

Entrustable Professional Activities (EPAs)

List of EPAs for Haematology

EPA Title	EPA Entrustment Level to be Attained by Exit
EPA 1: Managing adult patients with haematological conditions in the clinic and ambulatory settings	4b
EPA 2: Managing adult patients with haematological conditions in the Inpatient setting	4b
EPA 3: Providing palliative and supportive care for patients with haematological conditions	4b
EPA 4: Providing a haematology laboratory service	4b
	For blood film, coagulation and general haematology tests reporting
	4a
	Bone marrow reporting
EPA 5: Providing blood transfusion	4b
EPA 6: Providing haematological consultation to other health care providers	4b
EPA 7: Managing acute haematological emergencies	4b

Procedures: Bone marrow aspirate and trephine and intrathecal chemotherapy redesignated as milestones

Entrustment Scale

Entrustment Level	Description
Level 1	Not allowed to practice EPA
Level 2	Allowed to practice EPA only with full supervision With supervisor in the room, either as a co-activity, or providing step-by-step guidance
Level 3	Allowed to practice EPA only under reactive/on-demand supervision 3a. With supervisor distantly available (including by phone or text), all key findings and decisions presented, discussed, and checked by the supervisor before implementation.
	3b. With supervisor distantly available (including by phone or text), selected key findings and decisions discussed and endorsed by the supervisor before implementation.
Level 4	Allowed to practice EPA unsupervised. 4a. With remote review e.g., supervisor receives updates and reports by the end of the day.
	4b. Without review
Level 5	Allowed to supervise others in practice of EPA

HAEMATOLOGY EPA 1

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Title	Managing adult patients with haematological conditions in the clinic and ambulatory settings
Specifications and limitations	1. Gathers and integrates available patient data and engages in sound clinical reasoning to develop an appropriate differential diagnosis and work-up 2. Demonstrates appropriate use of clinical and laboratory tests to establish a diagnosis. 3. Develops a comprehensive management plan, taking into account patient preferences and characteristics. 4. Demonstrates understanding of and follows local and international guidelines and clinical trial protocols. 5. Explains clinical reasoning behind diagnostic and clinical management decisions to patients/families and other colleagues. 6. Provides safe prescription of specialist haematological treatments including chemotherapy and supportive treatments. 7. Places the patient at the centre of all management decisions by engaging in bidirectional communication with patients and relatives (patient and relatives centred care). 8. Assesses the psychosocial needs of the patient and relatives and determining the impact of those needs on the management plan. 9. Coordinates care that involves a large team of providers. 10. Manages uncertainty (on the part of both the Haematologist and the patient and relatives) since some management decisions at times may need to be made in the absence of sufficient evidence. 11. Demonstrates understanding of transitional care from paediatric to adult services. List of haematological conditions provided in Appendix 1 Limitations: Complex care patients (ex-stem cell transplant or palliative / end of life patients), multiply relapsed haematological malignancies, very rare Haematological disorders, Palliative / end of life care patients
EPA Entrustment Level to be Attained by Exit	Level 4b

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Title	Managing adult patients with haematological conditions in the Inpatient setting
Specifications and limitations	1. Gathers and integrates available patient data and applies appropriate clinical reasoning to develop differential diagnoses. 2. Develops a prompt, safe and effective management plan. 3. Places the patient at the centre of all the clinical management decisions; engages in bidirectional communication with the patient and relatives. 4. Appreciates the impact of psychosocial needs of the patient and relatives on the management plan. 5. Coordinates care with a multi-disciplinary team of healthcare providers. 6. Manages uncertainty (on the part of both the haematologist, and the patient and relatives), since certain management decisions may need to be promptly made in the patient's best interests even in the absence of sufficient evidence. List of haematological conditions provided in Appendix 1 Limitations: Complex care patients with multiple complications / co-morbidities, Multiple relapsed haematological malignancies, very rare Haematological disorders, Palliative / end of life care patients
EPA Entrustment Level to be Attained by Exit	Level 4b

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Title	Providing palliative and supportive care for patients with haematological conditions
Specifications and limitations	1. Recognises when palliative care is appropriate in both malignant and non-malignant haematological disorder 2. Identifies patients with limited reversibility of their medical condition and determines ceilings of care, palliative and end of life care needs, in collaboration with the patient, family and carers. 3. Identifies the dying patient and develops an individualised care plan, including anticipatory prescribing at end of life. 4. Manages complex symptom control including pain, nausea. 5. Facilitates referrals and coordinates care with appropriate services across all settings.
	Limitations: Adult Patients only
EPA Entrustment Level to be Attained by Exit	Level 4b

