



The Society of Apothecaries of London

The Diploma in Forensic Medical Sciences (DipFMS) - Syllabus

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V2

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Notice of future amendments to the Guide (Syllabus) and revisions following publication of this version.

The DipFMS Examination will continue to change to reflect developments in medicine. While every attempt has been made to ensure that this version of the Syllabus is accurate, further changes to the DipFMS examination, the Regulations and closing dates may be implemented during this time. Candidates should refer to the Society of Apothecaries website (www.apothecaries.org) for the most up-to-date information, where any such changes will be detailed. In order that candidates are fully briefed about the status of any proposed changes, they are advised to check the Society website regularly.

INTRODUCTION

The Diploma in Forensic Medical Sciences was instituted by the Society of Apothecaries of London in 1998. It is intended to demonstrate knowledge of forensic medical sciences for those who are involved with or interested in medico-legal work. It is open to all who have completed a course in forensic medical sciences run either by the **Academy of Forensic Medical Sciences** [formerly at Barts and the London, QMU] in London or the **University of Strathclyde** in Glasgow.

SYLLABUS

Candidates will be expected to have a theoretical knowledge of the basic facts and principles of all forms of medico-legal enquiry and the reasons for the form of that enquiry. Topics to be covered include:

Section A

Medical basics and the medico-legal autopsy

1. Human anatomy and physiology

Knowledge of the workings of the human body sufficient to understand medical evidence

- Medical terminology and its use in medico-legal reports
- Body structure, systems and functions relevant to forensic practice

2. Medical aspects of death and post mortem examinations

Understanding the nature and definition of death

- Definition and medical diagnosis of death, brain death, persistent vegetative state

Appreciating the physical changes occurring in the body after death and their forensic application

- General principles of post mortem changes and their relevance in determining time of death
- Changes regarding cooling, lividity, rigor mortis, decomposition and variants; factors affecting

Understanding the purpose and conduct of post mortem examinations (autopsies)

- Consent ('hospital') v medico-legal examinations; pathology expertise and specialties
- Post mortem examinations – for cause of death, contributing factors, identification, evidence
- Process of external examination, internal dissection, taking of samples; post mortem reports
- Additional investigations – imaging, histology, toxicology, genetics etc.; tissue retention legislation

Section B

Medical and legal procedures relating to deaths and their investigation

3. Responsibilities of the doctor in dealing with a death

Knowledge of the necessary legal procedures after someone's death

- Legal responsibilities of the medical practitioner in confirming death and in certification; role of other healthcare workers; referring deaths to the Coroner or Procurator Fiscal
- Death certification and procedure; variations within the UK; cremation procedure
- Roles of Medical Examiner in England & Wales and Medical Reviewer in Scotland

4. HM Coroner and sudden deaths

Role of the Coroner in the investigation of deaths in England, Wales and Northern Ireland

- Position and role of the Coroner; qualifications; Chief Coroner; comparison with Scotland
- Categories of deaths reportable to the Coroner and how reported
- Process of the investigation, involvement of police and other agencies, post mortem examinations
- Decisions and disposal, inquests (*see below*), referral for criminal proceedings

Inquests

- Purpose and nature of Inquests; types of cases dealt with; use of juries
- Conduct of proceedings, witnesses, outcomes (Conclusions)

5. Procurator Fiscal and sudden deaths

Role of the Procurator Fiscal (PF) in the investigation of deaths in Scotland

- Position of the Procurator Fiscal; role in the investigation of deaths; comparison with rest of UK

- Categories of deaths reportable to the Procurator Fiscal and how reported
- Process of the investigation, involvement of police and other agencies, post mortem examinations
- Decisions and disposal, Fatal Accident Inquiries (*see below*), criminal proceedings

Fatal Accident Inquiries (FAIs)

- Purpose and nature of FAIs; mandatory and discretionary types
- Conduct of proceedings, personnel involved, witnesses, determinations

Section C

The law of the UK as it relates to forensic practice

6. Legal systems in the United Kingdom

Understanding the structure, process and personnel of the legal system in the UK

- UK law – variations within the UK, comparison with other countries, adversarial v inquisitorial
- Criminal court structure, legal personnel involved and general procedures

7. Prosecution of crime in England, Wales and Northern Ireland

How crime is investigated and prosecuted in the UK (other than in Scotland)

- Crown Prosecution Service (CPS); role of the police; Police and Criminal Evidence Act; courts
- Initial process, case preparation, case meetings with witnesses
- Conduct of a trial – procedure, role of judge and jury, witness evidence, outcome

8. Prosecution of crime in Scotland

How crime is investigated and prosecuted in Scotland

- Crown Office and Procurator Fiscal Service; Law Officers; role of the police; courts
- Initial process; case preparation, precognition of witnesses, decisions on trial
- Conduct of a trial – procedure, role of judge and jury, witness evidence, outcome

9. Role of the defence in criminal prosecutions

The role of an accused person's defence team in a criminal prosecution

- Rights of the accused; access to legal assistance; commissioning of own enquiries
- Role of defence to test the prosecution case and the evidence submitted; disclosure issues
- Defences of diminished responsibility, provocation, alibi, self-defence, incrimination, insanity

