



EUROPEAN
HEMATOLOGY
ASSOCIATION

EUROPEAN HEMATOLOGY CURRICULUM

Name

Date of Birth

Institute

Country

Foreword

March 2017 sees the launch of the newest version of the EHA Hematology Curriculum and its associated self-assessment tool. Ever since the publication of the first version in 2006, the Curriculum has been the backbone of EHA's educational activities. It has been unique in outlining the topics hematologists should be familiar with and the depth of knowledge that is expected for each topic. No less original was the method by which it was generated: input was obtained from 27 National Hematology Societies in Europe and the final document was endorsed by all these societies, indicating how important such a document is perceived by those engaged in training hematologists. In 2012, the original paper version was revised and improved to produce an online Curriculum self-assessment tool, thus greatly improving its accessibility and interactive utility.

The considerable developments in hematology since then and the perceived value of the Curriculum have led to the development of a third version of the Curriculum. This new version, revised by a panel of 16 European experts contains an update of technology and factual knowledge, including novel diagnostic methods and treatment modalities. Definitions of competence levels have also been revised to reflect the different disciplines encompassed in hematology. In addition, each section and subsection will have links to selected educational material identified by expert members of the Editorial Board.

The utility of the Curriculum self-assessment tool is not only to outline hematology topics but also to serve as a training tool, facilitating the identification of gaps in knowledge and enhancing the quality of hematology training, thereby contributing to better patient care. Welcome to Version 3 of the Curriculum Passport! We hope you find this new tool useful whatever the stage of your training.

Eva Hellström-Lindberg

Chair, EHA Curriculum Update Group
Co-Chair, EHA Curriculum Update Group

António Medina Almeida

Chair, EHA Curriculum Committee

I) Recommended length of training

Automatic recognition of professional qualifications across EU Member States, based on enhanced and harmonized minimum training requirements, is of crucial importance for the mobility of hematology professionals and, ultimately, for safeguarding the quality and safety of patient care. Given the wide scope of the discipline of hematology, as described in the Hematology Curriculum, EHA recommends a minimum training requirement for Hematology of five years, or three years when previous training encompassed the equivalent of at least two years in internal medicine.

II) Structure of the Curriculum

The Curriculum is composed of eight main sections divided into subsections fitting into one of these categories:

- Clinical skills
- Laboratory skills
- Competences related to regulations and principles

Each one of these sections is composed of topics in hematology that are assigned a recommended competence level according to endorsed European standards.

III) Instructions to undertake the self-assessment

In order to complete the self-assessment, work through each section, select the level that most closely represents your current level and enter your responses.

You will be able to see the recommended level of each topic and compare them against your responses, and in doing so identify your strong points of knowledge in hematology as well as learning opportunities in the topics wherein you need to enhance your skills.

In the online Curriculum, you will be referred to learning materials (articles, webcasts, etc.) in the EHA Learning Center which will provide you with content in the specific topic(s) you are tackling in order to bridge the gap between your current competence level and the recommended one according to European standards.

Levels descriptor

Level 1

I am confident I can:

Clinical skills (patient management and treatment)

- Describe the clinical features and epidemiology of a condition OR indications for a specific treatment/procedure OR appropriateness/utility of a test
- Recognize a patient who may have this condition OR require this treatment OR benefit from this test

Laboratory skills

- Recognize the appropriateness and utility of a specific test for diagnosing and follow-up of specific hematological conditions

Competences related to regulations and principles

- Identify applicable regulations OR principles

Level 2

I am confident I can:

Clinical skills (patient management and treatment)

- Describe the pathogenesis
- Identify clinical features and investigations required to diagnose condition and interpret test results correctly
- Describe prognosis
- Identify correct referral routes OR initiate appropriate treatment (according to established protocol)
- Identify the need for and establish urgent consultation with subspecialist (particularly if the condition has potentially life-threatening debut symptoms)

Laboratory skills

- Choose/order appropriate test(s) for a specific patient, taking into account:
 - o indications
 - o accuracy and limitations
 - o what is entailed for the patient in performing the test
- Interpret results for a specific patient

Competences related to regulations and principles

- Apply this regulation/principle relevantly and appropriately within my own clinical work

Level 3

I am confident I can:

Clinical skills (patient management and treatment)

- Decide and manage first line treatment
- Identify treatment failure and need for second-line management
- Identify when there is a need for, and deliver, genetic counselling
- Seek out and integrate new knowledge and concepts in relation to condition/treatment

Laboratory skills

- Create/issue an interpretative report of test results
- Select/justify tests according to their cost-effectiveness

Competences related to regulations and principles

- Explain regulation/principle in appropriate language to a non-specialist audience (patient or student/trainee)
- Seek out and integrate new knowledge and concepts in relation to regulation/principle
- Recognize and plan how to improve own limitations, and demonstrate improvement

