or hospital-acquired). • Discuss the gross and microscopic morphological features of lobar pneumonia. • Discuss the clinical features and complications of lobar pneumonia. • Discuss the gross and microscopic features of bronchopneumonia. • Discuss the clinical features of viral pneumonia. • Discuss the complications of pneumonia. • Identify the classification of lung cancer (benign: hamartoma; malignant: squamous cell carcinoma, adenocarcinoma, small cell carcinoma, and large cell carcinoma). • Discuss gross and microscopic morphological features of lung cancer. • Discuss clinical features and complications of lung cancer. • Discuss pathological types, causes, and pathogenesis of pleural effusion. • Identify the clinical manifestations and radiological presentation of pleural effusion. • Identify the complications and predisposing factors of pleural effusion, including mesothelioma. • Describe the pathological types of pneumothorax, pleural tumors (mesothelioma), and empyema.

PATHOLOGY	OBJECTIVES
	• Summarize pulmonary edema, congestion, and hemorrhage. • Summarize pulmonary thromboembolism and infarction. • Explain the causes and morphological changes of pulmonary hypertension. • Summarize interstitial lung diseases: Idiopathic pulmonary fibrosis, hypersensitivity pneumonitis, pneumoconiosis (silicosis, asbestosis, and coal workers), and sarcoidosis. • Describe adult and infant respiratory distress syndromes (histology and pathogenesis).
Liver and gallbladder	• Describe hepatic lobule and hepatic acini (hepatic zonation). • Explain patterns of hepatic injury: cell injury/necrosis, apoptosis, inflammation, fibrosis, steatosis, and cholestasis. • Discuss acute viral hepatitis (A, E) and other causes (drug-induced, and autoimmune). • Discuss chronic viral hepatitis (HBV, and HCV), autoimmune, and metabolic causes. • Assess grading (activity) and staging (fibrosis/cirrhosis) of chronic hepatitis. • Define cirrhosis and biliary cirrhosis (morphology and causes). • Discuss pathogenesis of cirrhosis. • Describe the morphology, clinical features, and complications of cirrhosis (portal hypertension, hepatic failure, and HCC). • Summarize alcoholic and non-alcoholic steatohepatitis. • Describe liver failure, recognize hepatic encephalopathy, and explain the features of hepatic coma. • Recognize metabolic liver disorders (overview). • Explain hemochromatosis (pathogenesis and morphology). • Explain Wilson's disease (pathogenesis and morphology). • Summarize the alpha-1 antitrypsin deficiency.

PATHOLOGY	OBJECTIVES
	• Identify the risk factors for primary liver tumors. • Discuss the benign tumors (liver cell adenoma and hemangioma). • Discuss the malignant tumors (HCC and cholangiocarcinoma) in terms of their pathogenesis, morphology, and clinical presentation. • Recognize the metastatic tumors as the most common hepatic malignancies. • Explain the pathology of cholelithiasis and cholecystitis (acute and chronic). • Summarize the causes/effects of biliary obstruction and cholestasis. • Discuss the tumors of the gallbladder and bile ducts (cholangiocarcinoma).
Pancreatic diseases	• Discuss the morphology and pathogenesis in pancreatitis. • Discuss the clinical features and complications of pancreatitis. • Discuss the etiology, morphology, spread, and clinical presentation of pancreatic carcinoma.
Kidney disorders	• Identify the histopathological alterations in glomerulopathies. • Discuss the pathogenesis of glomerular injury. • Explain the classification of kidney disorders and provide examples.

PATHOLOGY	OBJECTIVES
Nephritic and nephrotic syndromes	• Discuss the morphology and clinical presentation of diffuse proliferative glomerulonephritis. • Discuss the morphology and clinical presentation of rapidly progressive glomerulonephritis. • Discuss the morphology and clinical presentation of minimal change disease (lipoid nephrosis). • Discuss the morphology and clinical presentation of membranous glomerulonephritis. • Discuss the morphology and clinical presentation of focal segmental glomerulosclerosis. • Discuss the membranoproliferative glomerulonephritis and its types. • Discuss the IgA nephropathy (Berger's disease).
Tubulointerstitial nephritis and obstructive uropathy	• Discuss the pathogenesis, morphology, clinical features, and complications of pyelonephritis. • Discuss the pathogenesis, morphology, clinical features, and complications of renal stones. • Discuss the pathogenesis, morphology, clinical features, and complications of hydronephrosis. • Discuss the pathogenesis, morphology, clinical features, and complications of polycystic kidney disease.
Renal tumors Female genital tract pathology	• Identify the classification of renal cell carcinoma. • Discuss the morphology and clinical features of renal cell carcinoma and Wilms' tumor. • Recognize the types and morphological/clinical features of vulvitis. • Define the non-neoplastic epithelial disorders of the vulva. • Explain the vulvar and vaginal tumors (types, precancerous conditions, morphology, spread). • Recognize the pelvic inflammatory disease (causes, morphology, and clinical features).

PATHOLOGY	OBJECTIVES
	• Explain the causes and morphological features of cervical inflammation. • Recognize the morphological and clinical features of endocervical polyps. • Explain the importance of cervical cytology and Pap screening. • Recognize the causes, morphology, and clinical features of abnormal uterine bleeding. • Recognize the causes, pathogenesis, and morphology of endometrial hyperplasia. • Recognize the types and morphological features of non-neoplastic ovarian cysts. • Classify the ovarian tumors according to their site of origin. • Classify ovarian epithelial tumors based on differentiation and proliferation. • Recognize the morphology, clinical course, and detection of ovarian epithelial tumors. • Recognize the types of ovarian germ cell tumors. • Recognize the morphological and clinical features of ovarian germ cell tumors. • Recognize the types of sex cord–stromal tumors. • Recognize the morphological and clinical features of sex cord–stromal tumors. • Identify the common sites and routes of spread of ovarian metastatic tumors. • Recognize the microscopic and macroscopic indicators of pregnancy and abortion. • Recognize the maternal floor infarction in the placenta. • Examine the embryo and fetus. • Differentiate maceration from putrefaction.

