Appendix A

Syllabus for Forensic Histopathology

This syllabus document is an adjunct to the curriculum and is a guide to the knowledge and skills expected to be acquired during forensic histopathology training. The syllabus is not designed to be prescriptive as indicative content may quickly become out of date. The document is a guide for trainees and trainers.

This should be seen as a guide to those areas where a higher level of knowledge and/or skill in post-mortem diagnosis is expected than that developed in Integrated Cellular Pathology Training (ICPT).

The basic autopsy component of the curriculum contains the basic knowledge and most of the attitudes required for advanced autopsy training. However, forensic histopathology trainees will be required to demonstrate a high level of knowledge and expertise within all areas of autopsy practice, including autopsies in complex post-operative deaths, deaths in the community, non-natural deaths and homicides. The trainee will also need to acquire the knowledge, skills and attributes necessary to assess scenes of death, produce high-quality medico-legal reports and opinions and give effective, balanced oral evidence in court. Relevant paediatric and neuropathology training and experience will also be required along with injury interpretation. Trainees will require to have undertaken an indicative total of 300 or more post-mortem examinations by the date of their CCT. These will include a wide and proportionate range of all types of cases.

The table below is a non-exhaustive list of further syllabus information. The trainee should be able to demonstrate the broad in-depth knowledge and skills relating to the following topics.

Area of learning	**Knowledge**	**Skills**
Pathological basis of disease (CiPs: 1, 2, 3, 4, 5, 9, 11)	Demonstrate the pathological basis of disease and the macroscopic/microscopic pathology of various types of disease and in various types of death Understand the literature relating to controversial issues and to difficulties in interpreting subjective changes is necessary Demonstrate understanding of techniques used in identifying morphological abnormalities	Demonstrate understanding of the techniques used for identifying morphological abnormalities at autopsy examination Demonstrate understanding of the integration of multiple co-morbidities to fully explain a death
General autopsy technique (CiPs: 1, 2, 3, 7, 9, 10, 11)	Demonstrate understanding of Anatomy Demonstrate understanding of common tissue dissection techniques relevant to autopsy practice	Demonstrate the safe and skilled performance of complex autopsies so as to preserve and demonstrate the findings Demonstrate liaising with the APTs to

	Demonstrate understanding of Understand the training undertaken by anatomical pathology technologists (APTs) and the role that they can appropriately play within all aspects of the mortuary function (see www.aaptuk.org)	maximise the value of the autopsy
Area of learning	**Knowledge**	**Skills**
Clinical liaison (CiPs: 1, 2, 3, 7, 9)	Demonstrate understanding of the use of clinical information and the health record in autopsy examination and understand the limitations placed on dissemination of autopsy examination information to third parties	Demonstrate how to interrogate the clinical and laboratory records and understand the utility and limitations associated with various types of investigation including radiological imaging, microbiology, biochemistry, etc Demonstrate understanding of the identification of issues to be addressed by the autopsy
Area of learning	**Knowledge**	**Skills**
External examination (CiPs: 1, 2, 3, 7, 9, 11)	Demonstrate the understanding of of the RCPath's *Guidelines on Autopsy Practice* (when revised) and *Best Practice Scenarios*, along with the Codes of Practice and Performance Standards for Forensic Pathologists in England and Wales and Scotland as applied to the external examination Demonstrate understanding of the important external findings that need recording and why	Demonstrate succinct and accurate description of the different forms of skin injury, external signs of natural and unnatural death, external evidence of resuscitation and medical intervention, changes that occur after death, distinguishing features and distinguishing between genuine lesions and post-mortem artefact
Area of learning	**Knowledge**	**Skills**
Advanced autopsy technique (CiPs: 1, 2, 3, 7, 9, 10, 11)	Demonstrate familiarity with the RCPath's *Guidelines on Autopsy Practice* (when revised) and *Best Practice Scenarios*, along with the Codes of Practice and Performance Standards for Forensic Pathologists in England and Wales and Scotland Understand the findings and their interpretation in autopsies in a variety of situations, such as the following: • cardiac disease of	Demonstrate performance of a careful, safe full evisceration Demonstrate dissection the internal organs so as to maximise the value of the findings Describing the internal appearances accurately and succinctly Interpreting the findings in the light of the clinical information available Demonstrate presenting the findings to

