

# **Guidance for Training in Paediatric Haematology**

July 2014

## 1. Introduction

The Specialty Training Curriculum for Haematology was updated in August 2010 (with amendments made in 2012), having been developed by the Specialty Advisory Committee for Haematology under the direction of the Joint Royal Colleges of Physicians Training Board (JRCPTB). It is available on the JRCPTB website [www.jrcptb.org.uk](http://www.jrcptb.org.uk) and details the Haematology Specialty Syllabus together with descriptions of Training Pathways and Programme, and the processes available for Teaching, Learning, Assessment and Appraisal for trainees in this specialty.

The Curriculum includes training in Paediatric Haematology for all trainees in order to obtain competencies to the level of a general haematologist in the diagnosis and management of common haematological disorders in childhood.

For those trainees pursuing a career as a consultant paediatric haematologist, competencies to the level of independent practice are required for complex or specific paediatric haematology disorders (H19, pg 51-54). Paediatric haematology trainees are currently expected to receive **a minimum** of 2 years training in paediatric haematology in specialised Centres, with the remainder of their training in adult haematology. The Specialty Training Curriculum for Haematology is therefore relevant to trainees both in adult and paediatric haematology, including the Specialty Syllabus and the Common Competencies Syllabus.

The purpose of this guidance for Paediatric Haematology is to expand and provide additional detail to supplement the syllabus for trainees in paediatric haematology. Whereas the Common Competencies described in the Specialty Training Curriculum for Haematology apply to both adult and paediatric haematology trainees, the additional general competencies expected of a paediatric haematology trainee have been outlined in section 2, these expectations being based on those described for ST3 and above in the Curriculum for Paediatric Training published by the RCPCH ([www.rcpch.ac.uk](http://www.rcpch.ac.uk)) in September 2010 (revised July 2013).

## 2. General competencies

The trainee will develop the key general competencies obtained during core training which are particular to the care of children, and demonstrate an understanding in the duties expected of a clinician involved in paediatric practice.

### 2.1 Duties of a doctor

- a) Understand limitations of their competence, in relation to safe clinical practice and in their relationships with patients, and know where and when to ask for help, support and supervision.
- b) Understand their role in managing the consequences of chronic illness for a child and family.
- c) Take on advocacy role with regard to the best interests of the child for the protection of their rights; to ensure appropriate care for patients.
- d) Show that they consider all aspects of a child's well-being, including biological, physiological and social factors.

## 2.2 Clinical practice

### a) History taking

- Effective skills in recognising and responding to behavioural, emotional and psychosocial aspects of illness in children and families.
- To be able to take a history from a child or young person and parent of the presenting difficulties so that information is acquired in sufficient breadth and depth to allow accurate formulation of the problem.
- Know when to gather information from other professionals eg. those working in education, social work or from others who see the child in a variety of settings.
- Be able to assess patterns of relationships and functioning within a family and how these might impact on a young person or child's illness, seeking professional advice where appropriate.

### b) Drugs and therapeutics

- Know about procedures for obtaining consent in children and young people for the administration of drugs.
- Be able to find out information necessary for prescribing through the use of paediatric formularies and pharmacy liaison.
- Know about the licensing of medicines for paediatric patients and unlicensed and off-label use and the implications of extemporaneous products.
- To be able to advise and supervise safe prescription of intravenous fluids (and blood products) to children.

### c) Adolescents

- Understand what the specific needs of young people are in terms of their emotional, mental and physical health and how these are different from those in children.
- Understand issues around transition from paediatric to adult care in adolescents with chronic conditions and disabilities and be able to contribute to transitional care services.
- Understand roles of the members of MDT in the delivery of a transitional care programme.
- Where appropriate and at a negotiated time, be able to raise and agree management of end of life issues with young people and their families, and record conclusions in medical notes.

### d) Maintaining Trust

- Understand the importance of cultural diversity and the difficulties where religious and cultural beliefs that parents might hold about the treatment of their children are in conflict with good medical practice and know when legal and ethical guidelines will support your management or view of the situation.
- Aware of religious and cultural diversity and beliefs in counselling children and families regarding end of life care.

### e) Knowledge of the law regarding death, data protection and consent in paediatrics

- Know and follow key legal and ethical guidelines relating to consent to treatment and the right to refuse treatment and confidentiality.
- Know when in the interest of the child it may be necessary to break confidentiality.
- Understand purpose of post-mortem examinations and know about procedures and consent.

- Be able to prepare and discuss with parents, carers and other professionals “Do not attempt resuscitation” policies as appropriate, taking due account of the Human Rights Act (1998), ensuring that the best interests of the child are held paramount at all times.

### 3. Paediatric Haematology Specialty Syllabus

The paediatric haematology specialty syllabus is set out in modules of the different areas within paediatric haematology in which competence should be achieved. It is not an exhaustive list of paediatric haematology conditions and should be used in conjunction with the Specialty Training Curriculum for Haematology as considerable overlap exists.

#### PH1 Paediatric Laboratory Haematology

<b>To be competent in the practice of laboratory paediatric haematology</b>			
<b>Knowledge</b>	<b>Assessment methods</b>	<b>GMP</b>	<b>Common Competency</b>
Describe the laboratory practices required to process small volumes of blood, including capillary blood samples	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning
Describe the physiological changes in haemopoiesis and coagulation which take place in the fetus, neonate and throughout childhood.	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning
Describe the establishment of age-related, paediatric normal ranges for haematological parameters	FRCPATH part 1 FRCPATH part 2 CbD	1	C6 : The Patient as the Central Focus of Care. C21 : Evidence and Guidelines
Describe the normal and abnormal appearances of blood and bone marrow in neonates, infants and children	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning
Describe the development of blood group antigens, platelet antigens in the fetus and neonate	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning
Describe the process of selection of appropriate ABO blood groups for transfusion of red blood cells, platelets and plasma to children of all age groups.	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning C21 : Evidence and Guidelines
Describe the national laboratory screening process of neonates for haemoglobinopathies	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning C16 : Health Promotion, Public Health C21 : Evidence and Guidelines
Describe the processes involved in the laboratory investigation of mother-baby transmitted immune disorders	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning C21 : Evidence and Guidelines
Describe the indications for use and understands the results of specific cytochemical stains, immunophenotyping, cytogenetics and molecular investigations as applied to blood and bone marrow samples	FRCPATH part 1 FRCPATH part 2 CbD	1	C21 : Evidence and Guidelines
Describe the laboratory investigation of haemolytic disorders including haemolytic disease of the newborn	FRCPATH part 1 FRCPATH part 2	1	C5 : Decision making and clinical reasoning C21 : Evidence and