1. Clinical hematology: Benign disorders

1A: Red cell and iron disorders

The trainee has received training in:

	no level	level 1	level 2	level 3
a Anemias due to deficiency (including iron, B12, folate)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Anemia of chronic disease	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Anemia due to toxic exposure	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
d Pure red cell aplasia	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
e Thalassemia including hemoglobin E disorders	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f Sickle cell disease	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g Other hemoglobinopathies	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
h Red blood cell membrane and enzyme disorders (e.g. spherocytosis and G6PD deficiency)	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
i Acquired immune hemolytic anemias	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j Acquired non-immune hemolytic anemias	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
k Other congenital anemias (congenital dyserythropoietic anemia, sideroblastic anemia)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
l Erythrocytosis (other than polycythemia vera)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m Primary hemochromatosis	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n Secondary hemochromatosis	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o Porphyria and other rare metabolic disorders (e.g. Gaucher disease, methemoglobinemia)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

1B: Bone marrow failure

The trainee has received training in:

	no level	level 1	level 2	level 3
a Acquired aplastic anemia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Paroxysmal nocturnal hemoglobinuria	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Fanconi's anemia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Other inherited bone marrow failure syndromes (e.g. Blackfan-Diamond, dyskeratosis congenital, telomere diseases)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Idiopathic cytopenia of undetermined significance (ICUS)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1C: Non-malignant white blood cell disorders

The trainee has received training in:

	no level	level 1	level 2	level 3
a Granulocyte dysfunction disorders	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Congenital neutropenia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Acquired neutropenia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Lymphopenia and immune deficiency syndromes	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Hemophagocytic lymphohistiocytosis	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f Secondary leukocytosis	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g Eosinophilia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1D: Platelet disorders and angiopathies

The trainee has received training in:

	no level	level 1	level 2	level 3
a Immune thrombocytopenia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Thrombotic microangiopathies (e.g. thrombotic thrombocytopenic purpura)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Heparin-induced thrombocytopenia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Thrombocytopenia in pregnancy	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Disorders with telangiectasia (e.g. Rendu-Osler-Weber disease) (For other platelet disorders see section Coagulation)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1E: Consultative hematology

The trainee has received training in:

	no level	level 1	level 2	level 3
a Hematological manifestations of non-hematological disorders	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Hematological manifestations of congenital metabolic disorders	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Hematological variations and abnormalities in pregnancy	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Neonatal hematological variations and abnormalities	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Hematological manifestations in HIV and other infectious diseases	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f Hyposplenism and hypersplenism	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Signatures to be given after the completion of section 1

Date: Date: Date:

Mentor's signature

Trainee's signature

Head of Department's signature

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Institute and department

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2. Clinical hematology: Myeloid malignancies

2A: Myeloproliferative and myelodysplastic neoplasms

The trainee has received training in:

	no level	level 1	level 2	level 3
a Chronic myeloid leukemia, BCR-ABL1-positive	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Polycythemia vera	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Primary myelofibrosis	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Essential thrombocythemia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Mastocytosis	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f Myelodysplastic/myeloproliferative neoplasms	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g Myelodysplastic syndromes	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h Other myeloproliferative and myelodysplastic disorders in adults	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2B: Acute myeloid leukemia (AML) and leukemias of ambiguous lineage

The trainee has received training in:

	no level	level 1	level 2	level 3
a AML with recurrent genetic abnormalities	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b AML with MDS-related changes	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Therapy-related AML and MDS	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Other AML (including genetic predisposition syndromes)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Acute leukemia of ambiguous lineage	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2C: Pediatric myeloid disorders

The trainee has received training in:

no level level 1 level 2 level 3

a Myeloid proliferations related to Down syndrome	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Juvenile myelomonocytic leukemia (JMML)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Childhood myelodysplastic syndromes	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d AML	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Signatures to be given after the completion of section 2

Date: Date: Date:

Mentor's signature

Trainee's signature

Head of Department's signature

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Institute and department

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3. Clinical hematology: Lymphoid malignancies and plasma cell disorders

3A: B-cell neoplasms and B-cell disorders

The trainee has received training in:

	no level	level 1	level 2	level 3
a B lymphoblastic leukemia/lymphoma	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Diffuse large B-cell lymphoma	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Burkitt 's lymphoma	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
d Rare aggressive B-cell lymphomas	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
e Mantle cell lymphoma	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
f Follicular lymphoma	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
g Other indolent B-cell lymphomas (e.g. lymphoplasmacytic lymphoma, hairy cell leukemia)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
h Marginal zone lymphomas	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
i Monoclonal B-cell lymphocytosis (MBL)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
j Chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