	uncertain cause • death after a period of intensive care • death associated with the use of potentially toxic therapeutic agents (e.g. anticoagulants, opiates, cytotoxics) • endocrine/metabolic death • hepatic disease of unknown cause • intra-abdominal disease of unknown cause • neurological disease of unknown cause • renal disease of unknown cause • respiratory disease of unknown cause • deaths related to anaphylaxis • the dissection of and testing of medical appliances, such as intravascular lines, drains and pacemakers	police officers, clinicians and/or other investigators (for example), either immediately or later at a clinical or forensic meeting Deciding when special dissections are needed Demonstrate understanding of special dissection techniques used in perioperative autopsies and autopsies following death in hospital in a variety of situations such as: • iatrogenic deaths • intraoperative deaths • neurosurgical deaths • post-abdominal surgery deaths • post-cardiac surgery deaths • sudden unexpected death in hospital and the exclusion of hospital homicide • vascular surgery deaths
Area of learning	**Knowledge**	**Skills**
Forensic scene/locus assessment (CiPs: 1, 2, 3, 7, 10, 11)	Demonstrate understanding of the value of and techniques used in death scene investigation and familiarity with common scenarios Demonstrate understanding of the respective roles of the coroner/procurator fiscal, the police, the senior investigating officer, the crime scene manager, the scene of crime officer and the forensic scientist at the scene Demonstrate what to record at a scene, features to be sought and the taking and interpretation of temperatures, samples and trace evidence Demonstrate how to minimise DNA contamination and examine and remove a body safely Demonstrate the use of other	Demonstrate how to assess crime scenes in line with an individual's own expertise, and how to recognise the need for other expertise Demonstrate how to retrieve trace evidence and formulate strategies for appropriate investigation and prioritisation of activities Demonstrate accurately recording the relevant findings at a death scene/locus

	experts such as archaeologists, entomologists, odontologists and other, specialised forensic scientists	
Area of learning	**Knowledge**	**Skills**
Forensic injury interpretation (CiPs: 1, 7, 9)	Demonstrate understanding of the typical patterns and appearances of injuries both in the living and the dead	Describe, document and interpret injuries and recognise the significance in a medico-legal setting Demonstrate awareness of the need for medico-legal consent in clinical examination
Area of learning	**Knowledge**	**Skills**
Forensic autopsy practice (CiPs: 1, 2, 3, 7, 9, 10, 11)	Demonstrate forensic post-mortem examination techniques; e.g. facial dissection, eye removal, investigation of vertebral artery trauma Demonstrate the findings in homicides, suicides, accidents, the examination of skeletal or decomposed remains, mass disaster, maternal death, infant death, industrial and transportation deaths and deaths where other suspicious circumstances apply Demonstrate the aims of the autopsy in a range of other deaths including alcohol misuse, fire deaths, the various types of asphyxial deaths, poisoning and drowning Demonstrate understanding of the investigation of hospital homicide, deaths following alleged medical negligence and a comprehensive knowledge of the effects of and complications of medical treatment Demonstrate understanding of the Codes of Practice and Performance Standards for Forensic Pathologists Demonstrate basic toxicology and pharmacokinetics including	Demonstrate understanding of all required dissection techniques Detection of abnormalities and their correct interpretation Demonstrate accurate contemporaneous recording of findings and appropriate archiving of notes/records Recognition and interpretation of all important macroscopic findings and lesions in autopsy practice including those with forensic relevance Provide appropriate, correctly taken samples and information to laboratories and other experts Interpretation of drug levels and other results and the ability to place them in a clinical and forensic context in relation to the autopsy and clinical findings Demonstrate application of the Codes of Practice and Performance Standards for Forensic Pathologists