PATHOLOGY	OBJECTIVES
	• Identify the indicators of criminal or therapeutic abortion. • Recognize the sites, predisposing conditions, and morphology/clinical features of ectopic pregnancies. • Describe the causes of maternal death and pathological features. • Identify the routes and morphology of placental infections. • Describe the pathogenesis, morphology/clinical features, and complications of pre-eclampsia. • Recognize the types and morphology/clinical features of gestational trophoblastic disease
Endocrine glands pathology Urinary bladder disorders— urothelial tumors Diseases of bone and joints Diseases of the CNS Diseases of lymph nodes and spleen	• Identify the types of pituitary adenomas. • Describe the morphologic features of pituitary adenoma. • Summarize the clinical course of pituitary lesions and forms of hypopituitarism. • Identify the causes and clinical features of hyperthyroidism. • Identify the causes and clinical features of hypothyroidism. • Describe the causes, pathogenesis, and morphology/clinical features of thyroiditis. • Describe the causes, pathogenesis, morphology/clinical features, and laboratory findings of Graves' disease. • Describe the causes, pathogenesis, and morphology/clinical features of goiter. • Describe the risk factors, pathogenesis, morphology/clinical features, and prognosis of thyroid neoplasms. • Identify the causes of hypercalcemia and hyperparathyroidism. • Describe the morphology/clinical features of hyperparathyroidism and hypoparathyroidism. • Identify the types of diabetes. • Describe the morphological features of diabetic complications. • Summarize acute and chronic pancreatitis.

PATHOLOGY	OBJECTIVES
	• Summarize pancreatic cysts and pseudocysts. • Summarize pancreatic carcinoma. • Identify the causes and morphology/clinical features of Cushing's syndrome. • Identify the causes of Conn's and adrenogenital syndromes. • List the types and causes of adrenocortical insufficiency. • List the types of adrenal tumors. • Describe morphologic features of adrenal tumors. • Discuss the epidemiology and morphology of urothelial tumors. • Discuss predisposing factors of urothelial tumors. • Identify the histological structures of bones. • Identify the blood supply of the bones. • Identify the histology of bone cells. • Identify the functions of bone cells. • Explain the principles of neuronal and glial injury (ischemic, excitotoxicity, degenerative). • Describe cerebral edema, elevated intracranial pressure, and herniation (pathology, clinical features, and complications). • Describe hydrocephalus (Cerebrospinal fluid accumulation, clinical presentation, complications). • Explain ischemic stroke and infarction (including lacunar infarcts). • Explain hemorrhagic stroke (hypertensive and amyloid angioplasty). • Identify the pathology of cerebral aneurysms. • Describe the pathology of concussion, contusion, and diffuse axonal injury. • Describe extradural/epidural, subdural, subarachnoid, and intracerebral hemorrhages. • Describe meningitis (bacterial, viral, fungal, or tuberculosis) and its complications.

PATHOLOGY	OBJECTIVES
	• Describe encephalitis and prion diseases (e.g., Creutzfeldt-Jakob disease). • Describe brain abscess and parasitic infections. • Summarize poliomyelitis (clinical presentation and complications). • Explain intrinsic (parenchymal) and extrinsic (e.g., meningioma) brain tumors and their clinical effects. • Describe astrocytoma (including glioblastoma), oligodendroglioma, and ependymoma. • Describe medulloblastoma. • Describe meningioma and neurofibroma. • Describe metastatic brain tumors. • Summarize demyelinating diseases (multiple sclerosis and acute disseminated encephalomyelitis). • Summarize degenerative diseases (Alzheimer's, Parkinson's, Huntington's, amyotrophic lateral sclerosis). • Describe peripheral neuropathies (general, Guillain–Barré syndrome and, diabetes). • Describe spinal cord pathology (syringomyelia, demyelination, and infarction). • Identify the normal histology of the lymph nodes and spleen. • Identify the pathology of Hodgkin's lymphoma subtypes. • Identify the clinical presentation and complications of Hodgkin's lymphoma. • Identify the classifications of non-Hodgkin's lymphoma. • Identify the clinical presentation and complications of non-Hodgkin's lymphoma.
Diseases of the blood Bleeding disorders and DIC Diseases of the skin	• Identify normal hematopoiesis. • Identify the histology of bone marrow and normal blood cells. • Identify normal blood smears.

PATHOLOGY	OBJECTIVES
Special conditions related to forensic medicine	• Identify the types of anemia. • Identify the morphology and clinical presentation of iron deficiency anemia. • Identify the morphology and clinical presentation of megaloblastic anemia. • Perform a workup for hemolytic anemia. • Identify the pathology of leukemia. • Perform laboratory workup for platelet disorders. • Perform laboratory workup for coagulation factor deficiencies. • Describe DIC. • Identify causes of DIC. • Identify the clinical and post-mortem presentations of DIC. • Identify approaches to diagnose inflammatory skin diseases. • Identify the pathology of inflammatory skin diseases. • Identify specific diseases, such as psoriasis. • Identify the types of dermatitis. • Summarize SIDS. • Summarize sickle cell disease. • Differentiate electrical burns from thermal burns. • Describe aging of brain contusions. • Describe the microscopic changes in heat stroke. • Describe the microscopic changes related to toxicity and poisoning. • Describe the microscopic changes related to drug abuse. • Describe the changes related to alcohol toxicity. • Identify intracellular markers of poisoning. • Evaluate microscopic findings in battered child syndrome (fundus examination).

Duration: 12 weeks

Setting: Pathology department

Educational Activities: Half-day activities, journal clubs, practical-based learning, skills training and procedures, and professional and personal development

Assessment Tools: CBD, OSCE, DOPS, ITER

Islamic Shari'ah and Forensic Ethics Rotation:

Aim of the training.

- Acquire foundational knowledge of Islamic Shari'ah principles and forensic ethics.
- Demonstrates an understanding of the correlation between Islamic Shari'ah law and forensic medicine.
- Apply the knowledge of healthcare professionals' laws in Saudi Arabia to forensic practice.

Rotation Objectives:

- Analyze the principles of forensic ethics within the context of KSA.
- Interpreting the relationship between Islamic Shari'ah law and forensic medicine.

Duration: 2 weeks

Setting: Forensic medicine department

Educational Activities: Half-academic days, scholarly projects

Assessment Tools: ITER, CBD

Statistical Analysis and Basis of Scientific Research Rotation:

Learning Objectives:

Defining and differentiating various study designs.

Select and justify the most appropriate research design for a given study.

