

Appendix A

Syllabus for Paediatric and Perinatal Pathology

This syllabus document is an adjunct to the curriculum and is to guide aspects of learning expected to be covered during paediatric and perinatal pathology 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 The syllabus is not designed to be prescriptive as indicative content may quickly become out of date.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.

Broad topic areas included in the syllabus are as follows:

- Laboratory organisation, accreditation and management
- General principles and practice of histopathology in the paediatric and perinatal setting
- Contribution to the multidisciplinary team and working with different clinical groups
- Quality assurance
- Analysis and validation of techniques used in paediatric and perinatal pathology
- General education and training skills as applied to paediatric and perinatal pathology
- General pathology and pathophysiology as applied in paediatric and perinatal pathology
- Developmental anatomy (gross and microscopic)
- Public health strategies and their impact on paediatric and perinatal pathology
- Molecular pathology and diagnosis in paediatric and perinatal pathology
- Paediatric surgical pathology
 - Ear, nose and throat (ENT), head and neck
 - Breast
 - Endocrine
 - Upper and lower gastrointestinal (GI) tract
 - Genital tract (male, female and disorders of sexual development)
 - Liver and biliary tract
 - Lymphoreticular system
 - Osteoarticular
 - Renal and urological
 - Respiratory
 - Cardiovascular
 - Skin
 - Soft tissue
 - Paediatric tumours
 - Central nervous system, muscle and nerves
 - Metabolic disease
 - Ocular pathology
 - Transplant pathology (commonly renal and lymphoreticular)
- Perinatal pathology
 - Placenta and products of conception
 - General considerations in hospital consented autopsies in fetuses, stillborn babies and neonates
 - Post-mortem radiology
 - Spontaneous pregnancy loss and the pathology of early pregnancy
 - Congenital anomalies, prenatal screening and diagnosis
 - Inborn errors of metabolism
 - Perinatal haematology
 - Stillbirth
 - Pathology of prematurity
 - Pathology in multiple pregnancy

- Complications of obstetric and perinatal care
- Foetal hydrops
- Congenital tumours
- Infection
- Maternal diseases affecting pregnancy
- Toxins and nutritional diseases/disorders
- Major anomalies of external anatomy
- Congenital anomalies and system diseases in the perinatal setting
- Ciliopathies and skeletal dysplasias
- Overgrowth syndromes
- Medico-legal post-mortems
 - General principles and practice of medico-legal post-mortems in paediatric and perinatal pathology
 - Medico-legal reports and court presentation
 - Consent/authorisation and the principle of chain of custody
 - Working with external agencies, child protection and charities
 - The concealed pregnancy
 - Sudden death in babies and children
 - Post-mortem radiology
 - Accidental injury
 - Inflicted injury
 - Neglect
 - Drowning/suffocation
 - Iatrogenic pathology
 - Poisoning/electrocution
 - Natural diseases that may mimic inflicted injury and vice versa
 - Decomposition

Trainees will be expected to report an indicative minimum of 1000 surgical pathology cases per WTE training year. Up to 50 of the surgical pathology cases may be derived from teaching sets. Trainees will be expected to undertake an indicative minimum of 80 paediatric/perinatal autopsies per WTE training year. 10 of these cases may be derived from assisting at medico-legal autopsies provided that the trainee provides proof of attendance and reflective learning from these cases.

The table below gives some further syllabus information. It is not exhaustive and does not include illustrative lesions.