	tolerance and post-mortem redistribution Demonstrate awareness of drug interactions, side effects, potential adverse reactions, toxic and fatal effects Demonstrate the knowledge of circumstances in which toxicological examination might be appropriate Demonstrate understanding of microbiology and virology as relevant to autopsy practise such as sepsis, meningitis, pneumonia, endocarditis, tuberculosis, viral hepatitis, HIV disease Demonstrate the use of biochemistry, immunology, haematology and medical genetics in post-mortem examinations Demonstrate understanding of the circumstances and findings requiring input from other experts Demonstrate imaging methods; thorough knowledge of their uses in autopsy practice Demonstrate appropriate investigation of families following deaths that may have a genetic basis (such as sudden cardiac death in the young)	
Area of learning	**Knowledge**	**Skills**
Forensic neuropathology (CiPs: 3, 7, 9, 10, 11)	Demonstrate understanding of the anatomy of the normal brain and spinal cord Demonstrate understanding of The macroscopic and microscopic pathology of: • trauma, ischaemia, hypoxia and hypoglycaemia • sudden death of 'CNS origin' including deaths associated with epilepsy and other longstanding neurological	Demonstrate the removal and preservation of the brain, spinal cord and eyes Description, dissection and sampling of the brain and spinal cord in various types of case: • trauma, ischaemia, hypoxia and hypoglycaemia • sudden death of 'CNS origin' including deaths associated with epilepsy and other longstanding neurological disorders

	disorders • alcohol, drugs of abuse and carbon monoxide	• alcohol, drugs of abuse and carbon monoxide
	Demonstrate understanding of microbiology and virology relevant to neuropathology autopsy practice such as sepsis, meningitis, pneumonia, endocarditis, tuberculosis, viral hepatitis and HIV disease	Demonstrate identification of the abnormal, instigation of further investigations and referral to a neuropathologist
Area of learning	**Knowledge**	**Skills**
Forensic paediatric pathology (CiPs: 3, 7, 9, 10, 11)	Demonstrate post-mortem techniques in paediatric pathology Demonstrate the value of imaging in paediatric autopsy investigation Demonstrate understanding of sudden unexpected death in infancy (SUDI)/sudden infant death syndrome (SIDS) Demonstrate understanding of the pathology of other sudden, natural deaths (including those related to inherited disease) Demonstrate protocols for multi-agency investigation Demonstrate protocols for post-mortem examination sampling Demonstrate post-mortem paediatric histology particularly of eye and bone pathology and as relevant to non-accidental injury and common causes of natural death Demonstrate the autopsy findings in the examination of found foetal/neonatal remains and the determination of live birth, age at 'death' and time since death	Demonstrate post-mortem techniques relevant to paediatric pathology including eye retrieval, soft tissue dissection, fracture examination and sampling Demonstrate taking of relevant samples at paediatric post-mortems including microbiology, biochemistry and toxicology Demonstrate understanding of basic interpretation of paediatric autopsy histopathological finings in common causes of natural death and in non-accidental injury
Area of learning	**Knowledge**	**Skills**
Forensic histopathology (CiPs: 3, 7, 9,	In general terms, this means the histopathology of injury; conditions that may give rise to sudden	Demonstrate the use of microscope (or digital pathology platform)

10, 11)	death; conditions that may simulate injury or complicate injury; conditions occurring as a consequence of medical treatment; and conditions arising from contact with toxic substances. Below gives examples of the sort of conditions included. It is not intended to be a complete list and is in addition to knowledge achieved during ICPT: • **Injury –** Inflammation relating to trauma in all organ systems and of whatever type – appearance, differential and ageing • **Drugs and toxins –** Effects in all organ systems including pathology of alcohol and drugs of abuse; hyperpyrexia and rhabdomyolysis; vasculitis; hypersensitivity, allergy and anaphylaxis; hepatic necrosis; acute tubular necrosis and papillary necrosis; pulmonary fibrosis, etc • **Cardiovascular system –** Histopathology of shock, DIC and sepsis; hypertrophy (morphometry and microscopy); IHD (including atherosclerosis, infarction, grafts and stents); inflammation (including myocarditis, toxic effects and cardiac manifestations of systemic disease); cardiomyopathy; storage disorders; and basic conduction system disorders • **Respiratory system –** Tumours, industrial lung disease, infection (bacterial, fungal, viral, and in immunocompromised people); inflammation (allergic, systemic, vascular and toxic); organisation and fibrosis (inflammatory/ infective, allergic and toxic); embolism (air, fat, thrombus and amniotic fluid); aspiration; diffuse alveolar damage; and	Accurately describe and interpret the microscopic findings in various autopsy scenarios Decide what special stains should be used Decide when specialist advice should be sought Integrate the microscopic findings into the final report