and other immune disorders, disorders of the red cell membrane, of red cell enzymes and of microangiopathies.	CbD		Guidelines
Describe the normal and abnormal appearances of cerebrospinal fluid in malignant and nonmalignant paediatric disorders.	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning
Explain the principles, use, limitations and quality control of point-of-care testing in children, including home monitoring systems.	FRCPATH part 1 FRCPATH part 2 CbD	1	C21 : Evidence and Guidelines
<b>Skills</b>			
Identifies and reports normal and abnormal blood films of neonates, infants and children, recognising variants of normal	FRCPATH parts 1 and 2.CbD DOPS, miniCEX	1	C5 : Decision making and clinical reasoning
Accurately reports red cell, white cell and platelet abnormalities on blood films.	FRCPATH part 2 CbD, DOPS	1	C5 : Decision making and clinical reasoning
Safely performs bone marrow aspirates and trephine biopsies on neonates, infants and children	DOPS	1,2,3,4	C18 : Valid Consent
Accurately reports bone marrow aspirates and trephine biopsies, aware of normal marrow cellularity in children of different ages	FRCPATH part 2 CbD, DOPS, mini-CEX	1	C5 : Decision making and clinical reasoning
Performs lumbar puncture safely on neonates, infants and children	DOPS	1,2,3,4	C18 : Valid Consent
Recognises and reports abnormal haematological cells in the CSF	FRCPATH part 2 CbD, DOPS	1	C5 : Decision making and clinical reasoning
Interprets results of all laboratory investigations undertaken for haematological disorders	FRCPATH part 2 CbD, DOPS	1	C5 : Decision making and clinical reasoning
Is familiar with national and local laboratory quality management schemes and with the application of IT systems to laboratory medicine.	FRCPATH part 2	1,2,3,4	C9 : Principles of Quality and Safety Improvement C25 : Management and NHS Structure
Is familiar with the management structure and function within haematology, including performance management, staff appraisal and the principles of laboratory budget management	FRCPATH part 2	1,2,4	C9 : Principles of Quality and Safety Improvement C25 : Management and NHS Structure
Participates in the routine and out of hours provision of haematology management and advice.	CbD, MSF	1,2,3	C7 : Prioritisation of patient safety in clinical practice C8 : Team working and Patient safety
<b>Behaviours</b>			
Relates laboratory results to the age of child and clinical presentation, and applies findings to patient care	FRCPATH part 1 FRCPATH part 2 CbD, Mini Cex	1	C5 : Decision making and clinical reasoning
Consults where necessary to obtain appropriate advice in reporting findings; aware of own limitations.	MSF	1,3	C8 : Team working and Patient safety
Communicates effectively and appropriately with patients and families, GPs and other clinicians regarding abnormal laboratory results. Takes responsibility for initiating such communication.	FRCPATH part 1 FRCPATH part 2 CbD, MSF	1	C15 : Communications with Colleagues & Co-operation
Establishes rapport with all laboratory staff , demonstrates ability to work effectively in the laboratory environment	MSF	3	C5 : Decision making and clinical reasoning

## PH 3 Anaemia

Competence in the diagnosis and management of patients presenting with anaemia			
Knowledge	Assessment Methods	GMP	Common Competency
Describe the aetiology and pathophysiology of anaemia including iron deficiency anaemia, megaloblastic anaemia, congenital and acquired haemolytic anaemia, haemoglobinopathies, anaemia of chronic disease. Demonstrate knowledge of constitutional anaemias, Diamond Blackfan Anaemia, congenital dyserythropoietic anaemias, Schwachman Diamond Syndrome, Fanconi Anaemia. Demonstrate an understanding of the anaemia of prematurity and the various causes of neonatal anaemia. Demonstrate understanding of the significance of anaemia as a sign of an underlying non haematological malignancy, or of other systemic disease	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
Explain the haematological, biochemical and radiological techniques required for the investigation of anaemia	FRCpath part 1 FRCpath part 2 CbD, Mini Cex	1	C5: Decision Making & Clinical Reasoning
Identify the underlying causes of anaemia	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning
Skills			
Selects and interprets investigations correctly to identify the causes of anaemia	FRCpath part 1 FRCpath part 2 CbD, Mini Cex	1	C5: Decision Making & Clinical Reasoning
On the basis of history, examination and laboratory results, formulates an appropriate management and treatment plan	FRCpath part 1 FRCpath part 2 CbD, mini-CEX	1	C1: History Taking C2: Clinical Examination C5: Decision Making & Clinical Reasoning
Communicates the investigations and diagnosis to the patient and their carers	mini-CEX	3,4	C12: Relationships with Patients & communication within a Consultation
Behaviours			
Exhibits empathy, compassion and respect in discussing diagnosis and treatment	mini-CEX, MSF	1	C12: Relationships with Patients & communication within a Consultation
Relates laboratory results to clinical practice	CbD	1	C5: Decision Making & Clinical Reasoning
Consults colleagues in other relevant specialities appropriately	FRCpath part 2 MSF	1,3	C8: Team working & Patient safety; C15:

			Communications with Colleagues & Co-Operation
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## PH 4 Acute Leukaemia

Competency in the diagnosis and management of acute leukaemia			
Knowledge	Assessment Methods	GMP	Common Competency
Describe the presentation, natural history, pathogenesis and diagnosis of childhood acute leukaemia	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Explain the classification and prognostic factors in acute leukaemia and the implications for therapy	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Define the presence of underlying associated conditions predisposing to leukaemia (such as Down's Syndrome) and their specific management	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Define the principles of intensive and non intensive systemic therapy including chemotherapy regimens: the modes of action, side effects and interactions of agents used in the management of acute leukaemia.	FRCpath part 1 FRCpath part 2	1	<b>C3:</b> Therapeutics & Safe prescribing <b>C21:</b> Evidence & Guidelines
Describe supportive care in management of acute leukaemia, including: use of blood products, prevention and management of tumour lysis syndrome, prophylaxis and therapy with antimicrobial agents, nutritional support, use of growth factors	FRCpath part 1 FRCpath part 2 CbD	1	<b>C3:</b> Therapeutics & Safe Prescribing <b>C21:</b> Evidence & Guidelines
Define the indications for autologous and allogeneic haematopoietic stem cell transplantation in the management of acute leukaemia	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5:</b> Decision Making & Clinical Reasoning
Explain the use of trial protocols and importance of multicentre trials in acute leukaemia	FRCpath part 1 FRCpath part 2 CbD	1,3,4	<b>C20:</b> Ethical Research <b>C18:</b> Valid Consent
Define the need for late effects monitoring, the role of long term follow up clinics and the transitional care of teenagers previously treated for leukaemia.	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Define the pathways for trial data collection and reporting of adverse events	FRCpath part 1 FRCpath part 2 CbD	1, 2	<b>C8:</b> Team Working & Patient Safety <b>C9:</b> Principles of Quality and Safety Improvement <b>C20:</b> Ethical Research
Describe the role of palliative care	FRCpath part 1 FRCpath part 2	1,3	<b>C15:</b> Communications with Colleagues & Co-Operation
Explain ethical considerations of informed consent using age-appropriate information	mini-CEX, PS	1,3,4	<b>C18:</b> Valid Consent <b>C19:</b> Legal framework for practice