Paediatric Surgical Pathology

<p>General (CiPs: 1, 2, 3, 4, 5, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> ● Normal anatomy and histology ● Developmental anatomy ● Common pathological abnormalities ● Recognise the link between various lesions and potential previously undiagnosed syndromes ● Timeliness of reporting ● Develop an understanding of the clinical importance of a diagnosis and when to contact a clinician with an opinion ● Develop an understanding of when to refer cases to other pathologists for opinion ● Be aware of the importance of genetic/familial links in paediatric pathologies ● Understands the principles of notifiable diseases,
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	<p>communicable diseases, epidemics, pandemics and malnutrition in relation to the paediatric population</p> <p>Skills:</p> <ul style="list-style-type: none"> • Understand principles of specimen description, dissection and block selection in neoplastic and non-neoplastic conditions • Understand principles of dissection of cancer resection specimens and tissue sampling according to RCPATH standards and tumour protocols adapted to paediatric pathophysiology and pathology • Recognise the need for frozen tissue, proteomics, molecular genetic and electron microscopy samples in various scenarios • Be able to set up and operate a microscope correctly • Be able to recognise normal tissues at different ages • Be able to select and interpret appropriate histochemical and proteomic stains • Be able to describe and explain appropriate molecular tests in various scenarios
<p>Breast (female and male) (CiPs: 1, 2, 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital anomalies of the breast • Benign breast disease including inflammatory conditions, benign neoplasms and hamartomas • Malignant breast tumours and syndromes associated with breast carcinoma <p>Skills:</p> <ul style="list-style-type: none"> • Describe, dissect and report excision of congenital anomalies • Describe and report needle core biopsy and other biopsy specimens • Describe, dissect and report lumpectomy and mastectomy specimens
<p>ENT, head and neck (CiPs: 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital anomalies of the head and neck and associated syndromes • Common benign, reactive and malignant conditions of the tonsils • Tumours of the nasopharynx, larynx, salivary glands, larynx and trachea, which have particular prevalence and can occur in the paediatric population • Common lesions of the tongue and jaws found in the paediatric population <p>Skills:</p> <ul style="list-style-type: none"> • Be able to describe, dissect and report tonsillectomy, polypectomy, salivary gland biopsies and excisions, lymph node excisions, neck dissections, and biopsies from the pharynx, larynx and upper respiratory tract • Recognise reactive tonsils and distinguish them from lymphomas • Identify common salivary gland tumours • Distinguish benign from malignant lesions
<p>Endocrine (CiPs: 3, 4, 7,</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Benign and neoplastic conditions of the thyroid, parathyroid and

9, 11)	<p>pancreas</p> <ul style="list-style-type: none"> • Adrenal tumours • Syndromes associated with endocrine dysfunction and endocrine neoplasia <p>Skills:</p> <ul style="list-style-type: none"> • Recognise normal tissues • Recognise goitre • Describe, dissect and report biopsy and excision specimens from the thyroid, parathyroid, adrenals and pancreas • Identify common thyroid cancers • Pineal gland and pituitary (see central nervous system) • Pancreatic biopsy/pancreatectomy (see lower GI)
Upper GI tract (CiPs: 3, 4, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital lesions involving the upper GI tract • Inflammatory, allergic and metaplastic conditions • Autoimmune enteropathies • Protein losing enteropathies • Inflammatory bowel disease involvement of the upper GI tract • Benign and malignant tumours of the oesophagus, stomach and proximal small bowel • Graft versus host disease • Infections <p>Skills:</p> <ul style="list-style-type: none"> • Describe and interpret endoscopic biopsies • Describe, dissect and report gastrectomy or other major upper GI resection specimens • Interpretation of excisions of congenital anomalies • Recognise various lesions on biopsy
Lower intestinal tract (CiPs: 3, 4, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital lesions involving the lower GI tract • Benign, hamartomatous, inflammatory and neoplastic conditions involving the pancreas • Hamartomatous and neoplastic lesions of the lower GI tract, syndromic and non-syndromic • Allergic enteropathy • Immune deficiencies and their sequelae in the bowel • Graft versus host disease • Intestinal dysmotility including Hirschsprung's disease • Pathology of the appendix • Pathology of bowel transplantation <p>Skills:</p> <ul style="list-style-type: none"> • Describe, dissect and report resection specimens of congenital anomalies • Describe, dissect and report inflammatory bowel disease resections • Appropriate handling and interpretation of samples for Hirschsprung's disease: diagnostic rectal biopsy, intra-operative frozen section and pull-through specimen • Handle samples for intestinal dysmotility • Identify various congenital anomalies