HAEMATOLOGY EPA 4

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Title	Providing a haematology laboratory service
Specifications and limitations	This EPA involves providing a haematology laboratory service, including aspects of investigation and reporting 1. Prepare a complete written report with diagnosis and clinical correlation. 2. Provides appropriate differential diagnoses and recommendation for further investigations using specialist knowledge of interpretation. 3. Able to advise clinicians as to the rational choice, interpretation and limitations of haematological tests. 4. Communicates results effectively to the clinical team and contributes to multi-disciplinary team meetings. 5. Demonstrates clinical leadership and contributes to quality aspects of the laboratory, including risk assessments and mitigations, incident investigation and response to major incidents. 6. Interprets basic internal quality control and external quality assessment reports. 7. Communicates effectively with medical laboratory technologists and works together with them to identify and improve laboratory processes. 8. Follows appropriate safety protocols in the laboratory. List of conditions listed in Appendix 2 Limitations: Nil
EPA Entrustment Level to be Attained by Exit	For blood film, coagulation and general haematology tests reporting: Level 4b Bone marrow reporting: Level 4a

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Title	Providing blood transfusion
Specifications and limitations	1. Select the appropriate blood products 2. Understand the risks associated with transfusion and measures to minimise these risks. 3. Diagnose and manage adverse transfusion reactions 4. Work as part of the laboratory transfusion team and communicate effectively with laboratory and clinical staff 5. Understands regulatory authority reporting of serious transfusion adverse events List of conditions listed in Appendix 3
	Limitations: Nil
EPA Entrustment Level to be Attained by Exit	Level 4b

HAEMATOLOGY EPA 6

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Title	Provide Haematological consultation to other health care providers
Specifications and limitations	1. Establishing and maintaining working relationships with the referring providers / agencies, marked by bi-directional communication. 2. Clarifying and focusing the clinical question to be addressed 3. Gathering essential information from referring physician, organization, or health agency, as well as the patient(s) and relatives. 4. Communicating findings and recommendations to the patient and relatives, and the source of the referral i.e., the requesting provider or health agency 5. Demonstrating content expertise in provision of haematology consultation. 6. Navigating the relationship with the patient / relatives to be either supportive or directive (or some combination of the two) as needed over time. List of conditions listed in Appendix 1
	Limitations: Nil
EPA Entrustment Level to be Attained by Exit	Level 4b

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Title	Managing acute haematological emergencies
Specifications and limitations	1. Demonstrates prompt assessment of haematological emergency. 2. Develop an appropriate diagnostic and management plan, taking into account the urgency required and patient's preferences. 3. Demonstrates safe management of haematological emergency. 4. Display clinical leadership and overall coordination to ensure safe, effective and timely care in the setting of a haematological emergency. 5. Participates effectively in decision making with regards to resuscitation decisions, including decisions not to attempt cardiopulmonary resuscitation, with involvement of patient and family 6. Recognizes need to liaise with other speciality services and refers where appropriate for intensive care. List of conditions listed in Appendix 4
	Limitations: Nil
EPA Entrustment Level to be Attained by Exit	Level 4b

Appendix 1

Presentations	Condition/ Issues
1. Haematological Malignancies	
Abnormal full blood count Abnormal blood film Lymphadenopathy Paraproteins Spinal cord compression Hypercalcaemia Chemotherapy treatment Thrombosis	Awareness of the WHO classification system for haematological Malignancies Acute Myeloid leukaemia Myelodysplastic syndromes Acute Lymphoblastic leukaemia Chronic Myeloid leukaemia Chronic lymphocytic leukaemia Hodgkin lymphoma High grade Non-Hodgkin lymphoma Low grade Non-Hodgkin lymphoma Other Lymphoproliferative disorders Plasma cell dyscrasias: Myeloma Monoclonal gammopathy of uncertain significance (MGUS) Plasmacytomas Amyloid Myeloproliferative neoplasms: Polycythaemia Rubra Vera (PRV) Essential Thrombocythaemia (ET) Myelofibrosis Myelodysplastic/ Myeloproliferative neoplasm overlap syndromes (MDS/MPN) Eosinophil disorders Mast cell disorders Safe prescribing of chemotherapy Informed consent for chemotherapy Recognizing and managing the complications of chemotherapy Understanding of indications for radiotherapy Managing frailty and co-morbidity in patients requiring treatment for haematological malignancies Understand the indications for transplant Understand the role of the MDT Survivorship issues/ latecomplications of chemotherapy Treatment
2. Bone Marrow Failure	
Abnormal full blood count Recurrent infections Bruising/bleeding Lethargy	Congenital bone marrow failure syndromes Aplastic anaemia Paroxysmal Nocturnal haemoglobinuria (PNH) Myelodysplastic syndromes Indications for transplant Iron chelation therapy