Analyze datasets using common statistical tests and accurately interpret the results.

Aim of Training:

Develop a solid understanding of statistical analysis and effectively apply scientific research methods.

Duration: 2 Weeks

Setting: Forensic medicine department

Educational Activities: Half-academic days, journal clubs

Assessment Tools: ITER, CBD

Forensic Radiology Rotation:

Aim of training:

The aim of teaching radiology in forensic medicine is to train practitioners to use radiography, CT, and MRI for the identification of remains, documentation of injuries, and determination of the cause and manner of death. It serves as a non-invasive or complementary tool to autopsy by detecting skeletal features, trauma, implants, and projectile paths to support medico-legal investigations and proceedings.

Learning Objectives:

- Interpret radiological images to diagnose different types of fractures and assess their healing processes.
- Identify cerebral hemorrhage using radiological techniques.
- Locate and evaluate retained bullets in cases of firearm injury.
- Estimate age and determine sex using radiological evidence.
- Detect radiological indicators of child abuse.
- Recognize radiological evidence of air embolism, pneumothorax, or hemothorax.
- Apply CT and MRI for virtual autopsy (virtopsy) in forensic cases.

Duration: 4 weeks

Setting: Forensic medicine department and radiology department

Educational Activities: Half-academic days, journal clubs

Assessment Tools: ITER, CBD

Forensic Science Rotation:

Aim of training:

The aim of teaching forensic science in forensic medicine is to prepare competent medico-legal professionals who can scientifically investigate deaths and injuries, provide objective evidence for the justice system, and uphold the medical ethics. The training emphasizes scene investigation, analysis of injuries and biological evidence, post-mortem examination, use of modern laboratory techniques, and integration of medical knowledge with legal principles to support criminal and civil justice and to serve the community.

Forensic science	Objectives
Introduction to forensic serology	Perform blood grouping and identify blood stains. Analyze DNA patterns and classify body fluids and tissues for grouping purposes. Evaluate disputed paternity using serological and genetic methods.
Examination of clothes	Inspect and document forensic evidence on clothing.
Examination of dried stains	Analyze dried blood and seminal stains. Detect saliva on clothes, paper, and envelopes, and identify urine, stool, and meconium stain.
Ballistics	Classify weapons and ammunition types. Identify and analyze gunpowder and gunshot residues to link suspects or reconstruct shooting events.
Identification of hair and fibers	Perform microscopic and chemical analyses to differentiate between natural and synthetic fibers.
Fingerprint	Collect, compare, and interpret fingerprint patterns for forensic identification.
Examination of Hair	Compare and differentiate hair samples microscopically for forensic identification.

Duration: 4 Weeks

Setting: Ministry of interior, forensic evidence lab

Educational Activities: Half-academic days

Assessment Tools: ITER, CBD

Toxicology

Aim of the training

To impart sound theoretical knowledge and practical skills in forensic toxicology and various analytical methods for the detection of poisons in different body fluids and tissues, and to enable participants to interpret the results in medico-legal contexts.

Rotation Objectives

•Understand the fundamental concepts of toxicology, forensic toxicology and chemistry, and their medico-legal significance.

•Acquire practical skills in toxicological analysis, sample handling, and modern detection techniques.

•Develop the ability to interpret analytical results and correlate them with clinical and pathological findings.

•Identify the role of toxic substances in the cause and manner of death.

•Strengthen professional competence, ethical practice, and scientific reporting in forensic toxicology.

Toxicology	Objective
Introduction to Toxicological Methods Subjects: •Principles of screening and sampling •Forensic samples processing •Immunoassays (RIA, EIA) •Thin Layer Chromatography (TLC) •Gas Chromatography (GC) •Liquid Chromatography (LC) •Ultraviolet (UV) Spectrophotometry •Mass Spectrometry •Inductively coupled plasma mass spectrometry (ICP-MS) •DBS – LC/MS	•Understand the theoretical basis and applications of analytical techniques used in toxicology. •Learn procedures for sample collection, preservation, and preparation. •Apply suitable analytical methods for qualitative and quantitative toxicological investigations. •Develop comprehensive competence in the proper collection, preservation, and laboratory processing of various forensic evidence types—including body fluids, tissues, •Enhance understanding of the principles of evidence integrity, contamination prevention, and chain of custody, while integrating theoretical knowledge with practical application in forensic casework and postmortem examinations.
Pharmacokinetics and Pharmacodynamics *Subjects*: •Absorption, distribution, metabolism, and excretion of drugs. •Pharmacokinetics: bioavailability, volume of distribution, half-life, clearance, and LD_{50}. •Toxicokinetics, pharmacogenetics, adverse drug reactions. •Body compartment models and first-pass metabolism. •Postmortem redistribution, degradation of drugs and the best method to take samples.	•Study how drugs and toxins behave in the human body. •Understand factors affecting absorption, metabolism, and elimination. •Interpret blood concentration data and correlate with toxic effects. •Study the distribution and degradation of drugs after death and the effect of decomposition. •Learn the best method to extract and preserve samples for different drugs.

Toxicology	Objective
General Toxicology *Subjects:* •Approach to acutely poisoned patients. •Diagnosis and management of acute poisoning. •Toxidromes, decontamination, enhancement of elimination, and toxicological investigations.	•Understand general principles of poisoning management. •Study the toxicological basis for clinical presentation and mortality. •Correlate clinical, pathological, and analytical findings in poisoning cases.
Drug Abuse *Subjects:* •Amphetamines, opioids, cocaine, cannabis, sedative-hypnotics, hallucinogens, and volatile substances. •Legal and illegal drug classification, pharmacology, and toxic effects.	•Study abused drugs and their role in contributing to death. •Understand pharmacology, clinical presentation, diagnostic testing, and antidote use. •Learn detection and estimation methods in post-mortem cases. •Correlate findings across laboratory, clinical, and pathological data.
Pesticides *Subjects:* •Insecticides (organophosphates, carbamates, organochlorines, pyrethroids) •Rodenticides, herbicides, fungicides	•Understand mechanisms of toxicity, clinical effects, and causes of death. •Study diagnostic methods and antidote administration. •Learn detection and estimation techniques in pre- and post-mortem samples. •Correlate laboratory findings with autopsy and pathological data.