	<ul style="list-style-type: none"> • Recognise necrotising enterocolitis • Identify and classify inflammatory bowel disease • Distinguish juvenile polyps from hamartomatous and adenomatous polyps • Able to recognise ganglion cells at different ages and diagnose Hirschsprung disease
Genital tracts (CiPs: 3, 4, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital malformations, disorders of sexual development • Regressive lesions of the gonads • Tumours that arise in the paediatric population of the ovary, testis and adnexal structures both syndromic and non-syndromic • Common lesions of the uterine corpus, cervix, vagina and vulva • Common lesions of the prepuce <p>Skills:</p> <ul style="list-style-type: none"> • Describe and report biopsies of the ovary and testis • Describe and report biopsies/excision of adnexal structures • Describe, dissect and report oophorectomy and orchidectomy specimens
Liver and biliary tract (CiPs: 3, 4, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital, familial and syndromic lesions of the liver and biliary tract • Metabolic diseases detectable upon histology and electron microscopy of the liver • Steatohepatitis • Benign, hamartomatous and malignant tumours of the liver • Liver disease post bone marrow transplantation • Liver transplant pathology <p>Skills:</p> <ul style="list-style-type: none"> • Appropriate handling and reporting liver biopsies (medical and tumour) • Appropriate sampling of tumour biopsy specimens for genetics, electron microscopy, freezing, etc • Able to describe, dissect and report a liver resection • Able to describe, dissect and report a cholecystectomy resection and biopsy/resection specimens from the biliary tree • Identify biliary atresia, hepatitis, cirrhosis and metabolic conditions • Use of appropriate special stains and immunohistochemistry
Lymphoreticular system (CiPs: 3, 4, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Reactive and neoplastic conditions of the lymph nodes common in the paediatric population • Reactive and neoplastic disease of the bone marrow common in the paediatric population • Bone marrow biopsies before and after bone marrow transplant • Metastatic neoplasms present in the bone marrow and lymph nodes and the importance in staging malignant disease • Congenital, benign and neoplastic conditions of the thymus and spleen • Syndromes associated with thymic aplasia

	<p>Skills:</p> <ul style="list-style-type: none"> • Able to handle and report lymphoma samples • Able to handle and report bone marrow trephines in lymphoreticular and systemic disease • Able to handle and report splenectomy specimens • Handling thymus biopsies/resection specimens • Report medical bone marrow biopsies using appropriate special stains/immunohistochemistry • Recognise reactive lymph nodes and common infections • Identify common childhood lymphomas • Recognise metastatic disease and the handling of bone marrow trephines for cancer staging including appropriate immunohistochemistry as required
Osteoarticular (CiPs: 3, 4, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Recognise common benign and malignant bone tumours common in the paediatric population • Inflammatory and infective conditions of the bones, periosteum and joints • Hamartomas involving bone • Metabolic conditions involving the skeleton including vitamin D deficiency • Recognise and interpret pathological and traumatic bony fractures • Understand the importance of correlating the pathology with clinical and radiological findings <p>Skills:</p> <ul style="list-style-type: none"> • Able to handle and report bone biopsies • Able to describe, dissect and report limb resections and amputations • Able to recognise exostoses • Able to recognise normal and reactive bone
Renal and urological (CiPs: 3, 4, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital malformations of the kidneys and urinary tract • Benign, cystic, inflammatory and malignant tumours of the kidney, ureter and bladder seen in the paediatric population • Medical renal biopsies for nephrotic syndrome, nephritic syndrome, renal failure including congenital/inherited diseases • Renal transplant pathology <p>Skills:</p> <ul style="list-style-type: none"> • Appropriate handling of medical and tumour renal biopsies • Able to describe, dissect and report nephrectomy specimens for benign and neoplastic disease using appropriate protocols and guidance • Describe, dissect and report biopsies and resections from the ureters, bladder and urethra • Recognise glomerulonephritis and nephritic syndrome • Recognise and report congenital anomalies
Respiratory (CiPs: 3, 4, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital malformations of the airways and lung • Surfactant deficiency