Describe the role of the multi-disciplinary team and its assessment in the National Cancer Peer Review Programme	CbD	1, 2, 3	<b>C5:</b> Decision Making & Clinical Reasoning <b>C6:</b> The patient as the Central Focus <b>C8:</b> Team Working & Patient Safety <b>C9:</b> Principles of Quality and Safety Improvement <b>C15:</b> Communication with Colleagues & Co-Operation
Describe the system for application for funding of high cost drugs	CbD	1, 2	<b>C3:</b> Therapeutics & Safe Prescribing <b>C9:</b> Principles of Quality and Safety Improvement <b>C21:</b> Evidence & Guidelines
<b>Skills</b>			
Interprets presenting features and conducts history and examination competently	CbD, Mini-CEX	1	<b>C1:</b> History taking <b>C2:</b> Clinical examination
Uses appropriate laboratory investigations to establish diagnosis.	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5:</b> Decision Making & Clinical Reasoning
Ability to discuss, formulate and implement an appropriate management plan in the setting of the multidisciplinary team.	CbD, Mini-CEX	1,3,4	<b>C8:</b> Team Working & Patient Safety <b>C15:</b> Communication with Colleagues & Co-Operation
Communicates management options clearly to the patient and provides appropriate support and information to patients and their carers	mini-CEX, PS	1,3,4	<b>C12:</b> Relationships with Patients & Communication within a Consultation <b>C13:</b> Breaking Bad News
Works as part of the MDT to prescribe and deliver systemic therapy following clinical protocols. Manages the side effects of treatment and complications of acute leukaemia	FRCpath part 1 FRCpath part 2 CbD	1,2,3,4	<b>C8:</b> Team Working & Patient Safety
Safely performs bone marrow aspirates and diagnostic lumbar punctures & administers intrathecal chemotherapy to all age groups	DOPS	1,2,3,4	<b>C18:</b> Valid Consent
Practises appropriate use of supportive therapies	FRCpath part 1 FRCpath part 2 CbD	1,2,3,4	<b>C3:</b> Therapeutics & Safe Prescribing <b>C10:</b> Infection Control
Provides full explanation of appropriate clinical trials and obtains informed consent after discussion with patient and family. Collects trial data.	FRCpath part 1 FRCpath part 2 CbD, mini-CEX	1,4	<b>C17:</b> Principles of Medical Ethics & Confidentiality <b>C18:</b> Valid Consent
Awareness of clinical trials and national protocols	FRCpath part 1 FRCpath part 2 CbD, mini-CEX	1, 2	<b>C15:</b> Communication with colleagues and cooperation <b>C20:</b> Ethical Research



			<b>C21: Evidence &amp; Guidelines</b>
Identifies the appropriate time for introduction of palliative care and communication of this to the patient and family Addresses quality of life issues	CbD, mini-CEX	1, 3, 4	<b>C12:</b> Relationships with Patients & Communication within a Consultation <b>C13:</b> Breaking Bad News
<b>Behaviours</b>			
Displays ability to communicate information to families and patients of all age groups	CbD, mini-CEX	3	<b>C 12:</b> Relationships with Patients & Communication within a Consultation <b>C13:</b> Breaking Bad News
Exhibits awareness of impact of diagnosis on patient and family and provides appropriate information and support	CbD	1,3	<b>C12:</b> Relationships with patients & Communication within a Consultation
Displays empathy, compassion and respect in communicating the diagnosis	mini-CEX	3	<b>C 12:</b> Relationships with Patients & Communication within a Consultation <b>C13:</b> Breaking Bad News
Promotes participation in trials and research governance.	CbD, mini-CEX	4	<b>C20:</b> Ethical Research
Recognises the importance of supportive care for successful patient outcomes	FRCpath part 1 FRCpath part 2 CbD	1,3	<b>C6:</b> The Patient as the Central Focus of Care
Recognises the importance of a multidisciplinary team and recognises the need for referrals to other health care professionals	MSF	1,3,4	<b>C8:</b> Team Working & Patient Safety <b>C15:</b> Communication with Colleagues & Co-Operation

## PH 7 Lymphoma

<b>Competence in the diagnosis and management of children with Hodgkin and non-Hodgkin lymphoma</b>			
<b>Knowledge</b>	<b>Assessment Methods</b>	<b>GMP</b>	<b>Common Competency</b>
Describe the presentation, natural history, pathogenesis and diagnosis of Hodgkins and non Hodgkin lymphoma in children and adolescents.	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
Describe the histological sub-types of lymphomas which occur in childhood	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning
Describe the staging systems used in the management of childhood lymphomas	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning
Describe the systemic treatment regimens for the management of lymphomas in children and	FRCpath part 1 FRCpath part 2	1	C3: Therapeutics and safe prescribing C21: Evidence &

adolescents			Guidelines
Explain the use of trial protocols in the management of lymphomas in children	FRCpath part 1 FRCpath part 2	1	C20 Ethical Research C17: Principles of Medical Ethics & Confidentiality
Define the indications for stem cell transplantation in paediatric lymphoma	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
<b>Skills</b>			
Interprets the presenting features and conducts history and conducts history and examination competently	CbD, Mini-CEX 1	1	C5: Decision Making & Clinical Reasoning
Selects appropriate laboratory and radiological investigations to establish a diagnosis and stage of disease	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning
Practice competent diagnosis of lymphoma using various specimen types including bone marrow, CSF, pleural & peritoneal fluid	FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning
Demonstrate the ability to formulate and implement a management plan for supportive care and lymphoma management in the setting of a multidisciplinary team	FRCpath part 1 FRCpath part 2 CbD, Mini-Cex	1, 2, 3	C3: Therapeutics and safe prescribing C8: Team Working & Patient Safety C15: Communication with Colleagues & Co-Operation
Communicate management options appropriately to parents and children, taking into account the age of the affected child	Mini-Cex	3, 4	C12: Relationships with Patients & Communication within a Consultation C13: Breaking Bad news
Provide a full explanation of appropriate clinical trials using age specific materials. Obtain informed consent as appropriate.	CbD Mini-Cex	1	C17: Principles of Medical Ethics & Confidentiality C18: Valid Consent C20 Ethical Research
Work as part of a multidisciplinary team to manage the underlying conditions and its complications	FRCPATH CbD, Mini-Cex		C8: Team Working & Patient Safety
<b>Behaviours</b>			
Recognises the importance of histology in lymphoma management	CbD,	1, 3	C5: Decision Making & Clinical Reasoning
Exhibits empathy in discussing the diagnosis with the child and family	Mini-Cex MSF	3	C12: Relationships with Patients & Communication within a Consultation C13: Breaking Bad news
Can work within a multidisciplinary team	MSF	1,3,4	C 8: Team Working & Patient Safety C15: Communication with Colleagues & Co-Operation
Promotes participation in research in trial and research governance	CbD Mini-Cex	4	C20: Ethical Research