Toxicology	Objective
Alcohols ➢Ethyl alcohol Subjects: • Sources, pharmacokinetics, pharmacology, clinical manifestations, alcohol withdrawal, and management. ➢Toxic Alcohols Subjects: • Methanol, ethylene glycol, isopropyl alcohol.	•Understand the toxic effects of ethanol and its role in death. •Perform estimation and interpretation of alcohol concentration. •Correlate findings with medico-legal implications. •Study sources, mechanisms of toxicity, and pathophysiology. •Understand laboratory analysis, management, and antidotes •Correlate toxicological and pathological findings
Toxic Gases *Subjects*: Carbon monoxide, cyanide, nitrogen oxides, hydrogen sulfide	•Study sources, mechanisms of action, and toxicokinetics. •Recognize clinical and laboratory features of poisoning. •Interpret results and relate findings to cause of death.
Therapeutic Drugs *Subjects*: •Analgesics, anticonvulsants, antihypertensives, antidepressants, and antipsychotics.	•Study pharmacology, mechanisms, and toxic effects of therapeutic drugs. •Identify their role in poisoning or death. •Apply laboratory detection and estimation methods •Correlate clinical, toxicological, and pathological evidence

Toxicology	Objective
Corrosives *Subjects:* •Acids and alkalis — sources, properties, mechanism and time course of injury, diagnostic features, and management.	•Understand mechanisms of corrosive injuries and their forensic significance. •Study detection techniques and interpret findings in death investigations.
Hydrocarbons *Subjects*: •Petroleum distillates, turpentine, and pine oil — sources, properties, clinical and radiologic findings, and management.	•Study the toxic effects and forensic relevance of hydrocarbons. •Learn laboratory detection and estimation techniques. •Correlate laboratory, clinical, and pathological data.
Natural Toxins *Subjects*: •Envenomation by snakes, scorpions, and spiders. •Plant intoxication and herbal toxicity.	•Understand the toxicological effects and forensic aspects of natural toxins. •Correlate analytical results with clinical and autopsy findings.
Metals *Subjects:* •Lead, mercury, arsenic, cadmium, iron, phosphorus, and thallium.	•Study sources, pharmacokinetics, pathophysiology, and clinical manifestations •Learn methods of detection in biological materials (including hair and teeth). •Understand management, treatment, and use of specific antidotes. •Correlate analytical and pathological data for medico-legal evaluation.

Toxicology		Objective
Chemical Weapons *Subjects*: •Nerve agents, vesicants (mustard, lewisite, phosgene oxime), blood agents, choking agents, and riot control agents		•Understand properties, mechanisms of action, and clinical manifestations. •Study methods of detection and management of chemical weapon exposure. •Interpret toxicological results in relation to cause of death and forensic reporting.
Reports *Subjects:* •Principle of the toxicology reports regarding the interpretation of the detected substances		•Study the toxicological report and the detected substances. •Differentiate between natural and unnatural detection of substance due to postmortem changes. •Interpretation of toxicological reports and know to Differentiate between therapeutic toxic and lethal doses. •Interpretation of toxicological reports regarding more than one detected and regarding additive and synergistic effect.

Duration: 8 weeks

Setting: Toxicology Regional Lab

Educational Activities: Half-day activities, journal clubs, practical learning, skills training and procedures.

Assessment Tools: CBD, ITER

VIII. CONTINUUM OF LEARNING

This includes learning that should occur at each key stage of progression within a specialty. Trainees are reminded of lifelong Continuous Professional Development (CPD). Trainees should remember the necessity of CPD for every healthcare provider to fulfill the evolving demands of their profession. The following table elucidates how each role is expected to progressively develop throughout the junior, senior, and consultant levels of practice.

Domain	R 1–3 (Junior Level)	R 4 (Senior Level)
Level of Practice	Dependent/supervised autopsies/ grossing/ clinic work	Semi-dependent/supervised practice autopsies, clinic work, crime scene analysis
Knowledge	Obtain fundamental knowledge related to the specialty core clinical problems	Apply knowledge to provide appropriate clinical care related to the specialty core clinical problems
Clinical Skills	Apply clinical/practical skills such as external examination and autopsy related to the core presenting problems and procedures of the specialty	Analyze and interpret the findings from external examinations and autopsies, clinic cases to develop appropriate differential diagnoses and diagnose the cause of death
Professionalism and Patient Safety	Demonstrate professionalism, ethical behavior, and safety within supervised settings	Apply principles of professionalism and patient safety in independent scenarios with oversight
Decision-Making	Contribute to clinical decisions under supervision	Make clinical decisions with oversight for complex scenarios
Supervision/Teaching Role	Learn from supervision and accept feedback	Begin peer teaching and provide feedback under supervision

IX. EDUCATIONAL ACTIVITIES

(TEACHING, LEARNING STRATEGIES, AND METHODS)

Teaching and Learning

Clinical, Academic, and Scholarly Content of Program-Specific Learning Activities:

The training program is a competency-based curriculum in which the trainer and trainee use different strategies to teach and acquire various types of knowledge and skills throughout the program. Additionally, different methods may enhance teaching and learning in diverse settings to guide trainers and trainees. It addresses the essential elements necessary for the practical preparation, implementation, and facilitation of teaching and learning, focusing on the competencies required for mastery.

Additionally, it identifies opportunities for teaching and learning in the daily clinical practice. Moreover, it informs students on how to apply well-known learning and teaching theories from higher education and healthcare contexts to teaching practice, use a comprehensive range of teaching methods, and develop a reflective approach to teaching and learning that can be used for continued professional development. Teaching and learning are accomplished through educational activities in diverse settings. These activities could be arranged in the clinic, inpatient wards, emergency room (ER), simulation lab, or academic activities in rotation or during weekly academic days. Other practices as part of educational activities that may enhance trainees' learning and professional development include implementing a mentorship program and reflective practice in the postgraduate curriculum. The choice of Educational Methods should:

- maintain congruence between objectives/competencies and methods,
- use multiple educational methods, and
- select educational methods that are feasible in terms of the resources.

Educational Activities:

Educational Activities (EA) are part of a trainee training program involving teaching and learning activities to acquire specialty competencies. EA conveys knowledge, skills, and attitudes/professional behavior. Therefore, they should focus on holistic development, practical skills, problem-solving abilities and personal growth. Furthermore, this study can be conducted within a broader scope to assist learning and growth across multiple cognitive, social, emotional, and physical domains. These activities include experiential learning, group projects, skill-building exercises and mentoring programs. These activities can be conducted in both formal and informal educational settings.