	<ul style="list-style-type: none"> • Vascular diseases including vasculitides, pulmonary hypertension and associated causes/sequelae in other organs • Interstitial lung diseases in the paediatric population • Infections and pulmonary sequelae • Benign, hamartomatous and malignant tumours of the airways and lungs in the paediatric population • End-stage lung disease (lung transplant pathology, post-transplant lymphoproliferative disorder) <p>Skills:</p> <ul style="list-style-type: none"> • Able to describe, dissect and report appropriately an open lung biopsy, segmental resection, lobectomy and pneumonectomy • Able to take samples for ancillary investigations as required • Handling samples from neonates; e.g. EM • Describe the features of non-neoplastic lung disease • Able to request appropriate special stains and immunohistochemistry
<p>Skin (CiPs: 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital and inherited skin conditions • Acantholytic diseases • Blistering and bullous disease • Common inflammatory lesions of the skin present in the paediatric population • Benign, hamartomatous and malignant lesions of the skin present in the paediatric population • Scars and cysts • Cutaneous infections • Metastatic disease • Graft versus host disease <p>Skills:</p> <ul style="list-style-type: none"> • Accurate gross description of skin lesions • Correctly handle orientated skin specimens • Recognise common naevi and features of dysplasia • Identify melanoma cases • Recognise common inflammatory lesions • Recognise congenital/inherited skin conditions • Recognise inherited conditions that can show skin manifestations
<p>Soft tissue (CiPs: 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Correlation of pathologic soft tissue lesions with their clinical and radiological appearances • Benign, hamartomatous, indeterminant and malignant tumours of the soft tissues using WHO classification • Inflammatory pathologies of the soft tissues • Congenital lesions and lesions predominating in the paediatric population <p>Skills:</p> <ul style="list-style-type: none"> • Handling soft tissue core biopsies and resection specimens according to guidance and protocols • Recognise inflammatory lesions and mimics • Recognise hamartomas and common tumours • Recognise intermediate and malignant tumours and mimics

<p>Tumours (CiPs: 1, 2, 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the role of central review panels • Understand the role of the UK's Children's Cancer Study Group (UKCCSG), Children's Cancer and Leukaemia Group (CCLG) and International Society of Paediatric Oncology (SIOP) • Sarcomas and primitive tumours of the paediatric and perinatal population • Appreciate the importance and limitations of genetic investigations in tumour diagnosis <p>Skills:</p> <ul style="list-style-type: none"> • Handling tumour biopsies according to protocols and guidance: sampling for histology, cytogenetics, tumour bank and EM • Description and sampling of tumour resections according to standard protocols; e.g. SIOP • Use of RCPATH datasets for reporting neuroblastic tumours and neuroblastoma • Recognise and report 'small round blue cell' tumours • Recognise and report other paediatric tumours
<p>Central nervous system (CNS), muscle and nerves (CiPs: 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • CNS tumours most prevalent in the paediatric population • Metastatic disease and meningeal tumours • Vascular pathology of the dura, cerebral blood vessels and leptomeninges • Hypoxic/ischaemic pathology of the CNS • Intracranial haemorrhage • Pathology associated with epilepsy • CNS infections particularly in the paediatric and perinatal population • Congenital myopathies, muscular dystrophies and inflammatory myopathies • Developmental neuropathology including CNS manifestations of metabolic disease, congenital malformations, and inherited and syndromic disorders <p>Skills:</p> <ul style="list-style-type: none"> • Examination and sampling of biopsy material • Examination of the central nervous system • Recognise common central nervous system tumours • Recognise pathology associated with epilepsy • Recognise pathology associated with ischaemia/hypoxia • Recognise CNS infections
<p>Cardiovascular system (CiPs: 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Congenital heart disease • Operated congenital heart disease • Cardiomyopathies • Pathology of the cardiac valves • Infective cardiac pathology • Pathology of the coronary vessels • Cardiac tumours • Ischaemic cardiac damage in the paediatric and perinatal populations