	haemorrhage • **Gastrointestinal system –** Ulceration and erosion (toxic, 'stress' and peptic), ischaemia, peritonitis, hepatic necrosis, cirrhosis, hepatitis and pancreatitis • **Endocrine system –** Phaeochromocytoma, pituitary haemorrhage and infarction, and adrenal haemorrhage • **Renal –** Infection, infarction, toxic effects (papillary necrosis, interstitial nephritis, tubular necrosis, myoglobinuria and ethylene glycol), ischaemia, diabetes, acute GN and DIC. • **Lymphoreticular –** Bone marrow aplasia, drug/toxin effects, identification of neoplasia, and infection • **Genito-urinary system –** Identification of early pregnancy • **Soft tissues and skin –** Mimics of injury, burns, electrocution and deep venous thrombosis • **Bone** – Fractures and healing, common metabolic disease, mimics of injury, and aging	
Area of learning	**Knowledge**	**Skills**
Consent and legal issue (CiPs 1, 2, 3, 7)	Demonstrate understanding of the current issues in relation to consent and the autopsy and clinical examination for medico-legal purposes (including the Human Tissue Act 2004) Demonstrate understanding of the current policy in relation to tissue and organ donation Demonstrate understanding of the legal basis of consent to autopsy examination and the circumstances for which consent is not required	Demonstrate obtaining consent for retention of tissue for further investigation Facilitate organ donation in appropriate cases Advise as to when an autopsy is not necessary/useful and when a limited examination might be appropriate
Area of learning	**Knowledge**	**Skills**

Health and safety (CiPs 1, 2, 3, 8, 10, 11)	Demonstrate the risks posed by bodies at scenes and in the post-mortem room Demonstrate relevant protocols and documentation of departmental working practices, and be familiar with the practicalities of mortuary practice Demonstrate understanding of the regulatory aspects of health and safety issues, sufficient to be able to draw up a mortuary policy Demonstrate understanding of the document *Safe Working and Prevention of Infection in the Mortuary and Autopsy Suite* (Health Services Advisory Commission) Demonstrate understanding of the design concepts of a modern mortuary. These are inextricably linked to health and safety issues. *NHS Estates Building Note 20* specifically covers advice for modern mortuary design	Recognise hazards, perform risk assessments and identify safe systems of work in individual cases Work at the scene and in the mortuary in a safe way
Area of learning	**Knowledge**	**Skills**
Medico-legal issues (CiPs 1, 2, 3, 7)	Understand the coroner and procurator fiscal systems in the UK (weighted towards area of practice) and an awareness of different systems abroad. This would include knowledge of the requirement to report certain categories of death, the preliminary enquiries that may take place through the systems, and entitlement to attend autopsy examination by interested parties Appropriate guidelines and Codes of Practice relating to medico-legal post-mortem examinations Demonstrate understanding of the practicalities associated with and requirements for identification of bodies	Able to practise informed by legal requirements and ethical principles Operate to relevant professional standards and within any codes of practice agreed or published by the College, specifically the Standards as set out in the Code of Practice Demonstrate the ability to practise informed by the coroner's rules and acts, Police and Criminal Evidence Act, Criminal Procedure and Investigations Act and other relevant law, regulation or policy Demonstrate the ability in giving evidence honestly, impartially, clearly and simply Demonstrate the ability to use of visual aids in the giving of testimony

	Demonstrate understanding of the various techniques available for confirming or establishing identification Demonstrate understanding of police powers to seize and retain material The retention of materials that may be required by the coroner/procura tor fiscal and/or police and the appropriate legislation Demonstrate how to facilitate, where appropriate, the removal of tissues for transplantation depending on the nature of the case Demonstrate understanding of the legislative background to the investigation of death and authoritative guidelines or current policy related to death, disposal, certification, post-mortem examination, consent, confidentiality, tissue retention, use of the health record, transplantation and regulation of the medical profession. This would include The Coroners' and Justice Act 2009, The Coroners (Investigation) Regulations 2013, The Coroners (Inquest) Regulations 2013 and any amendments and the Human Tissues Acts (2004 – England and Wales and 2006 – Scotland) and regulations pertaining to the Human Tissue Authority Demonstrate understanding of the UK criminal and civil courts procedures, the roles of the prosecution and defence and the rules of evidence Demonstrate understanding of the UK law relating to criminal evidence and of appropriate practices relating to report writing, notes, communications, materials	