## PH 8 Congenital Coagulation Disorders

<b>Competence in the management of patients with congenital coagulation disorders.</b>			
<b>Knowledge</b>	<b>Assessment methods</b>	<b>GMP</b>	<b>Common Competency</b>
Describe coagulation and the coagulation pathways including control mechanisms and fibrinolysis.	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning
Describe development of the coagulation system in the neonate and early childhood	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning
Describe the investigation of bruising and awareness of investigations in the setting of suspected non-accidental injury	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning
Describe the inheritance, natural history, presentation and complications of congenital coagulation disorders including Haemophilia A, Haemophilia B and Von Willebrand Disease	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
Describe the methods and use of prophylaxis with factor concentrate in haemophilia and other congenital bleeding disorders.	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
Outline the features of the less common congenital factor deficiencies such as XIII, XI, X, VII, V, II and a/dysfibrinogenaemia.	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
Explain the role of the clinical history in assessment of the bleeding patient.	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning
Identify and explain the diagnostic and screening methods used in assessment of coagulation disorders including specific factor and inhibitor assays	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
Describe the management of children with inhibitors to coagulation factors and in particular the use of immune tolerance regimes.	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
Outline the use of molecular biological techniques to identify genetic disorders and discusses the role of these techniques in pre-natal and family testing	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning C16: Health Promotion & Public Health
Describe the types of coagulation factor concentrates including their safety profiles	FRCpath part 1 FRCpath part 2 CbD	1	C3: Therapeutics & Safe Prescribing
Describe the process of transition of care from paediatric to adult services	MSF CbD	1,3,4	C8: Team working & Patient Safety C15: Communication with Colleagues
<b>Skills</b>			
Demonstrates competence in taking the relevant history, including previous challenges and family history, conducting a focused examination of the child for abnormal bleeding signs	mini-CEX	1	C1: History Taking C2: Clinical
Demonstrates competence in using bleeding assessment tools	mini-CEX	1	C1: History Taking C2: Clinical

Formulates a comprehensive differential diagnosis and management plan	FRCpath part 1 FRCpath part 2 CbD	1,3	C5: Decision Making & Clinical Reasoning
Formulates a comprehensive surgical plan in a patient with congenital bleeding disorder	FRCpath part 1 FRCpath part 2 CbD	1,3	C5: Decision Making & Clinical Reasoning
Demonstrates competence in genetic counselling	FRCpath part 1 FRCpath part 2 mini-CEX	1,3,4	C5: Decision Making & Clinical Reasoning C6: The Patient as the Central Focus of Care C12: Relationships with Patients & Communication within a Consultation
Interprets results of laboratory assays accurately	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning
Advises appropriately on prophylaxis and treatment of congenital coagulation disorders	FRCpath part 1 FRCpath part 2 CbD	1,3,4	C5: Decision Making & Clinical Reasoning C11: Managing Long Term Conditions & Promoting Patient Self-Care
Able to work within a multidisciplinary team and recognises the need and makes appropriate referrals to other health care professionals	MSF	1,3,4	C8: Team working & Patient Safety C15: Communication with Colleagues &
<b>Behaviours</b>			
Relates theoretical knowledge to patient management	FRCpath part 1 FRCpath part 2 CbD	1,2,3,4	C5: Decision Making & Clinical Reasoning
Exhibits empathy, compassion and respect in managing the disorder and its complications	FRCpath part 1 FRCpath part 2 mini-CEX, MSF	1,3	C6: The Patient As The Central Focus Of Care
Recognises the impact of the condition on the patient and family	FRCpath part 1 FRCpath part 2 mini-CEX, MSF	1,3	C12: Relationships with Patients & Communication within a Consultation C13: Breaking Bad News C11: Managing Long Term Conditions & Promoting Patient Self-Care
Appreciates patient sensitivities and implications of a positive screening result	FRCpath part 1 FRCpath part 2 MSF	3,4	C12: Relationships with Patients & Communication within a Consultation C16: Health Promotion & Public Health
Appreciates patient preferences beliefs and concerns regarding coagulation factor replacement therapies	FRCpath part 1 FRCpath part 2 CbD, MSF	4	C6: The Patient as the Central Focus of Care C7: Prioritisation of Patient Safety in

			Clinical Practice C3: Therapeutics & Safe Prescribing
Contributes to multidisciplinary team-working	MSF	3	C8: Team Working & Patient Safety C15 Communication with Colleagues & Co-Operation

## PH 9 Thrombosis

<b>Competence in the diagnosis and management of patients with thrombotic disorders.</b>			
<b>Knowledge</b>	<b>Assessment Methods</b>	<b>GMP</b>	<b>Common Competency</b>
Describe normal haemostatic parameters in neonates, children and adolescents, particularly in relation to inhibitors of coagulation and the fibrinolytic system	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning
Explain the techniques used to measure antithrombin, protein C, protein S, APCR, lupus anticoagulant and the use of age adjusted normal ranges during childhood	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning
Describe the pattern of thrombosis observed in neonates, children and adolescents	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning
Identify risk factors for thrombosis in neonates, children and adolescents	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning
Describe the diagnosis and management of thrombotic problems during childhood	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C3:</b> Therapeutics and safe prescribing <b>C21:</b> Evidence & Guidelines
Describe the presentation and management of homozygous protein C and S deficiency	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C3:</b> Therapeutics and safe prescribing <b>C21:</b> Evidence & Guidelines
Outline potential indications and methods of thromboprophylaxis in children and adolescents	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C3:</b> Therapeutics and safe prescribing <b>C21:</b> Evidence & Guidelines
<b>Skills</b>			
Demonstrates appropriate use of clinical, radiological and laboratory methods in the diagnosis and management of children with clinical thrombosis	FRCpath part 1 FRCpath part 2 CbD	1, 2	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Demonstrate ability to interpret thrombophilia results in neonates, children and adolescents	FRCpath part 1 FRCpath part 2	1, 2	<b>C5:</b> Decision Making & Clinical Reasoning
<b>Behaviours</b>			
Relates theoretical knowledge to patient management.	FRCpath part 1 FRCpath part 2 CbD	1, 2, 3	<b>C5:</b> Decision Making & Clinical Reasoning

## PH 10 Anticoagulation

Competence in the management of patients requiring anticoagulation			
Knowledge	Assessment Methods	GMP	Common Competency
Describe the mechanisms of action and define the indications for the use of heparin, low molecular weight heparin and oral anticoagulants in neonates, children and adolescents	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Explain the side effects of anticoagulants in the paediatric age group	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning
Skills			
Practice safe and effective initiation of anticoagulation in neonates, children and adolescents	FRCpath part 1 FRCpath part 2 CbD	1, 2	<b>C5:</b> Decision Making & Clinical Reasoning <b>C3:</b> Therapeutics and safe prescribing <b>C21:</b> Evidence & Guidelines
Interpret and evaluate monitoring of anticoagulation and advise appropriately in paediatric practice including management of bleeding and over-anticoagulation.	FRCpath part 1 FRCpath part 2	1, 2, 3	<b>C5:</b> Decision Making & Clinical Reasoning <b>C3:</b> Therapeutics & Safe Prescribing <b>C21:</b> Evidence & Guidelines <b>C7:</b> Prioritisation of Patient Safety in Clinical Practice
Behaviours			
Consult with other relevant specialists appropriately	FRCpath part 1 FRCpath part 2 CbD	3	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Contribute to multidisciplinary team working	FRCpath parts 1,2	3	<b>C5:</b> Decision Making & Clinical Reasoning