	<ul style="list-style-type: none"> • Pathology of the pericardium • Cardiac transplant pathology • Systemic vascular disease <p>Skills:</p> <ul style="list-style-type: none"> • Handling of biopsies appropriately • Appropriate sampling of valves, coronary vessels and myocardium • Recognise developmental anomalies • Recognise patterns of surgical intervention and materials used for grafts, etc • Recognise inflammatory and neoplastic lesions • Recognise microscopic congenital abnormalities of valves and myocardium
<p>Metabolic disease (CiPs: 1, 2, 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • An overview of inherited, genetic, familial and acquired metabolic conditions that can present in surgical pathology, including liver biopsies, skin biopsies, muscle biopsies, CNS pathology • Metabolic conditions that can present with failure to thrive, acute CNS deterioration and sudden death in the stillborn, neonate, infant and child <p>Skills:</p> <ul style="list-style-type: none"> • Handling biopsies and taking appropriate samples for electron microscopy, genetics, clinical biochemical studies • Recognition patterns of metabolic disease on light microscopy including interpretation of special stains • Recognition of specific features of metabolic defects on electron microscopy
<p>Ocular (CiPs: 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Recognise retinoblastoma and be aware of staging criteria • Identify common lesions of the eyelids • Specific non-retinoblastoma tumours of the eye <p>Skills:</p> <ul style="list-style-type: none"> • Examination and sampling of enucleation specimens if available • Report biopsy of lesions from the eyelids • Identify retinoblastoma
<p>Placenta (CiPs: 1, 2, 3, 4, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand normal development of the placenta including cord and membranes • Understand the importance of clinico-pathological correlation • Application of the RCPATH placenta tissue pathway document • Developmental anatomy of the placenta at different gestations • Anatomy of twin and other multiple gestation, including chorionicity and vascular networks • Pregnancy loss and the placenta in chromosomal abnormalities • Causes of antepartum haemorrhage • Causes of postpartum haemorrhage • Deficient placentation and maternal vascular malperfusion • Other abnormalities of placentation

	<ul style="list-style-type: none"> • Pathology of the foetal membranes • Abnormal placental shape • Pathology of the umbilical cord • TORCH and other infections • Maternal diseases complicating pregnancy • Placental abnormalities in foetal conditions • Foetal vascular malperfusion • Benign and malignant tumours of the placenta • Hydatidiform moles • Placental site nodule and lesions of the extravillous trophoblast • Medico-legal considerations • Clinical indications for examination of the placenta • Understand the importance of timely and good communication with the obstetric and neonatal teams • Appreciate intrauterine interventions, which can lead to iatrogenic pathology <p>Skills:</p> <ul style="list-style-type: none"> • Examination and sampling of single and twin placentas • Recognise the wide range of normality • Use of appropriate weight and measurement charts for singleton and multiple gestation placentas • Recognise specific pathology of twin placentas and higher multiple pregnancies • Be able to perform vascular injection studies on multiple gestation placentas as required • Consider specimens for genetics, metabolic studies and infections • Identify developmental lesions, inflammatory lesions, vascular lesions, tumours, infections, pathologies associated with multiple gestations, pathology associated with pregnancy loss, and pathology associated with maternal local and systemic disease • Appropriate use of special stains and immunohistochemistry for diagnosis
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Perinatal Pathology and Paediatric Autopsy Pathology

<p>General perinatal and paediatric autopsy</p> <p>(Hospital post-mortem examinations) (CiPs: 1, 2, 3, 7, 9, 10, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understanding and appreciation of <i>consented</i> post-mortems and the Human Tissue Act 2004 • Understanding and appreciation of <i>authorised</i> post-mortems and the Human Tissue (Scotland) Act 2006 • Understand the regulatory role of the Human Tissue Authority and regulations regarding licensed premises • Normal anatomy and histology • Developmental anatomy • Common pathological abnormalities • Able to present skeletal surveys for common radiological features • Aware of the use of CT/MRI in post-mortem examinations • Recognise the link between various lesions and potential previously undiagnosed syndromes
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- Understand and appreciate the role of charitable organisations that contribute to the care and support of the bereaved mother and families, such as SANDS (stillbirth and neonatal death charity), The Cot Death Trust, The Scottish Cot Death Trust, The Foundation for Sudden Infant Death
- Be aware of the epidemiology of foetal and neonatal death
- Be conversant with the RCPATH guidance on Autopsy Practice and Best Practice Scenarios
- Knowledge of health and safety including universal precautions in application to autopsy practice
- Understand the classification of foetal and perinatal death and the limitations of the classifications
- Be aware of national audit data relating to paediatric, perinatal and maternal death
- Appreciate some of the therapies used by foetal medicine, obstetricians, physicians and surgeons to treat certain conditions, particularly in the perinatal setting