The educational framework for the Forensic Medicine residency program is grounded in the principles of adult learning theory. Trainees are expected to recognize the significance of their learning journey and assume an active role in the content and processes of their education. Training programs implement the adult learning concept across most EA, placing the responsibility for learning requirements on the trainees themselves.

Through various EA, Forensic Medicine aims to fulfill the competencies outlined in the curriculum. The program was designed to develop cognitive and technical skills while fostering an understanding of their application within the context of Forensic Medicine. Furthermore, training encompasses practical procedures and interpretative techniques delivered in a sequentially and integrated through lectures, tutorials, seminars, and hands-on apprenticeships.

EA plays a vital role in health-training programs by equipping health professionals with essential knowledge, values, and skills. Additionally, EA facilitates the dissemination of knowledge, encourages healthy practices, and enhances health professionals' competencies, contributing to improved overall well-being and safety.

Program administration should actively support EA by ensuring that protected time is allocated for trainees to attend and participate. Trainees should be encouraged to engage meaningfully in educational and scholarly activities as part of their professional development.

1. Academic Activity

- Scheduled Teaching Activities
  - Lectures
  - Tutorials
  - Critical appraisal of literature (journal club, reviews, systematic reviews)
- Half Day or WADA
  - Scheduled teaching activities
  - Case-based learning
  - Problem-based learning
  - Procedures

2. Practical-Based Learning

- Collaborative approach
  - Team based learning
  - Problem based learning
- Critical thinking and problem solving
  - Case based learning
  - Work-based learning
  - Interactive case

3. Skills training and procedures
    - Anatomy lab
    - Flap dissection
- Clinical setting
    - Clinical (practical) teaching
    - Training clinical skills procedures

4. Scholarly Projects

- Community engagement
    - Community activities
- Research project
    - Research conduct and biostatistics
    - Research methodology
    - Evidence based medicine
- Patient safety and quality assurance
    - Trainee as a teacher and safety and quality management
    - Workshops quality project
    - Accreditation inspections

5. Professional and Personal Development

- Self-directed learning
    - Mentorship
    - Review portfolio
    - Reflective practice
    - Supervision

- General learning opportunities
  - Meeting
  - Conference
  - Courses
  - Workshops

Universal Topics

These are high-value interdisciplinary topics of utmost importance to trainees. The reason for delivering the topics centrally will ensure that every trainee receives high-quality teaching and develops essential core knowledge. Each topic covers for approximately 1.5 h. Each Learning Unit is followed by a formative online assessment. After completing 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 could be assessed summatively, along with specialty examinations.

Training Year	*Modules*		Topics name	
	Number	Name	Number	Name
R1	Module 1	Introduction	Topic 2	Hospital-acquired Infections.
	Module 1	Introduction	Topic 3	Sepsis; SRIS; DIVS
	Module 1	Introduction	Topic 5	Blood Transfusion
	Module 2	Cancer	Topic 8	Oncologic Emergencies
	Module 3	Diabetes and Metabolic Disorders	Topic 11	Recognition and Management of Diabetic emergencies
R2	Module 3	Diabetes and Metabolic Disorders	Topic 12	Management of Diabetic Complications
	Module 3	Diabetes and Metabolic Disorders	Topic 13	Comorbidities of Obesity
	Module 4	Medical and Surgical Emergencies	Topic 15	Management of Acute Chest Pain
	Module 4	Medical and Surgical Emergencies	Topic 16	Management of Acute Breathlessness
	Module 4	Medical and Surgical Emergencies	Topic 17	Management of Altered Sensorium
R3	Module 4	Medical and Surgical Emergencies	Topic 18	Management of Hypotension and Hypertension
	Module 4	Medical and Surgical Emergencies	Topic 19	Management of Upper Gastrointestinal (GI) bleeding
	Module 4	Medical and Surgical Emergencies	Topic 20	Management of Lower GI bleeding

Training Year	*Modules*		Topics name	
	Number	Name	Number	Name
	Module 5	Frail Elderly	Topic 27	Assessment of Elderly
	Module 5	Frail Elderly	Topic 30	Care of Elderly
R4	Module 7	Ethics and Healthcare	Topic 31	Occupational Hazards of HCW
	Module 7	Ethics and Healthcare	Topic 33	Patient Advocacy
	Module 7	Ethics and Healthcare	Topic 34	Ethical Issues: Transplantation/organ harvesting: withdrawal of care
	Module 7	Ethics and Healthcare	Topic 35	Ethical Issues: Treatment refusal; patient autonomy
	Module 7	Ethics and Healthcare	Topic 36	Role of Doctors in death and dying

X. ASSESSMENT AND EVALUATION

1. Purpose of Assessment

Assessments play a vital role in postgraduate training success. This assessment guides trainees and trainers in achieving the defined standards, learning outcomes, and competencies. Simultaneously, assessment provides feedback to learners and faculty regarding curriculum development and implementation, teaching methods and the quality of the learning environment. A reliable and valid assessment is essential for examining curriculum alignment with respect to objectives, learning methods and assessment tools. Finally, the assessment ensures patients and the public that health professionals are safe and competent.

Assessment serves the following purposes:

a) **Assessment for learning**: Also known as formative assessment, trainers use information from trainees' performance to diagnose their learning needs and tailor instructions for improvement. This enables faculty members and educators to use information on trainees' knowledge, understanding, and skills to deliver timely, specific, and constructive feedback. Additionally, it fosters the development of trainees' metacognitive and practical skills, encourages reflection and self-regulated learning, and helps them become lifelong learners.

b) **Assessment of learning:** Also referred to as summative assessment. This approach is designed to evaluate whether trainees achieved their intended learning outcomes. It is scored and contributes to high-stakes decisions, including the progression, certification, and completion of training.

c) **System of assessment:** Also known as the Program of Assessment, it represents the relationship between multiple collated assessment methods, where formative and summative assessments are integrated, complementary, and aligned throughout a specialty training program. It is blueprinted (mapped) against curriculum roles, competencies, and outcomes. The overall system blueprint, which differs from the exam blueprint, articulates how diverse assessment tools collectively provide evidence of competence. It may include varying levels of detail according to its purpose and is known as "assessment mapping." This Mapping outlines the competencies to be assessed by all types of assessment methods to build a comprehensive, balanced, and fit-for-purpose assessment strategy and helps identify areas where assessment is lacking or needs strengthening.

d) **Feedback and evaluation** as assessment outcomes represent quality metrics that enhance the learning experience. Moreover, it can be used for training progression and determining the suitability of undertaking different levels of summative assessment. High-quality feedback should be specific, actionable, longitudinal, and promote self-assessment. Narrative and meaningful feedback on trainees' performance in WBAs and evaluation forms should inform structured action plans, support deliberate practice, and facilitate trainee improvement and progression.