## PH 11 Acquired Bleeding Disorders

Competence in the diagnosis and management of patients with acquired bleeding disorders			
Knowledge	Assessment Methods	GMP	Common Competency
Describe the pathogenesis and mechanisms of acquired bleeding disorders including: iatrogenic bleeding, surgical bleeding, Vitamin K deficiency, DIC, massive transfusion, renal and hepatic disease, coagulation factor inhibitors	FRCpath part 1 FRCpath part 2	1	<b>C3:</b> Therapeutics & Safe prescribing <b>C5:</b> Decision making & Clinical Reasoning <b>C6:</b> The Patient as the Central Focus of Care <b>C7:</b> Prioritisation of Patient Safety in Clinical Practice
Explain the role of the clinical history in the assessment of the bleeding patient	FRCpath part 1 FRCpath part 2	1	<b>C21:</b> Evidence & Guidelines
Describe the haematological investigation of non-accidental injury	FRCpath part 1 FRCpath part 2 Q1	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Describe the pharmaceuticals and blood products available for the management of excessive bleeding, their indications and side-effects	FRCpath part 1 FRCpath part 2	1	<b>C3:</b> Therapeutics & Safe prescribing <b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence &

			Guidelines
Describe the methodology of immunetolerance in patients with coagulation factor inhibitors	FRCpath part 1 FRCpath part 2	1	<b>C21:</b> Evidence & Guidelines
<b>Skills</b>			
Selects and evaluates investigations correctly and formulates an appropriate management plan	FRCpath part 1 FRCpath part 2 CbD	1	<b>C3:</b> Therapeutics & Safe prescribing <b>C5:</b> Decision making & Clinical Reasoning <b>C6:</b> The Patient as the Central Focus of Care <b>C7:</b> Prioritisation of Patient Safety in Clinical Practice <b>C21:</b> Evidence & Guidelines
Communicates effectively with colleagues and other specialists on the appropriate use of blood products including blood products, coagulation factors, immunosuppression, vitamin K and protamine	CbD, MSF	1,3	<b>C15</b> Communication with Colleagues & Co-Operation
<b>Behaviours</b>			
Contributes to multidisciplinary team-working	MSF	3	<b>C8:</b> Team Working & Patient Safety <b>C15</b> Communication with colleagues & co-operation

## PH 12 Platelet Disorders

<b>Competence in the diagnosis and management of children with acquired and congenital platelet disorders.</b>			
<b>Knowledge</b>	<b>Assessment methods</b>	<b>GMP</b>	<b>Common Competency</b>
Outline platelet structure, function and the physiological process of thrombopoiesis	FRCPPath part 1 FRCPPath part 2	1	C5 : Decision making and clinical reasoning
Define platelet and vessel wall interaction	FRCPPath part 1 FRCPPath part 2	1	C5 : Decision making and clinical reasoning
Define platelet counts in the fetus, neonate and older children. Explain the measurement of platelet numbers and platelet size by automated counters; describe blood film appearances of normal and abnormal platelet morphology	FRCPPath part 1 FRCPPath part 2	1	C5 : Decision making and clinical reasoning
Describe the pathogenesis, diagnosis and management of congenital and acquired qualitative platelet disorders	FRCPPath part 1 FRCPPath part 2 CbD	1	C5 : Decision making and clinical reasoning C21 : Evidence and Guidelines C3 : Therapeutics & Safe prescribing
Describe platelet function tests, their application and their limitations in children of differing ages. Describe the use of FLOW cytometry in the diagnosis of severe congenital platelet disorders, the indications for cytogenetic investigations and for bone marrow examination in children with suspected platelet disorders	FRCPPath part 1 FRCPPath part 2	1	C5 : Decision making and clinical reasoning C21 : Evidence and Guidelines
Describe the aetiology of congenital thrombocytopenias and the investigation and management of such disorders.	FRCPPath part 1 FRCPPath part 2 CbD	1	C5 : Decision making and clinical reasoning C21 : Evidence and



			<b>Guidelines</b>
Describe the pathogenesis of acquired thrombocytopenia in children of different ages, including immune and non-immune disorders. Describe relevant investigations to determine aetiology, and the available treatment options	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning C3 : Therapeutics & Safe prescribing
Describe the causes of acquired and congenital thrombocytosis, the relevant investigations to determine aetiology and the appropriate treatment options.	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning C21 : Evidence and Guidelines
Outline the mechanisms of action of pharmacological platelet inhibitors	FRCPATH part 1 FRCPATH part 2	1	C3 : Therapeutics & Safe prescribing
Describe the indications for platelet transfusion in children with thrombocytopenia and/or platelet dysfunction.	FRCPATH part 1 FRCPATH part 2 CbD	1	C5 : Decision making and clinical reasoning C21 : Evidence and Guidelines
<b>Skills</b>			
Selects and evaluates investigations based on clinical history and age of child, and formulates appropriate management plan	FRCPATH part 1 FRCPATH part 2 CbD, miniCex	1	C5 : Decision making and clinical reasoning
Manages emergency presentations of thrombocytopenia including neonatal thrombocytopenia, ITP and TTP	CbD	1	C5 : Decision making and clinical reasoning C7 : Prioritisation of Patient Safety in Clinical Practice C8 : Team Working and Patient Safety C21 : Evidence and Guidelines
Communicates appropriate clinical advice on the use of antiplatelet drugs and on platelet transfusion	CbD, MSF	1,3	C5 : Decision making and clinical reasoning C3 : Therapeutics & Safe prescribing C12 : Relationships with patients and Communication within a Consultation
<b>Behaviours</b>			
Relates theoretical knowledge to patient management	FRCPATH part 1 FRCPATH part 2 CbD, miniCex	1,2,3,4	C5 : Decision making and clinical reasoning
Contributes to multi-disciplinary team-working	MSF	3	C8 : Team Working and Patient Safety C15 : Communications with Colleagues & Co-operation
Consults with colleagues in other relevant specialties	MSF	1,3	C8 : Team Working and Patient Safety C15 : Communications with Colleagues & Co-operation



## PH 13 Haemoglobinopathies

<b>Competence in the diagnosis and management of patients with haemoglobinopathies</b>			
<b>Knowledge</b>	<b>Assessment Methods</b>	<b>GMP</b>	<b>Common Competency</b>
Outline the molecular basis of abnormal haemoglobins and thalassaemia syndromes	FRCPath part 1 FRCPath part 2	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
Describe the epidemiology, presentation and natural history of sickle cell and thalassaemia syndromes	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning
Describe the techniques for the diagnosis of haemoglobin disorders including knowledge of national haemoglobinopathy screening programmes	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines C16: Health Promotion & Public Health
Describe the diagnosis and management of specific major acute complications, including the acute chest syndrome, painful crisis, stroke. Describe screening programmes for stroke and prevention/management strategies in stroke. Describe the diagnosis and management of acute splenic sequestration, aplastic crisis, priapism in sickle cell anaemia. Understand the increased susceptibility to infection and the importance of childhood immunisations and regular penicillin prophylaxis Understand what information needs to be given to parents of a newly diagnosed child with sickle cell disease or thalassaemia major. Describe the outpatient management of an infant found to be affected on neonatal haemoglobinopathy screening Describe the factors influencing the commencement of a transfusion programme in thalassaemic and sickle patients.	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines
Explain appropriate use of transfusion in sickle cell and thalassaemia syndromes	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning C3: Therapeutics & Safe Prescribing C21: Evidence & Guidelines
Describe the complications, assessment and treatment of transfusional iron overload	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines C3: Therapeutics & Safe Prescribing
Describe the long term complications of haemoglobin disorders (including orthopaedic, ophthalmic, renal, pulmonary, endocrine and fertility issues) and their management, in particular the need for comprehensive multi-disciplinary care	FRCpath part 1 FRCpath part 2	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines C11: Managing Long Term Conditions & Promoting Patient Self-Care
Understands the indications for stem cell transplant in haemoglobinopathies			