10. Expert witnesses and the presentation of scientific evidence

The role and responsibilities of the expert witness

- Distinction from other witnesses; opinion evidence; comparison with other countries
- Requirements and responsibilities – qualifications, expertise, impartiality, limitations

Section D

Injury interpretation and specific types of trauma

11. Injury classification and general causes

The nature of injuries, how they are caused, and how they should be described and interpreted

- External and internal injuries in clinical and post mortem practice; common causes; injury patterns (accident, suicide, homicide); concept of blunt and sharp force trauma
- Blunt force – abrasions, bruises, lacerations; causes and interpretation
- Sharp force – incised wounds, stab wounds; causes and interpretation
- Internal injuries; issues of survivability

12. Head injuries

Understanding the mechanisms of head injuries, the clinical effects and the pathological findings

- Circumstances and mechanisms of head injuries (road traffic accidents, falls, assaults)
- Clinical presentation, coma scales, treatment and outcome
- Medical findings – external injuries, skull fractures, intra-cranial bleeding, brain injury

13. Firearms and firearm injuries

Knowledge of the common types of firearms, how they work, and the injuries they produce

- Classification of weapons and ammunition; circumstances of use; legal controls
- Air weapons; shotguns; rifled weapons; military small arms
- Firearm injuries – post mortem findings, evidence retrieval, assessment of firing distance
- Scientific investigations – scene examination, gunshot residue, test firing etc.

14. Fires and burning

Understanding the causes of fires and how they are investigated

- Fire basics and types of conflagration; common circumstances; contributing factors
- Scientific investigation – establishing cause and source, evidence recovery, identifying accelerants

Injuries and deaths from fires and burning

- Cause of death in fires – smoke inhalation, burning, trauma
- Aim of the post mortem examination in establishing cause of death, contributory factors, identification of the individual, detection of concealed homicide; toxicology investigations
- Burns – classification and assessment, principles of clinical treatment

15. Other major trauma

Road traffic collisions

- Circumstances; injury mechanisms and patterns – occupants, pedestrians, cyclists; safety devices

Accidents at work

- Structural collapse, falls, machinery, agricultural; legal investigation

Explosions and explosive devices

- Mechanical, gas, chemical; explosive devices; injuries from blast, fragments, crushing, fire

Injuries and major trauma in the clinical setting – forensic aspects

- Injury assessment and scoring systems; imaging; general treatment methods

Section E

Other causes of injury and death and those in particular circumstances

16. Asphyxia

Nature of asphyxia and its causes

- Definition of asphyxia, physiological mechanisms involved, timescales, general features
- Specific causes and medical findings – environmental, crush, suffocation, choking, aspiration, hanging, neck compression (strangulation)

17. Drowning

Circumstances of drowning and findings at post mortem

- Circumstances of drowning deaths; mechanisms of death; issues of 'bodies in water'
- Interpretation of post mortem findings; decomposed bodies and identification

18. Hypothermia and other physical causes

Hypothermia

- Physiological mechanisms; circumstances – acute exposure, incapacitation (alcohol, injury, illness)
- Post mortem findings, diagnostic difficulties, suspicious presentations

Others

- Hyperthermia – physiological effects, circumstances (environmental, drug related)
- Carbon monoxide poisoning – sources, toxic effects, PM findings
- Electrocution – physics, circumstances, mode of death, PM findings

19. Child deaths and abuse

Causes of sudden death in children – natural and otherwise

- Overview of sudden unexpected death in infancy (SUDI); paediatric post mortem examinations
- Deaths from natural causes, SIDS, asphyxia, trauma (accidental and homicidal); infanticide

Child abuse and its recognition

- Physical, sexual, neglect, emotional; parental characteristics; safeguarding measures
- Medical findings – external and internal injuries, inflicted head trauma, physical neglect

20. Deaths in custody

Deaths occurring in police and prison custody and how they are investigated

- Definition of custody (England and Wales / Scotland); categories and numbers of deaths
- Police custody – suicide, intoxication, injury, natural, restraint, road traffic pursuit, shooting
- Prison – natural, suicide, intoxication, homicide
- Legal investigation; role of IOPC (England and Wales) and PIRC (Scotland)

21. Deaths from alcohol and drug abuse

Alcohol related deaths in forensic practice

- Scale of alcohol abuse and frequency in forensic cases
- Deaths from acute intoxication, trauma (falls, fires, RTAs), chronic effects (liver, lung, brain)

Deaths from opiates, stimulants and other abused substances

- Drugs abused; mechanisms of death; other causes of death in drug abusers
- Post mortem findings – external, internal; histology and toxicology investigations

22. Natural disease

Natural disease relevant to forensic practice – causes of sudden death

- Cardiovascular – ischaemic heart disease, hypertension, inherited cardiac disease, pulmonary embolism and deep vein thrombosis; contribution in suspicious deaths
- Respiratory – pneumonia, asthma, asbestos related
- Cerebrovascular – cerebral and subarachnoid haemorrhage, epilepsy, meningitis
- Other - gastro-intestinal; septicaemia; maternal deaths