Skills:

- Be able to correctly identify the foetus, infant or child who is the subject of the autopsy
- Review the clinical history and appreciate the potential clinical and pathological relevance and correlation
- Request and interpret skeletal survey radiographs
- Appropriate the use of photography and photographic equipment for diagnostic purposes and be aware of the Home Office and RCPATH guidance
- Apply universal precautions
- Correctly measure and weigh the deceased using appropriate weight and measurement charts
- Accurately describe the external appearances of the deceased
- Accurately eviscerate and dissect, being able to adjust technique according to the pathological appearances and clinical need
- Accurately describe the internal appearances of the organs, body cavities and other structures, and appreciate the different appearances at different gestations
- Appropriate sampling of major organs and other structures as requires for histological examination
- Appreciate the need for ancillary investigations including microbiology, virology, biochemistry and genetics and take appropriate tissue samples. Be aware of the relevance of the results of requested investigations
- Be able to set up and operate a microscope correctly
- Be able to recognise normal tissues at different gestations
- Be able to select and interpret appropriate histochemical and immunohistochemical stains
- Present findings of the autopsy to clinicians and colleagues in a clear and accurate manner
- Interpret the findings of the post-mortem examination in the context of the clinical information given
- In foetal and perinatal autopsies make sure that both the fetus and placenta are received for appropriate examination

Medico-legal post-mortems (CiPs: 1, 2, 3, 7, 9, 10, 11)

Knowledge (in addition to the general perinatal and paediatric autopsy section):

- Understand the Human Tissue Acts and the principles of consent and authorisation
- Understand the role of the coroner in England and Wales
- Understand the role of the coroner and state pathologist in Northern Ireland
- Understand the role of the Crown Office and Procurator Fiscal Service in the investigation of deaths in Scotland
- Understand the death certification systems in England, Wales, Northern Ireland and Scotland and the roles of the medical examiner and medical reviewer
- Understand the role of 'the chain of evidence'
- Understand the definitions and limitations of definition of SIDS, SUDI, SUDC and SUDEP
- Understand the role of paediatricians in the clinical assessment of suspected child abuse
- Understand the investigation of suspected sexual abuse
- Radiological investigations in medico-legal post-mortems (plain radiographs, CT and MRI)
- Appreciate haematological abnormalities that can simulate abuse
- Appreciate the possible biochemical investigations that may be requested on post-mortem specimens and their significance
- Appreciate the possible microbiological and virological investigations that may be requested on post-mortem specimens and their significance
- Understand the need for frozen sections and special stains/immunohistochemistry in the histopathology of medico-legal post-mortems
- Understand the requirement for toxicology and the types of samples that may be required
- Understand the particular requirements for external and internal examination in medico-legal post-mortem examinations in children
- Understand natural causes of sudden death in infants and children
- Understand perinatal pathologies and circumstances that may be associated with sudden death in the paediatric population
- Concealed pregnancies and deliveries
- Understand and be able to examine deaths that have occurred due to iatrogenic causes such as therapeutic agents, perioperative and operative deaths (neurosurgical, cardiac surgery, abdominal surgery, etc)
- Have an understanding of accidental injuries, accidental deaths and suicides in the paediatric population
- Understand the pathologies and signs of precipitous birth
- Understand the signs of asphyxial and drowning deaths
- Be conversant with signs of non-accidental injury and their mimics
- Be conversant with types of neglect
- Understand the role of the case review
- Understand descriptive terms used in forensic pathology