Understands the use of disease modifying agents in haemoglobin disorders	FRCpath part 1 FRCpath part 2	1	C3: Therapeutics & Safe Prescribing
Aware of the process of transition of care from paediatric to adult services	MSF CbD	1,3,4	C8: Team working & Patient Safety C15: Communication with Colleagues
<b>Skills</b>			
Understands the interacting abnormalities and demonstrates competence in genetic counselling; Counsels patients appropriately on the benefits and risk of screening; Competent in out of hours management of acutely unwell patients	FRCpath part 1 FRCpath part 2 CbD, mini-CEX	1,2,3,4	C5: Decision Making & Clinical Reasoning C6: The Patient as the Central Focus of Care C12: Relationships with Patients & Communication within a Consultation C18: Valid consent C16: Health Promotion & Public Health
Demonstrates competence in taking a history and examination of the patient. Uses appropriate laboratory and radiological investigations to establish a diagnosis	FRCpath part 2 CbD, mini-CEX	1	C1 History Taking C2: Clinical Examination C5: Decision Making & Clinical Reasoning C6: The Patient as the Central Focus of Care
Correctly interprets electrophoresis and HPLC traces Appropriately refers for molecular testing	FRCpath part 1 CbD	1	C5: Decision Making & Clinical Reasoning
Establishes a diagnosis and formulates a management plan of acute complications. Uses analgesia appropriately	FRCpath part 1 FRCpath part 2 CbD	1,3,4	C5: Decision Making & Clinical Reasoning
Appropriately uses transfusions and manages iron overload. Starts iron chelation appropriately	FRCpath part 1 FRCpath part 2 CbD	1,3,4	C3: Therapeutics & Safe Prescribing
Uses and interprets appropriate screening methods for chronic organ damage	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning
Advises patients appropriately about the use and side effects of disease modifying drugs	FRCpath part 1 FRCpath part 2 mini-CEX	1,3,4	C3: Therapeutics & Safe Prescribing C12: Relationships with Patients & communication within a Consultation
<b>Behaviours</b>			
Establishes rapport with and is considerate of the patient and family's cultural and social needs	mini-CEX, MSF	3,4	C12: Relationships with Patients & communication within a Consultation
Exhibits understanding of the impact of haemoglobin disorders on the patient and their family	CbD, MSF	1,3	C11: Managing Long-term Conditions & Promoting Patient Self-Care C12: Relationships with Patients & Communication within a Consultation
Applies laboratory results to patient care	FRCpath part 1 FRCpath part 2 CbD	1	C5: Decision Making & Clinical Reasoning
Works as part of a multi-disciplinary team. Recognises need to refer to other colleagues	CbD, MSF	3	C8: Team working and Patient Safety C15: Communication with Colleagues & Co-

			operation
Demonstrates an awareness of the multi-disciplinary nature of management in these patients	CbD, MSF	3	C15:Communication with Colleagues & Co-operation
Exhibits understanding of the impact of physical & psychosocial factors. Aware and considerate of the impact of cultural issues	CbD, mini-CEX	1,3,4	C6: The Patient as the Central Focus of Care C16: Health Promotion & Public Health

## PH 14 Bone marrow failure syndromes

Competence in the diagnosis and management of patients with bone marrow failure syndromes			
Knowledge	Assessment Methods	GMP	Common Competency
Describe the classification, aetiology, clinical features, natural history and molecular basis of congenital bone marrow failure syndromes, including Fanconi anaemia, Dyskeratosis Congenita, Diamond-Blackfan Anaemia, Severe congenital neutropenia, Schwach-Diamond syndrome, Congenital amegakaryocytic thrombocytopenia.	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Describe the classification, aetiology, clinical features and natural history of acquired bone marrow failure syndromes including aplastic anaemia, paroxysmal nocturnal haemoglobinuria, transient erythroblastopenia and osteopetrosis	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Describe the indications for the use of chemotherapy, immunosuppression, disease modulators, growth factors and haematopoietic progenitor stem cell transplant in the management of bone marrow failure syndromes. Demonstrate awareness of the short and long-term problems following transplantation of FA and DKC, and the need for modified conditioning in such transplants.	FRCpath part 1 FRCpath part 2	1	<b>C3:</b> Therapeutics & Safe Prescribing <b>C21:</b> Evidence & Guidelines
Explain the use of blood product support, the indications for CMV negative or irradiated blood products and define the complications of long term transfusion in these conditions. Describe the principles of iron chelation therapy and the therapeutic options for children receiving long-term blood transfusion programmes. Recognition of the side effects of iron chelation and of the monitoring required.	FRCpath part 1 FRCpath part 2	1	<b>C3:</b> Therapeutics & Safe Prescribing <b>C21:</b> Evidence & Guidelines <b>C5:</b> Decision Making & Clinical Reasoning
Describe the risk of malignancy in congenital bone marrow failure syndromes and the requirement for specific multidisciplinary team management of children with these syndromes.	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines. <b>C11:</b> Managing long term conditions and promoting patient self care
Describe the therapeutic options for the treatment of acquired bone marrow failure syndromes, their outcome and complications, including transfusion,	FRCpath part 1 FRCpath part 2	1	<b>C3:</b> Therapeutics & Safe Prescribing <b>C5:</b> Decision Making & Clinical Reasoning