For the sake of organization, assessments will be further classified into two main categories: *Formative* and *Summative*.

2. Formative Assessment

2.1 General Principles

Formative assessment should be integrated into curriculum design, grounded in best practices and evidence-based approaches, and aligned with stated competencies and appropriate tools.

Purpose of formative assessment:

Formative assessment aims to actively support trainees' growth by guiding learning, verifying progression, and ensuring that they acquire the competencies essential for high-quality professional practice across all health disciplines.

- Enhance learning by offering trainees opportunities to practice, receive immediate feedback, measure their performance, and identify areas for further development.
- Drive learning and optimize the training process by clarifying the expectations of trainees and motivating them to actively pursue suitable training and experiences.
- Provide robust and comprehensive evidence that trainees are progressing toward fulfilling curriculum standards throughout the training program.
- Ensure that trainees acquire the required competencies across all domains of effective healthcare practices.
- Verify that trainees possess the essential foundational knowledge, skills, and professional attitudes required for their specialties.
- Confirm that trainees are advancing appropriately in their performance relative to their training stages.

Trainees, as adult learners, should actively seek feedback and use it to develop their performance throughout their journey from "novice" to "mastery" levels of competence. Formative assessment (also referred to as continuous or ongoing assessment) is a component of assessment deliberately distributed across the academic year to provide trainees with timely, meaningful, and actionable feedback that drives learning and improvement.

Specified time should be allocated for trainees to meet with their program director or to review performance reports and logs (e.g., ITER, logbook, and WPBA tools). Trainees are expected to assume ownership of their development through self-directed learning. The input from formative assessment tools is integrated at the end of the year to inform decisions on whether individual trainees will advance to the next training level. The formative assessment instruments will be periodically reviewed and updated as needed to ensure their alignment with SCFHS guidelines and standards.

Consistent with best practices in health profession education, formative assessment will have the following features tailored to the targeted competencies:

a. Multisource: Select all appropriate tools, including relevant WPBA according to competency, training level, and rotation.

b. Comprehensive: Covers all learning domains (i.e., knowledge, skills, and attitude—professional behavior).

c. Relevant: Focused on workplace-based observations of performance in authentic practice settings.

d. Milestone-oriented competency: This reflects the trainees' expected competencies that match their developmental level.

Formative Assessment

Gen./Sub.	Level	Knowledge					Skills							Attitude
		SOE	EYPT-n't	Academic Activities	CBD	EYPT-Local	OSCE/OSPE	Research	DOPS	Logbook	Volunteering	MSF	Mini-CEX	ITERS
Forensic Medicine	R1			√	√	√	√	v	√			√	√	√
	R2			√	√	√	√	v	√			√	√	√
	R3			√	√	√	√	√	√			√	√	√
	R4	√		√	√		√		√	√		√	√	√

SOE: Structured Oral Exam; EYPT-n't: International Exam; EYPT-Local: Progress Test;

DOPS: Direct observation of procedural Skills; OSCE: Objective Structured Clinical Examination; CBD: Case-based Discussion;

OSPE: Objective Structured Practical Examination; Mini-CEX: Mini-Clinical Evaluation Exercise; ITER: In-Training Evaluation Report

2.2.1 WBA:

WBA is occasionally used interchangeably with WPBA, which refers to the direct observational assessment of a trainee in a real work environment. This has recently been referred to as supervised learning.

WBA is one of the most recognized and widely used approaches for enhancing learning through formative assessment and feedback.

Numerous WBA tools assess a range of competencies, including communication and consultation skills, clinical decision-making and reasoning, and patient management in contexts where diagnostic uncertainty, resource constraints, and public health considerations exist. Moreover, WBA tools facilitate the assessment of more complex domains, including professionalism, procedural skills, and ethical and legal aspects inherent to clinical practice, which may not be adequately evaluated using traditional assessment methods.

2.2.2 Educational Activity (Non-WBA assessment)

EA are part of a trainee training program that involves teaching and learning activities to acquire specialty competencies. Examples of contributions to EA include, but are not limited to, presentations in journal clubs, lectures, morbidity and mortality rounds, grand rounds, and research and scholarly activities.

All formative assessment tools used for formative assessment purposes must abide by the **Scoring Categories and Scaling Definitions** in the SCFHS policies.

To attain the optimum training-level outcome, the candidate must complete the compulsory requirement of all selected formative assessment tools.

The following are examples of a summary table of tools and their descriptions for one of the specialties that are for illustrative purposes and do not necessarily fulfill all quality standards.

Description Table of Formative Assessment Tools:

Learning Domains	Assessment/Educational Activity Tool	Requirements (Important details, description, and total frequency of the tool/ Academic Year)
Knowledge	Academic Activities	All Trainees (R1–R4) are required to attend the weekly academic half-day (40 academic half-day activities) during the Academic Activity sessions as per the curriculum. Trainees must attend academic activities as scheduled. Any excused absence must be approved by the program director.
	EYPT-Local	All Trainees (R1–R4) are required to undergo a written progress test once per academic year at the end of the R1, R2, and R3 training years, comprising a minimum of 100 MCQs.
	CBD	All Trainees (R1–R4) are required to complete the minimum following CBD per academic year depending on their academic level: R1: 4 CBD R2: 5 CBD R3: 8 CBD R4: 10 CBD with at least 50% of total evaluations are satisfactory CBD.
Skills	OSCE	All trainees must successfully complete an Objective Structured Clinical Examination (OSCE) at the end of each training year. - R1–R4: The OSCE consists of structured clinical stations based on forensic medicine case scenarios, requiring trainees to analyze and answer case-based questions. - R4: In addition, trainees must complete a Practical Autopsy Examination, which accounts for 50% of the total OSCE score, while the remaining 50% is based on the clinical stations.