	<ul style="list-style-type: none"> • Understand the principles of accurately assessing the time of death and their limitations • Understand the need for tissue samples in the investigation of death that may have a genetic/familial link, including sudden cardiac death • Understand the requirement to be independent and objective at all times • Understand the roles of the coroner's inquest and the fatal accident inquiry • Understand the difference between professional and expert witnesses <p>Skills:</p> <ul style="list-style-type: none"> • Request and review skeletal survey radiological images with a radiologist • Be able to appreciate locus circumstances when viewing scene photographs and gaining details from the police, SUDI paediatrician and other professionals • Be able to examine the deceased competently and safely, externally and internally, adjusting techniques to the circumstances of the case • Be able to interpret and discuss findings and results of ancillary investigations with specialist colleagues, as required • Write a clear, detailed and timely report of the autopsy findings • Be able to give evidence and present the post-mortem report in court. Be able to justify every statement contained within the report.
<p>Spontaneous abortion and the pathology of early pregnancy (CiPs: 2, 7, 9, 10, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the medical definition of spontaneous pregnancy loss and induced abortion • Understand the incidence and aetiologies of spontaneous pregnancy loss • Understand the classification of spontaneous pregnancy loss <p>Skills:</p> <ul style="list-style-type: none"> • Ability to accurately describe the embryo/foetus and villous/placental tissue • Ability to take appropriate samples for histology, investigation of infection and investigation of genetic defects • Ability to identify foetal parts • Ability to estimate gestational age and timing of foetal demise • Ability to recognise placental site reaction and normal histological components of 1st and 2nd trimester pregnancy losses • Request appropriate special stains and immunohistochemistry as required
<p>Congenital abnormalities: prenatal diagnosis and screening (CiPs: 3, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Definitions of congenital abnormalities • Understand the common causes of congenital abnormalities • Understand the role of prenatal screening and diagnosis • Appreciate the personal and social impact of prenatal testing • Appreciate the role of foetal medicine and iatrogenic pathology <p>Skills:</p>

	<ul style="list-style-type: none"> • Accurately describe macroscopic congenital abnormalities • Accurately describe microscopic congenital abnormalities
Genetic metabolic disease (CiPs: 3, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the general principles of genetic metabolic diseases • Clinical presentation in the neonatal period, infancy and childhood • Clinical presentation of foetal inborn error of metabolism in the mother <p>Skills:</p> <ul style="list-style-type: none"> • Ability to recognise features of genetic metabolic disease • Take appropriate samples for the investigation of metabolic diseases • Ability to recognise microscopic features of metabolic disease • Ability to request appropriate stains/immunohistochemistry on fresh, frozen, and paraffin-embedded tissue
Perinatal haematology (CiPs: 3, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand abnormalities of blood flow, haemorrhage and thrombosis • Understand underlying mechanical, immune, inherited and maternal causes of haematological abnormalities in the perinatal period • Appreciate the clinical care and potential intrauterine interventions for haematological disorders <p>Skills:</p> <ul style="list-style-type: none"> • Recognise gross features of foetal, neonatal and infantile haematological pathology • Recognise foetal and placental hydrops • Recognise hydrops, nucleated red blood cells and thrombosis • Recognise haematological patterns in the foetal bone marrow • Recognise physiological and pathological extramedullary haemopoiesis
Stillbirth (CiPs: 3, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Know the macroscopic changes associated with macerated stillbirth in the foetus and placenta • Have an understanding of the known causes and associations of fresh and macerated stillbirth • Understand potential recurrent pathologies • Understand limitations of current obstetric care and screening in the third trimester <p>Skills:</p> <ul style="list-style-type: none"> • Be able to describe accurately features of maceration
Pathology of prematurity (CiPs: 3, 7, 9, 11)	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the major causes (foetal, placental, maternal and iatrogenic) of premature delivery • Understand the different physiological requirements of the preterm infant in the extrauterine environment • Understand the complications of premature delivery <p>Skills:</p> <ul style="list-style-type: none"> • Describe the pathological features of prematurity