androgenic steroids, growth factors, monoclonal antibodies and stem cell transplantation.			<b>C21: Evidence &amp; Guidelines</b>
<b>Skills</b>			
Selects and evaluates laboratory methods to reach a diagnosis	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5: Decision Making &amp; Clinical Reasoning</b> <b>C21: Evidence &amp; Guidelines</b>
Evaluates clinical and laboratory results to formulate and practice an appropriate management plan, including counselling for long term complications of specific conditions.	FRCpath part 2 CbD	1	<b>C5: Decision Making &amp; Clinical Reasoning</b> <b>C21: Evidence &amp; Guidelines</b>
Practises appropriate use of blood product transfusion and iron chelation regimens		1,2	<b>C3: Therapeutics &amp; Safe Prescribing</b> <b>C21: Evidence &amp; Guidelines</b>
Select and evaluate appropriate laboratory methods to reach a diagnosis, including appropriate genetic testing, and testing of appropriate testing of family members. Demonstrate awareness of specialised national and international registries, and of national specialised laboratories involved in the diagnosis of bone marrow failure syndromes.	FRCpath part 1 FRCpath part 2 CbD		<b>C5: Decision Making &amp; Clinical Reasoning</b> <b>C21: Evidence &amp; Guidelines</b>
Assess the suitability for stem cell transplant and explain its role	FRCpath part 1 FRCpath part 2 CbD, mini-CEX		<b>C5: Decision Making &amp; Clinical Reasoning</b> <b>C21: Evidence &amp; Guidelines</b>
Identify the complications of transplantation, including infections, graft rejection, graft versus host disease and long term problems	FRCpath part 1 FRCpath part 2 CbD		<b>C5: Decision Making &amp; Clinical Reasoning</b> <b>C21: Evidence &amp; Guidelines</b>
<b>Behaviours</b>			
Relates laboratory results to clinical findings. Outlines the options for treatment	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5: Decision Making &amp; Clinical Reasoning</b>
Exhibits empathy, compassion and respect in delivering diagnosis and management to the patient and family. Recognises the specific age dependent needs of the child.	Mini-CEX, MSF MSF	3	<b>C12: Relationships with patients &amp; Communication within a Consultation</b>
Recognises the impact of chronic disease on the patient and family and its long term management to the patient and family	FRCpath part 1 FRCpath part 2 CbD	1,3	<b>C11: Managing Long Term Conditions &amp; Promotion of Patient Self Care</b>

## PH 15 Myeloproliferative Disorders

<b>Competence in the diagnosis and management of children with myeloproliferative disorders</b>			
<b>Knowledge</b>	<b>Assessment Methods</b>	<b>GMP</b>	<b>Common Competency</b>
Describe the classification, aetiology, clinical features, natural history and molecular basis of paediatric myeloproliferative disorders, including the various haematological conditions associated with Down's syndrome and monosomy 7.	FRCpath part 1 FRCpath part 2	1	<b>C5: Decision Making &amp; Clinical Reasoning</b> <b>C21: Evidence &amp; Guidelines</b>

Outline the laboratory tests used in the diagnosis of myeloproliferative conditions and in the assessment of response to treatment.	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Describe the therapeutic options available for the treatment of myeloproliferative conditions, including cytoreductive treatment and stem cell transplantation.	FRCpath part 1 FRCpath part 2	1	<b>C3:</b> Therapeutics & Safe Prescribing <b>C21:</b> Evidence & Guidelines
<b>Skills</b>			
Selects and evaluates clinical and laboratory methods to achieve a diagnosis and to formulate an appropriate management plan in the setting of a multidisciplinary team.	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines. <b>C11:</b> Managing long term conditions and promoting patient self care
Communicates diagnosis and management options clearly and appropriately to the family and patient.	Mini-CEX	3,4	<b>C12:</b> Relationships with patients & Communication within a Consultation
Interprets laboratory investigations correctly in the monitoring of disease and response to treatment	FRCpath part 1 FRCpath part 2 CbD, Mini-CEX	1	<b>C5:</b> Decision Making & Clinical Reasoning
<b>Behaviour</b>			
Works as part of the multidisciplinary team	MSF	3	<b>C8:</b> Team working and Patient Safety <b>C15:</b> Communication with Colleagues & Co-operation
Consults with colleagues in other relevant specialties	MSF	3	<b>C15:</b> Communication with Colleagues & Co-operation
Exhibits empathy, compassion and respect in delivering diagnosis and management to the patient and family	Mini-CEX, MSF	3	<b>C12:</b> Relationships with Patients & Communication within a Consultation <b>C13:</b> Breaking Bad News

## PH 16 Haematology Relating to Other Paediatric Specialties

<b>Competence in the diagnosis and management of children with haematological manifestations of systemic disease</b>			
<b>Knowledge</b>	<b>Assessment Methods</b>	<b>GMP</b>	<b>Common Competency</b>
Competency in the investigation and management of abnormal haematology arising in patients of other specialties, including single or pancytopenias, myeloproliferation, immunodeficiency, haemostatic disorders.	FRPath Part I FRPath Part 2 CbD Mini-Cex	1	C5 Decision Making and Clinical Reasoning
Describe the causes of pancytopenia and demonstrate awareness of non-haematological causes including hypersplenism, carcinoma, osteopetrosis, lysosomal storage disorders, histiocytic disorders, drugs and infection.	FRPath Part I FRPath Part 2 CbD Mini-Cex	1	C5 Decision Making and Clinical Reasoning
Describe the laboratory investigation of primary and secondary haemophagocytic lymphohistiocytosis, and demonstrate awareness of current treatment options and the need for multi-disciplinary team involvement. Describe the clinical presentation of lysosomal storage disorders and the characteristic bone marrow features of Gaucher disease and Niemann-Pick disease.	FRPath Part I FRPath Part 2 CbD Mini-Cex	1	C5 Decision Making and Clinical Reasoning

Describe the clinical features, diagnosis and management of osteopetrosis, including SCT.			
Demonstrate awareness that anaemia may be the presenting complaint in a wide range of paediatric disorders including chronic diseases such as liver or renal disease, connective tissue diseases, malignancy; coeliac disease and inflammatory bowel disease, poisoning including lead poisoning, psychiatric disorders e.g. anorexia nervosa and bulimia nervosa. Describe the aetiology and pathophysiology of anaemia of chronic diseases including the interpretation of iron studies and the use of hepcidin..	FRPath Parts I and 2	1	C5 Decision Making and Clinical Reasoning
Describe current guidelines for the use of human recombinant erythropoietin.	FRPath Parts I and 2	1	C5 Decision Making and Clinical Reasoning C21 Evidence and Guidelines
Explain the haematological, biochemical and radiological techniques required for the investigation of anaemia in the non- haematological paediatric disorders described above. Describe abnormal biological features of blood and bone marrow in the disorders described above	FRPath Parts I and 2 CbD	1	C5 Decision Making and Clinical Reasoning
Demonstrate awareness of the underlying non-haematological causes in children of leucocytosis, lymphopenia and neutropenia.	FRPath Part I and II, Cbd Mini-Cex	1	C5 Decision Making and Clinical Reasoning
Demonstrate awareness that thrombocytopenia is often secondary to a non-haematological disorder. Describe the congenital infections associated with thrombocytopenia. Describe the presentation and investigation of microangiopathic anaemias including Kasabech Merritt syndrome. Demonstrate awareness of the investigational pathway for neonatal thrombocytopenia.	Mini-Cex CBD	1	C5 Decision Making and Clinical Reasoning
Describe congenital immune deficiencies and and their haematological manifestations, including Wiscott Aldrich Syndrome, Severe Combined Immunodeficiency (SCID), Hyperimmune IgE (Job) Syndrome, Chediak Higashi Syndrome and Chronic Granulomatous Disease. Demonstrate awareness of the investigation pathway for a child presenting with a suspected immunodeficiency.	MRCPC FRPath Part I and II Mini-Cex CbD	1	C5 Decision Making and Clinical Reasoning
<b>Skills</b>			
Selects and interprets investigations appropriately to lead to the correct diagnosis.	FRPath Part I and II, CBD, Mini-Cex	1	C5 Decision Making and Clinical Reasoning
On basis of history, clinical examination and investigation results formulates appropriate management plan	FRPath Part I and II, CBD	1	C1 History taking C2 Clinical Examination C5 Decision Making and Clinical Reasoning
Communicates investigations and diagnosis to parents and children at age appropriate level	Mini-Cex	3,4	C12 Relationships with patients and communication within a consultation
<b>Behaviours</b>			
Exhibits respect and empathy in discussion with patients and carers	Mini-Cex	3	C12 Relationships with patients and communication within a consultation
Uses language appropriate to age of patient in	Mini-Cex	3	C12 Relationships with patients and



explanation			communication within a consultation
Consults colleagues in other relevant specialties and makes referrals appropriately	CbD MSF	1,3	C8 Team working and patient safety C15 Communications with colleagues and co-operation