23. Deaths related to medical care

Investigating deaths potentially related to medical care

- Recognition of medical risks; investigation by Coroner / Procurator Fiscal; NCEPOD reports
- Deaths related to surgery, medical procedures, medication, errors in diagnosis, hospital infection

Section F

Clinical forensic medicine

24. Confidentiality of medical information, consent and negligence; regulation of medical practice

Appreciation of the legal and ethical aspects of medical practice

- Confidentiality of medical information – principles, circumstances of disclosure
- Consent to medical treatment – nature of consent, when required, competency
- Medical negligence – definition, duty of care, legal processes
- Role of medical defence organisations

How the practice of medicine is regulated in the UK

- General Medical Council – structure and representation
- Role as regards registration, revalidation, education, issuing advice
- Disciplinary role – investigation (GMC), hearings (Medical Practitioners Tribunal Service)
- Regulation of other healthcare workers

25. Examination of detained persons

General roles of the forensic physician in medico-legal practice

- Training; employment; duties re custody medicine, sexual offences and sudden deaths

Examining and caring for those in police custody

- Assessing fitness for custody, fitness for interview; medical care and prescribing
- Examination procedure; issues of consent; intimate searches, evidential samples, reports

26. Investigation of sexual offences

Nature of sexual offences and their medical investigation

- Legal definitions; circumstances and characteristics of sexual assaults, including drug facilitated
- Role of the forensic physician or specialist team; obtaining a history; consent
- Examination procedure – general, specific injuries, samples, medical aftercare
- Interpretation of findings and preparation of reports; presenting evidence in court

27. Forensic psychiatry

Forensic aspects of mental illness and the role of the forensic psychiatrist

- Mental disorder and crime; fitness to plead, lack of responsibility, diminished responsibility
- Relevant disorders – schizophrenia, mania, depression, personality disorder, learning disability
- Disposal by the courts and treatment options; risk assessment and management

Section G

Forensic science and toxicology

28. Forensic science in crime investigation

The contribution of forensic science in the investigation of crime

- Overview of the specialty and areas of expertise – biology, chemistry, physical evidence
- Role of the scientist at the crime scene – evidence recovery, blood patterns analysis
- Role in the laboratory – clothing, marks, fibres, documents, drugs, other
- Specialist areas to be covered elsewhere – DNA profiling, fire investigation, firearms
- Forensic Science Regulator and quality control

29. DNA profiling

Understanding DNA technology and its contribution to the investigation of crime

- Introduction to the molecular biology of DNA; history and development of DNA profiling
- Terminology (PCR, STR, mitochondrial etc.), sampling, methodology, databases
- Interpretation of results and presentation of DNA evidence in court

30. Alcohol and alcohol related offences

Nature and physiological effects of alcohol

- Alcohol in the body – absorption, distribution, metabolism, excretion; factors affecting
- Blood alcohol concentrations and physiological effects; characteristics of alcoholic drinks

Road traffic offences etc.

- Road traffic legislation (Road Traffic Acts, Sections 4 and 5); legislation in other areas of transport
- Clinical assessment, roadside testing, laboratory measurements and prescribed limits

31. Drugs of abuse

Prevalence of drug abuse and legislation to control it

- Definitions; prevalence; UK legislation; drugs and driving; international controls; drugs in sport

Main categories of abused drugs and their effects

- Sedatives – opiates (heroin, methadone), benzodiazepines
- Stimulants – cocaine, amphetamine type substances
- Novel psychoactive substances
- Hallucinogens; volatile substances

Investigating drug abuse

- Role of the forensic chemist; seized drugs, trends in use
- Role of the forensic toxicologist; samples analysed, methodology, interpretation of results

Section H

Other forensic specialties

32. Forensic odontology

Role of dentistry in identification

- Use with individuals or mass fatalities; systems of charting; dental records; limitations
- Use in age estimation and for DNA analysis

Bite mark analysis

- Bite marks in forensic practice; documentation, photography, comparisons
- Interpretation of marks and presentation of evidence in court

33. Forensic anthropology, archaeology and other specialties involved in crime investigations

Forensic anthropology

- Study of the skeleton; identifying human remains – individual or mass fatalities
- Determination of sex, age, stature etc.; sampling for DNA analysis; trauma analysis

Forensic archaeology

- Use in locating graves and buried bodies; techniques; exhumation process; soil analysis

Forensic entomology

- Use of flies, maggots etc. to estimate time of death

Forensic botany

- Examination of vegetation, pollen, stomach contents

34. Forensic expertise in an international setting

Contribution of forensic specialists in major disasters

- Primarily for victim identification – use of pathologists, anthropologists, dentists, scientists (DNA)
- Difficulties faced and practicalities of working

Contribution in the investigation of war crimes and miscarriages of justice

- Primarily to secure evidence of a crime – use of archaeologists, anthropologists, pathologists
- War crimes, international law and international courts
- Miscarriages of justice – providing independent expertise