Learning Domains	Assessment/Educational Activity Tool	Requirements (Important details, description, and total frequency of the tool/ Academic Year)
	DOPS	An assessment in which trainees (R1–R4) are directly observed performing clinical procedures. It must be completed at least once every three months throughout the academic year 4 times in total.
	MSF	A workplace-based assessment for all trainees (R1–R4) that evaluates professional performance through structured feedback from multiple sources, including supervisors, peers, and other healthcare professionals. It promotes self-reflection and professional development rather than serving as a pass/fail examination. The assessment is conducted once per academic year.
	Mini-CEX	A workplace-based assessment for all trainees (R1–R4) in which an assessor directly observes the trainee performing a core forensic task. It evaluates clinical, investigative, and professional skills through immediate, structured feedback. The assessment is conducted at least once every three months (four times per academic year).
	Research	Trainees are required to conduct a research project during their training. The research project is conducted over 3 years of training as follows: First year: - Planning: Engage in critical thinking regarding clinical questions and review the literature and available resources. - Finalize the hypothesis for the research project and research methodology. - Write the proposal and obtain approval. Second year: - Start working on the research project, collect the data, and present it at meetings.

Learning Domains	Assessment/Educational Activity Tool	Requirements (Important details, description, and total frequency of the tool/ Academic Year)
		Third year: - Complete the study. - Analyze the data. - Complete the writing and provide evidence of submission to a journal at least 3 months before the exams. - Presentations/publications.
	Logbook	Trainees are required to complete a logbook during their training. The fellow should register a minimum of 20 cases per academic year during training. In addition to the numerical requirement, logbooks will be evaluated for overall case diversity, complexity of the case experience, and distribution of diagnoses within each category. The logbook should be discussed with the program director every 6 months. Trainees should be able to write the forensic medical report professionally, after reviewing the medical file of the case, the crime scene report, the full forensic examination, and the laboratory results (pathology and criminal laboratories) then to correlate between this information and providing expert medical opinion on the case (both in Arabic and English languages). Trainees should complete and perform the minimum requirements during the program. Trainees should attend and participate in all medico-legal cases during their duty, as decided by the program director. Trainees are required to complete all logbook requirements in electronic systems. (Additional details for log cases are provided in Appendix A.)

Learning Domains	Assessment/Educational Activity Tool	Requirements (Important details, description, and total frequency of the tool/ Academic Year)
Attitude	ITER	All ITERs must be completed. ITERs are used as end-of-rotation evaluations following SCFHS policies and criteria for ITERs.

Important Notes:

All formative and WBAs should be performed according to SCHFS definitions and methodologies. Not complying with these parameters will result in trainees facing disciplinary actions according to the SCFHS bylaw.

Appendix A provides the information on Assessment mapping

Evaluation:

Trainees should actively seek feedback throughout their training, and trainers are expected to provide timely formative assessments. The SCFHS will provide an electronic system to facilitate communication and analysis of data from formative assessments. Both trainers and trainees should adhere to requirements related to the use of assessments and EA, including specified forms, frequencies, distributions, and deadlines for implementing evaluation processes. To attain optimum training-level outcomes, trainees must complete all the training requirements.

Trainees will be evaluated based on the specific requirements of their program, which include EA and assessment tools such as formative assessments and WBA. Each assessment will be documented using standardized forms and reflected in evaluation reports that capture feedback, track improvements and demonstrate progression. Trainees are expected to fully comply with the requirements and activities of their program, and failure to do so may result in disciplinary actions.

2.3. Promotion of the trainee

Trainee promotion from one level to the next will be determined in accordance with the SCFHS regulations and applicable bylaws. This is based on the successful completion of required assessments, EA, evaluation forms, and specialty-specific requirements of the curriculum, and satisfactory overall performance and fulfillment of any remediation or action plans, if applicable. Furthermore, noncompliance with these requirements may result in disciplinary action under SCFHS regulations, which may include repeating the entire academic year or a portion thereof.

2.4. Final In-Training Evaluation Report (FITER)

FITER is a comprehensive final evaluation required at the end of training to determine the trainees' readiness for independent practice. Its format and content are governed by SCFHS regulations and may evolve over time. The submission of the FITER is part of the process for certification eligibility in accordance with SCFHS requirements.

Summative Assessment

3.1 General Principles

Summative assessment is the assessment component primarily designed to make informed decisions regarding trainees' competence and readiness to progress or enter independent practice. Unlike formative assessment, it does not aim to provide constructive feedback but rather to judge whether the required standards have been met. For additional details, please refer to the General Bylaws and Executive Policy of Assessment (available online at www.scfhs.org).

To be eligible for the final examinations, trainees will be issued a "Certification of Training Completion" upon successful completion of all training rotations in accordance with SCFHS regulations.

3.2 Certification of Training Completion

The Certification of Training Completion and trainees' eligibility for final examinations are governed by SCFHS regulations and policies. Trainees must fulfill all the requirements outlined by the SCFHS and their training program, including the successful completion of rotations, assessments, and any additional mandated components (please refer to www.scfhs.org). This certification will be issued and approved by the supervisory committee or its equivalent according to SCFHS policies.

3.3 First Part Examination

This written exam enables trainees to progress from the "junior" to the "senior" level of training. For additional details on the First Part of the examination, please refer to the General Bylaws of Training in Postgraduate Programs and General Assessment Bylaws (available online: www.scfhs.org).

Blueprint Outlines: The following example is provided for illustrative purposes. Please refer to the updated version of the SCFHS website.

The exam committee will update the blueprints annually.

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	Post-mortem 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

*Main blueprint framework adapted from the American Board of Pediatrics.

3.4 Final Specialty Examinations

The Final Specialty Examination serves as a summative assessment component that grants trainees specialty certifications. It comprises the following two elements:

a) Final written examination: Eligibility to appear for this exam requires trainees to obtain a "Certification of Training Completion."

b) Final clinical/practical examination: Eligibility to appear for this examination requires the successful completion of the final written examination.

Blueprint Outline: The following table is provided for demonstration. Please refer to the updated version of the SCFHS website.