## PH 18 Blood Transfusion

<b>To acquire sufficient knowledge of blood transfusion practice to provide safe advice to clinical colleagues</b>			
<b>Knowledge</b>	<b>Assessment Methods</b>	<b>GMP</b>	<b>Common Competency</b>
Outline the principles of blood transfusion laboratory practice including: Blood grouping techniques in patients and donors including the identification, significance and management of allo and auto red cell antibodies ( pre- transfusion screening, antenatal screening, haemolytic disease of foetus & newborn, autoimmune haemolytic anaemia). Crossmatching techniques, automation in blood transfusion. Identification, significance and management of HLA, platelet and neutrophil antibodies Use of computers in blood transfusion, including quality, safety and traceability aspects.	FRCpath part 1 FRCpath part 2 CbD	1,2	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines C17: Principles of Medical Ethics & Confidentiality
Describe the basic principles of donor selection and the preparation of blood components including: Donor and patient safety including donor questioning, infections, donor complications Preparation of blood components, including characteristics of: components and fractionated products, pathogen inactivation, apheresis components, new component evaluation Blood products for paediatric and neonatal use, Donation testing: infections, discretionary tests, residual risks Role of Quality System at Blood Service and at hospitals: regulations, accreditation, NEQAS, haemovigilance and role of the consultant haematologist	FRCpath part 1 FRCpath part 2 CbD	1,2	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines C17: Principles of Medical Ethics & Confidentiality C19: Legal Framework For Practice
Describe the principles of clinical blood transfusion practice including: Prevention and management of hazards of blood transfusion: Criteria for sample acceptance, wrong blood/component, immune and infectious complications, platelet refractoriness, IgA deficiency Clinical incident investigation & management Appropriate use of blood products (importance, indications for use, major bleeds, patient information, audit, blood stocks management, emergency blood management plan) Special paediatric requirements including : CMV negative, irradiated, washed, frozen blood products, fetal/neonatal blood products; cross match requirements of haemoglobinopathy patients; stem cell and solid organ	FRCpath part 1 FRCpath part 2 CbD	1,2	C3: Therapeutics & Safe Prescribing C5: Decision Making & Clinical Reasoning C9 Principles of Quality & Safety Improvement C14: Complaints & Medical Error C17: Principles of Medical Ethics & Confidentiality C19: Legal Framework for Practice C21: Evidence & Guidelines C25: Management & NHS Structure

transplants; IgA deficient patients. Alternatives to blood and blood products Exchange transfusion and plasma exchange therapy SHOT and SABRE reporting The role of the Hospital Transfusion committee Organisation of the laboratory and relevant transfusion legislation			
<b>Skills</b>			
Interprets blood transfusion laboratory results competently	FRCpath part 1 FRCpath part 2 CbD, mini-CEX	1	C5: Decision Making & Clinical Reasoning
Practises the appropriate use of blood and blood products including the need for weight-related calculation of volume and rate of transfusion	FRCpath part 1 FRCpath part 2 CbD, mini-CEX	1,2,3	C3: Therapeutics & Safe Prescribing
Manages complications of blood transfusion appropriately during the routine working day and out of hours	FRCpath part 1 FRCpath part 2 CbD	1,2,3	C4: Time Management & decision Making C5: Decision Making & Clinical Reasoning C7: Prioritisation of Patient Safety in Clinical Practice C8: Team Working & Patient Safety
Gives appropriate advice in patients with allo or auto antibodies, including in pregnancy	FRCpath part 1 FRCpath part 2 CbD	1,2,3	C5: Decision Making & Clinical Reasoning
Advises appropriately on the indications for exchange transfusion and plasma exchange	FRCpath part 1 FRCpath part 2 CbD	1,2,3	C3: Therapeutics & Safe Prescribing C5: Decision Making & Clinical Reasoning
<b>Behaviours</b>			
Liaises between laboratory and clinical staff	MSF	3	C8: Team Working & Patient Safety C15: Communication with Colleagues & Co-operation
Recognises the hazards of transfusion of blood products	FRCpath part 1 FRCpath part 2 CbD	1,2,3	C3: Therapeutics & Safe Prescribing C5: Decision Making & Clinical Reasoning
Consults with colleagues in other relevant specialities	MSF	3	C8: Team Working & Patient Safety C15: Communication with Colleagues & Co-operation

## PH 19 Paediatric Oncology

<b>Demonstrate competence in the diagnosis and management of haematological aspects of solid tumours and of the emergency management of oncological disorders.</b>			
<b>Knowledge</b>	<b>Assessment Methods</b>	<b>GMP</b>	<b>Common Competency</b>
Describe the paediatric tumours (benign and malignant), in particular those associated with haematological manifestations and a propensity to spread to the bone marrow, including Neuroblastoma, Rhabdomyosarcoma, Ewing's sarcoma, Hodgkin's disease, Lymphoma.	CBD, mini-CEX	1	C5: Decision Making & Clinical Reasoning C21: Evidence & Guidelines



Classification of the histiocytic disorders- Langerhan's and non- Langerhan's histiocytosis, haemophagocytic lymphohistiocytosis.	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Describe the immediate management of oncological emergencies such as mediastinal obstruction or spinal cord compression.	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
Transfusion of blood products, need for special requirements such as irradiated blood products.	FRCpath part 1 FRCpath part 2	1	<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines
<b>Skills</b>			
Competency in history taking and examination.	FRCpath part 1 FRCpath part 2 CbD	1	<b>C1 :</b> History taking <b>C2 :</b> Clinical examination
Select appropriate laboratory investigations and imaging to establish a diagnosis	FRCpath part 1 FRCpath part 2 CbD	1	<b>C5:</b> Decision Making & Clinical Reasoning
Work as part of a multidisciplinary team to manage the haematological manifestations or complications of the disorder	CbD, mini-CEX		<b>C5:</b> Decision Making & Clinical Reasoning <b>C21:</b> Evidence & Guidelines <b>C3:</b> Therapeutics & Safe Prescribing
<b>Behaviours</b>			
Ability to work within a multidisciplinary team	CbD, mini-CEX		<b>C8 :</b> team working and patient safety <b>C5:</b> Decision Making & Clinical Reasoning