	(see also transfusion section and haematological malignancies)
3. Haemostasis and thrombosis	
Significant bruising or bleeding Abnormal coagulation results Abnormal platelet count Family history of bleeding disorder	Haemophilia Von Willebrand's disease Inherited and acquired Platelet disorders including Immune Thrombocytopenia (ITP) Rare coagulation disorders Microangiopathic anaemias: Disseminated intravascular coagulation (DIC) Thrombotic Thrombocytopenic purpura (TTP) Haemolytic uraemic syndrome (HUS) HELLP syndrome Coagulation in Liver disease Understanding of genetics and prenatal diagnosis Antenatal and postnatal care in pregnancies where the mother or baby is affected by a congenital or acquired bleeding disorder
Anticoagulation	Indications for anticoagulation Anticoagulant drugs Antiplatelet drugs Management of over-anticoagulation Management of anticoagulation for invasive procedures
Thrombosis	Thrombosis Risk factors for thrombosis plus advising patients with a history of venous thromboembolism Thrombosis at unusual sites Management of thrombosis in pregnancy Thromboprophylaxis Limitations of thrombophilia screening Acquired conditions – antiphospholipid syndrome, Paroxysmal nocturnal haemoglobinuria, Heparin induced thrombocytopenia (HIT)
4. General Haematology	
Anaemia Bruising/ bleeding Iron overload Low platelets Haematological disorders in pregnancy Critical care/ acutely unwell patients	Anaemia of chronic disease Anaemia of renal impairment Haemolytic anaemia – inherited and acquired Immune thrombocytopenic purpura (ITP) B12 and folate deficiency Iron deficiency Haemochromatosis and iron overload disorders Investigation and management of neutropenia Investigation and management of thrombocytosis Haematology in systemic disease Haematology in infectious disease – e.g. HIV, EBV, CMV, malaria
5. Haemoglobinopathy	
Complications of sickle cell disease – acutely unwell	Diagnosis of sickle cell, thalassaemia and other haemoglobinopathies

patients and chronic complications Anaemia Iron overload Pregnancy/ antenatal screening	Disease modifying drugs Understand the principles of management of chronic transfusion programme Iron chelation therapy Understand antenatal screening Managing pregnancy in patients with haemoglobinopathy
6. Palliative Care	
End of life Complex symptoms Psychological distress Care of the dying patient	Advanced malignancy End stage organ failure Frailty Multiple co-morbidity Managing complex symptoms Setting limits of care Interface between primary and secondary care Psychological distress

Appendix 2: Laboratory Haematology

Presentations	Condition/ Issues
Interpretation of haematology laboratory results Laboratory management and quality control Safe laboratory practice	Interpretation and reporting of : • Full blood count • Blood film • Standard coagulation tests • Tests for haemolysis • Bone marrow aspirate and trephine • Specialist coagulation tests – factor assays, platelet function tests, von Willebrand screen, lupus screen, • Thrombophilia screening • Haemoglobinopathy screens Understanding of: • Flow cytometry • Immunohistochemistry • Cytogenetics • Molecular tests • Minimal residual disease assessment Knowledge of laboratory quality assurance systems Knowledge of safe laboratory practice

Appendix 3: Blood Transfusion

Presentations	Condition/ Issues
Major Haemorrhage	Transfusion safety: donor selection, patient identification
Acute Anaemia	Investigation and management of complications of transfusion, including transfusion reactions, transfusion-transmitted infections, pulmonary complications
Thrombocytopenia	Management of major haemorrhage
Chronic anaemia requiring transfusion support	Patient blood management (including patient information and consent): Selection and issue of blood components (including special components e.g. granulocytes)
Haemoglobinopathies	Special requirements – irradiated, washed, HLA matched
Alloimmunisation due to blood transfusion or pregnancy	Identification and management of clinically significant red cell antigen and antibodies
Transfusion safety	Alloantibodies in pregnancy, Rh disease of the new born (use of anti-D), NAITP and intrauterine transfusion
Patients with special requirements	Transfusion in pregnancy
	Selection of components
	Therapeutic apheresis, stem cell collection and exchange transfusion
	Alternatives to blood transfusion
	Laboratory quality assurance

Appendix 4: Haematological Emergency

Presentations	Condition/ Issues
Sepsis	Neutropenic sepsis
Pain	Spinal cord compression
Confusion	Tumour lysis syndrome
Hypoxia	Sickle cell crisis
Neurological symptoms	Hyperviscosity syndrome
Haemorrhage	Leukostasis
	Hypercalcaemia of malignancy
	Transfusion reactions
	Major Haemorrhage
	Thrombotic Thrombocytopenic
	Purpura (TTP)