The exam committee will update the blueprints annually.

The blueprints for the final written, clinical, and practical examinations are shown in the following table.

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	Post-mortem 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%**

SOE:

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

OSCE:

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

The main blueprint framework was adapted from the Medical Council of Canada Blueprint Project.

For additional details on the final examinations, please refer to the General Bylaws of Training in Postgraduate Programs and General Assessment Bylaws (available online: www.scfhs.org).

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

XI. PROGRAM AND COURSE EVALUATION

The SCFHS will implement various measures to evaluate the implementation of this curriculum. The training outcomes of this program will be reviewed using the quality assurance framework endorsed by the Central Training Committee of SCFHS. The trainee assessment results (both formative and summative) will be analyzed and mapped to the curriculum content. Additional indicators incorporated into the evaluation process included:

- Reports from trainees' evaluations of faculty members.
- Reports from trainees' evaluations of training rotations.
- Annual survey data from the program directors.
- Reports gathered from direct field communications with trainees and trainers.

Goal-Based Evaluation: The achievement of the intended outcomes or competencies will be evaluated at the end of each stage to assess the effectiveness of curriculum delivery. Any deficiencies will be addressed in the subsequent stage using the time allocated to train-selected topics and professional sessions.

In addition to expert subject matter input and best practices drawn from benchmarked international programs, the SCFHS will apply a robust approach to ensure that this curriculum incorporates all relevant data available at the time of its future revisions.

XII. POLICIES AND PROCEDURES

This curriculum outlines the means, materials, and learning objectives that trainees and trainers will use to achieve identified educational outcomes. The SCFHS maintains a comprehensive set of "General Bylaws of Training in Postgraduate Programs" and "Executive Policies" published on the official SCFHS website that governs all training-related processes. These include, but are not limited to, general bylaws of training, assessment, and accreditation, and executive policies on admission, registration, formative assessment and promotion, examination, trainees' representation and support, duty hours, and leaves, all of which are examples of regulations that must be implemented. Under this curriculum, trainees, trainers, and supervisors are required to adhere to the most current versions of these bylaws and policies, which are accessible online through the official SCFHS website.

XIII. APPENDICES

A) Logbook Requirements

B) Research Requirements

C) References

Appendix-A (Logbook Requirements)

The following is for illustrative purposes only. The details of cases/logs, frequency, levels, and years must be clearly outlined and aligned with mapping.

Top Conditions and Procedures in the Specialty

Minimum No. of Cases Required	Tasks
50 Cases	Scenes of death
150 Cases	External post-mortem examination cases
150 Cases	Completed medico-legal post-mortem autopsy, including infants, children, and adults, for cases of a complex nature (homicides and criminally suspicious deaths)
100 Cases	Clinical forensic cases, including sexual assault, family abuse, and court consultation or other investigative department consultation
200 Cases	100 Cases for R1 100 Cases for R2 Completed pathology reports, including a description of the samples, preparation, sectioning, reading, and full reporting of the results.

Appendix B (Research Requirements)

The following is for illustrative purposes only. Additional details on frequency, levels, and years must be outlined and aligned with the mapping.

2.2.6 RESEARCH ROTATION

Number of rotation months	First year	Second year	Total
	1	0	1

MEDICAL EXPERT

Goals:

- To demonstrate the basic principles of research design, methodology, data analysis, and clinical epidemiology. Additionally, they have advantages and disadvantages from the perspective of radiology.
- To familiarize themselves with the ethical requirements of the research and demonstrate an understanding of the responsible use of informed consent.
- To practice appropriate methods for writing research proposals, manuscripts, data collection, result analysis, and discussion.
- To demonstrate awareness of current radiology research topics using available medical informatics systems.
- To skillfully present scientific presentations and participate in public discussions.

Training Methods

- Specify the period appropriately dedicated to research or full-time rotation of the research to be conducted.
- Attendance at dedicated courses or workshops that enhance research skills may be required for the program.
- This project is expected to last for 1 month. Therefore, the completion of this study should align with the subsequent rotations.
- The trainee must select a supervisor to help access essential resources that will allow the appropriate utilization of research skills and periodically discuss progress.
- The trainee must finish the research proposal by the end of the first 6 months, which must then be accepted by the Institutional Review Board.
- The oral abstract of the study results should be presented at a specified time point (e.g., the end of the final year before entering the final exam) on the Specialty Research Day.
- It is highly desirable for trainees to present their research results at national and/or international meetings and publish their work in indexed journals.

Evaluation

- Attendance at designated courses/lectures/workshops will be monitored and incorporated into annual evaluation scores.
- Panel scoring of the research abstract presentation will be conducted at the end of the pre-specified year on the Specialty Research Day. This counts toward the rotation score for that month.

COMMUNICATOR

- Demonstrate skills in conveying and discussing scientific research with scientific communities through posters, abstracts, teaching slides, manuscripts, or other scientific communication modalities.
- Communicate and collaborate effectively with the research supervisor to conduct research.

COLLABORATOR

- Identify, consult, and collaborate with appropriate experts, research institutions, and/or organizational bodies to conduct research.

LEADER

- Identify an area of research interest and find a research supervisor to engage in scholarship on scientific inquiry and its dissemination.
- Use available resources and regularly meet with an identified research mentor.
- Set realistic priorities and use time effectively to optimize professional performance.
- Use healthcare resources cost-effectively.

HEALTH ADVOCATE

Recognize the contributions of scientific research to improving patient and community health.

SCHOLAR

- Pose appropriate research questions, recognize and identify gaps in knowledge and expertise pertaining to the question, and formulate an appropriate study design to answer them.
- Conduct the research as outlined in the proposal.

- Collect and analyze data using appropriate methods.
- Prepare abstracts and manuscripts suitable for publication in peer-reviewed journals and/or international scientific meetings.
- Identify research limitations and areas for further research.

PROFESSIONAL

1. Uphold ethical and professional research expectations consistent with the Institutional Review Board guidelines, including maintaining meticulous data and conducting ethical research.
2. Demonstrate personal responsibility for establishing research goals and working with supervisors to set and achieve research timeline objectives.
3. Appropriately attribute authorship and contributions when publishing research
4. Disclose potential financial conflicts of interest (including speaker fees and consultative relationships) when engaging with and disseminating research results.

Appendix-C

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