<p>Pathology of multiple pregnancy (CiPs: 3, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the terms and pathogenesis of twinning • Understand the different types of malformation associated with twinning • Be aware of in-utero therapeutic procedures in some monochorionic gestations • Be aware of the complications of twinning/multiple gestation <p>Skills:</p> <ul style="list-style-type: none"> • Describe abnormalities of the foetus associated with twinning • Appropriately examine the placenta
<p>Complications of perinatal care (CiPs: 3, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand complications associated with birth • Be aware of the complications of therapeutic drugs on the foetus and neonate • Be aware of the complications of ventilation, oxygenation, fluid balance, blood transfusion and total parenteral nutrition • Be aware of foetal operative procedures and biopsies and potential complications <p>Skills:</p> <ul style="list-style-type: none"> • Be able to describe the gross and microscopic features of complications of iatrogenic injury and therapeutic intervention
<p>Hydrops (CiPs: 3, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the causes of foetal hydrops • Understand amniotic fluid dynamics • Be aware of investigations and therapies undertaken in foetal hydrops <p>Skills:</p> <ul style="list-style-type: none"> • Be able to adequately describe the macroscopic and microscopic features of foetal hydrops • Be able to interpret findings in the context of histology and other investigations, such as haematological investigations and genetics
<p>Congenital tumours (CiPs: 3, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the common tumours that may present in the foetus and neonate • Be aware of genetic abnormalities associated with tumour formation • Be aware of syndromes associated with malignancy <p>Skills:</p> <ul style="list-style-type: none"> • Be able to describe, dissect and report congenital tumours and their impact on the foetus or neonate
<p>Infection (CiPs: 3, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the impact of infection during pregnancy on the mother and baby • Understand the routes of intrauterine infection • Understand the impact of congenital infection on pregnancy outcome in the antenatal, perinatal and postnatal periods • Understand the more common pathogenic organisms

	<p>associated with sudden death in infancy and childhood</p> <ul style="list-style-type: none"> • Understand the public health issues, including notification, associated with some infections • Understand the principles of universal precautions in the autopsy setting • Understand the limitations of post-mortem microbiology and virology and confounding factors <p>Skills:</p> <ul style="list-style-type: none"> • Be able to practice competently universal precautions • Be able to take appropriate samples to allow for reasonable detection of infectious disease at autopsy
<p>Toxins, nutritional disease and maternal diseases (CiPs: 3, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the principles and effects of the more common hyper and hypovitaminoses and their effects in utero • Understand the effects of maternal diseases and their potential impact on the foetus • Understand the effects of some prescribed drugs, illicit drugs and toxins on the unborn child and neonatal syndromes • Understand some of the complications associated with medical intervention in the foetus and neonate <p>Skills:</p> <ul style="list-style-type: none"> • Be able to recognise signs of nutritional disease • Recognise signs of iatrogenic disease and intervention • Be able to take appropriate samples at autopsy
<p>Major anomalies of external anatomy, in situ anomalies (CiPs: 3, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • Appreciate the range and diversity of craniofacial, anterior thoracic, anterior abdominal, spine and perineal anomalies • Understand the genetic correlates of development in these areas • Appreciate some of the surgical options for correction of anomalies in neonates and clinical care <p>Skills:</p> <ul style="list-style-type: none"> • Be able to accurately describe anomalies in surgical specimens and take appropriate sections for clinicopathological correlation • Be able to demonstrate and accurately describe anomalies at post-mortem examination • Able to describe accurately and dissect congenital malformations with appropriate histology sampling
<p>Organ system pathology (in addition to the paediatric surgical pathology) (CiPs: 3, 7, 9, 11)</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> • In addition to the paediatric surgical pathology sections the trainee should have a broad knowledge of specific organ system pathology • Have a broad understanding of organ and organ system development including important molecular mechanisms • Understand the various clinical methods for antenatal diagnosis of lesions