	and retained samples Demonstrate the role of the expert witness and the obligations placed on expert witnesses Demonstrate the use of visual aids in the giving of testimony	
Area of learning	**Knowledge**	**Skills**
Reports and opinion (CiPs 1, 2, 3, 7)	Demonstrate understanding of college documents relating to the production of autopsy reports Understand the RCPath's *Guidelines on Autopsy Practice* (when revised) and *Best Practice Scenarios*, along with the Codes of Practice and Performance Standards for Forensic Pathologists Demonstrate how an expert is defined, the different kinds of experts and what is required of the expert by the courts Demonstrate understanding of the requirements for reports in Criminal Codes (Part 19, Criminal Procedure Rules and Part 19 Criminal Practice Directions)	Demonstrate writing of accurate, detailed medico-legal reports relating to autopsies and the living with suitable summaries, according to the RCPath's *Guidelines on Autopsy Practice* (when revised) and in forensic cases according to the Codes of Practice and Performance Standards for Forensic Pathologists Demonstrate the ability to complete reports in a timely fashion Demonstrate production of medico-legal reports that address the issues and questions raised by a death, with acknowledgement of limitations as appropriate in respect of available evidence and consideration of other possible explanations and/or causes of death for the pathological findings
Area of learning	**Knowledge**	**Skills**
Photography (CiPs 1, 2, 7)	Demonstrate understanding of current GMC and Home Office guidelines, and the RCPath Guidelines on Autopsy Practice	Demonstrate the use of a camera Direct the appropriate taking of photographs illustrating injuries and other pathological findings
Area of learning	**Knowledge**	**Skills**
Teaching (CiPs 6, 7)	Demonstrate the value of the autopsy as a teaching aid including to undergraduate and postgraduate students	Demonstrate teaching and communication
Area of learning	**Knowledge**	**Skills**
Communication (CiPs 3, 4, 10)	Demonstrate understanding of the use and limitations of conferences and briefings	Communicate clearly and authoritatively in stressful situations whilst maintaining clear and sensible demarcations of responsibility within

	Demonstrate how to appropriately conduct and keep records in such meetings T Demonstrate understanding the value of visual and other aids in the presentation of complex issues	the multidisciplinary team involved in suspicious death investigation
Area of learning	**Knowledge**	**Skills**
Inquests/fatal accident inquiries (FAI) and higher courts (CiPs 1, 2, 3, 7)	Demonstrate understanding of judicial process particularly within the coroner's court and the FAI and the Crown and High Courts including the role of the pathologist/medical witness Practical procedures within the coroner's court, FAI and Crown courts	Demonstrate giving evidence clearly and accurately within the limitations of expertise
Feedback to families and other interested parties (CiPs 1, 2, 3, 7)	Demonstrate the importance of autopsy findings to families and other interested parties	Communicate effectively with family members clinical colleagues and other non-clinical professionals involved in inquiries into deaths and assist in multidisciplinary mortality review
Area of learning	**Knowledge**	**Skills**
Audit (specific to autopsy) (CiPs 1, 2, 3, 4, 7)	Demonstrate understanding of the role of confidential enquiries in the investigation of certain categories of death – National Confidential Enquiry into Patient Outcome and Death (NCEPOD), Confidential Enquiry into Maternal and Child Health (MMBRACE-UK) and Confidential Enquiry into Suicide and Homicide (CESH) – and the role of the autopsy within those investigations Demonstrate understanding of the value of auditing of post-mortem reports at both local and national levels Demonstrate understanding of the role of the critical conclusions check, corroboration, EQA and the second autopsy	Demonstrate the ability to find relevant information from the UK and other professional pathology associations elsewhere in the world Demonstrate a critical approach to autopsy reports and how well they address the questions raised by a death Demonstrate how to constructively review post-mortem reports