3B: T-cell lymphomas and NK-cell neoplasms

The trainee has received training in:

	no level	level 1	level 2	level 3
a T lymphoblastic leukemia/lymphoma	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
b Common T-cell lymphomas	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
c Rare T- and NK-cell lymphomas	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

3C: Hodgkin lymphoma

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | |
|----------------------------------|---|-----------------------|-----------------------|----------------------------------|
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| a | Classical Hodgkin lymphoma | | | |
| <hr/> | | | | |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| b | Nodular lymphocyte predominant Hodgkin lymphoma | | | |

3D: Other special entities

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | |
|----------------------------------|--|----------------------------------|-----------------------|-----------------------|
| <input checked="" type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| a | Lymphoma in immune deficient patients (including post-transplant lymphoproliferative disorder (PTLD), HIV-associated lymphoma) | | | |
| <hr/> | | | | |
| <input checked="" type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b | Cutaneous lymphoma | | | |
| <hr/> | | | | |
| <input checked="" type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c | Primary CNS lymphoma | | | |
| <hr/> | | | | |
| <input checked="" type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d | Histiocytic and dendritic cell neoplasms | | | |
| <hr/> | | | | |
| <input checked="" type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e | Castleman disease | | | |

3E: Plasma cell neoplasms

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | |
|----------------------------------|--|----------------------------------|-----------------------|----------------------------------|
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| a | Monoclonal gammopathy of undetermined significance (MGUS) | | | |
| <hr/> | | | | |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| b | Solitary plasmacytoma | | | |
| <hr/> | | | | |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| c | Plasma cell myeloma (multiple myeloma) | | | |
| <hr/> | | | | |
| <input checked="" type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d | Monoclonal immunoglobulin deposition diseases (e.g. amyloidosis) | | | |

3F: Pediatric lymphoid malignancies

The trainee has received training in:

no level level 1 level 2 level 3

a Acute lymphoblastic leukemia (B or T)



b Pediatric lymphoma



Signatures to be given after the completion of section 3

Date: Date: Date:

Mentor's signature

Trainee's signature

Head of Department's signature

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Institute and department

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4. Treatment of hematological disorders

4A: Principles of treatment

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | | |
|----------|---|----------------------------------|-----------------------|-----------------------|-----------------------|
| a | Drug therapy including targeted drugs: mechanisms of action, pharmacology and drug resistance | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b | Short and long term complications of chemotherapy and radiotherapy | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c | Hematological malignancies in pregnancy | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4B: Stem cell transplantation and other cellular therapies

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | | |
|----------|--|----------------------------------|-----------------------|-----------------------|-----------------------|
| a | Indication for autologous stem cell transplantation | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b | Indication for allogeneic stem cell transplantation | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c | Mobilization, collection and manipulation of hematopoietic stem cells | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d | Criteria for selection of intensity for the preparative regimens | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e | Identification and selection of stem cell donor | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f | Acute and chronic graft-versus-host disease | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g | Pulmonary complications, veno-occlusive disease of the liver, hemorrhagic cystitis and other complications | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h | Post-transplant monitoring | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| i | Late complications (including long term follow-up) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| j | Indication for specific and gene-modified cell therapy | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4C: Infectious complications

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | | |
|------------------------------------|---|----------------------------------|-----------------------|-----------------------|-----------------------|
| <input checked="" type="radio"/> a | Neutropenic fever (including growth factors) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input checked="" type="radio"/> b | Bacterial infection | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input checked="" type="radio"/> c | Fungal disease | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input checked="" type="radio"/> d | Cytomegalovirus (CMV)/Epstein-Barr virus (EBV), herpes, hepatitis and other viral infections) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4D: Supportive and emergency care

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | | |
|------------------------------------|---|----------------------------------|-----------------------|-----------------------|-----------------------|
| <input checked="" type="radio"/> a | Hyperleukocytosis, hyperviscosity, cytokine release syndrome and tumor lysis syndrome | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input checked="" type="radio"/> b | Rare complications (spinal cord compression and other neurological and psychiatric disturbances, superior vena cava syndrome) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input checked="" type="radio"/> c | Nausea and pain management | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input checked="" type="radio"/> d | Nutrition | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4E: Pharmacology and pharmacovigilance

The trainee has received training in:

no level level 1 level 2 level 3

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|------------------------------------|-----------------------------------|----------------------------------|-----------------------|-----------------------|-----------------------|
| <input checked="" type="radio"/> a | Pharmacovigilance | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input checked="" type="radio"/> b | Adverse event management | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input checked="" type="radio"/> c | Drug interactions | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input checked="" type="radio"/> d | Critical appraisal of biosimilars | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Signatures to be given after the completion of section 4

Date: Date: Date:

Mentor's signature

Trainee's signature

Head of Department's signature

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Institute and department

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5. Laboratory diagnosis

5A: Good laboratory practice

The trainee has received training in:

	no level	level 1	level 2	level 3
a Principles of laboratory management and organization	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Laboratory quality management and accreditation/certification (including internal and external quality control)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Hazards and safety	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Reference ranges of laboratory values, with relevance to gender, age and ethnicity	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Integrating diagnosis from laboratory investigations and relating them to the clinical picture	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5B: Blood count and morphology

The trainee has received training in:

	no level	level 1	level 2	level 3
a Automated full blood count with white blood cell differential	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Performing aspiration and biopsy of bone marrow, lumbar puncture and lymph node fine needle aspiration	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Preparation, fixation, staining, reading and reporting of peripheral blood films and bone marrow aspirates, and trephine imprints	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Cytochemical, special stains and immunostaining of blood and bone marrow films in hematological conditions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Review and interpretation of trephine, lymph node and other relevant tissue biopsy specimens together with a pathologist	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f Pseudo thrombocytopenia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5C: Other laboratory techniques

The trainee has received training in:

no level level 1 level 2 level 3

a	Hemoglobin analyses (e.g. hemoglobin electrophoresis and high-performance liquid chromatography)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b	Other red blood cell laboratory techniques (e.g. sickling test, oxygen affinity, red blood cell enzyme assays - pyruvate kinase, glucose-6-phosphate dehydrogenase)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c	Laboratory work-up on iron metabolism and vitamin deficiencies	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d	Detection of immunoglobulin abnormalities	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e	Progenitor quantification in semi-solid culture conditions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5D: Immunophenotyping by flow cytometry

The trainee has received training in:

no level level 1 level 2 level 3

a	Clinical applications of flow cytometry for diagnosis, classification, prognosis, evaluation of minimal residual disease and stem cell quantification	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b	Pre-analytical and analytical phase of flow cytometry of blood, bone marrow, and body fluids (e.g. specimen processing, surface vs. intracytoplasmic staining, acquiring data, gating strategies)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c	Essential cellular markers, disease-oriented antibody panels applied in hematological conditions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d	Data analysis and interpretation (e.g. determination of the lineage of cells of interest, clonality, stem cell quantification, telomere length and specific subtypes of hematological condition)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5E: Genetics and molecular biology

The trainee has received training in:

	no level	level 1	level 2	level 3
a Clinical applications of these techniques for diagnosis, classification, prognosis, minimal residual disease evaluation of hematological disorders	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Conventional cytogenetic analysis, chromosome breakage and fluorescence in situ hybridization	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Polymerase chain reactions for the detection of gene mutations, fusion genes, clonality assessment, and gene expression	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Other techniques for detection of copy number variations and gene polymorphisms	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Other techniques for detection and quantification of recurrent mutations	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f Other techniques for gene discovery and expression	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5F: Coagulation

The trainee has received training in:

	no level	level 1	level 2	level 3
a Techniques for assessing coagulation and platelets	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Assays for inhibitors	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Assays for monitoring anticoagulants	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5G: Immunohematology

The trainee has received training in:

	no level	level 1	level 2	level 3
a Red cell typing and allocation	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Minor red cell, platelet and neutrophil antigens	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Laboratory diagnosis of alloimmune and autoimmune cytopenias	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Signatures to be given after the completion of section 5

Date: Date: Date:

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6. Thrombosis and hemostasis

6A: Acquired bleeding disorders

The trainee has received training in:

	no level	level 1	level 2	level 3
a Massive bleeding in obstetrics, trauma and surgery	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Disseminated intravascular coagulation (DIC)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Bleeding associated with renal and liver disease	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Bleeding related to anticoagulants and antithrombotic therapy	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Acquired bleeding disorders in adults (inhibitors to factor VIII and von Willebrand factor)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f Acquired bleeding disorders in children	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g Adverse effects of treatment used in acute bleeding (blood products, pro-hemostatic drugs)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6B: Congenital bleeding disorders

The trainee has received training in:

	no level	level 1	level 2	level 3
a Hemophilia A & B	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Von Willebrand disease	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Other clotting factor disorders	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Considerations in carriers of hemophilia in relation to pregnancy and management of neonates with hemophilia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Congenital platelet disorders	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f Safety of treatment with blood products and factor concentrates	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6C: Thrombotic disorders

The trainee has received training in:

no level level 1 level 2 level 3

a Diagnosis and treatment of venous thromboembolism	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Anticoagulant and thrombolytic therapy in other medical conditions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Thrombophilia (congenital and acquired)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Treatment and prophylaxis of venous thromboembolism in pregnancy	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Specific therapy in thrombotic disorders (e.g. caval filters)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f Thrombosis in children, including purpura fulminans	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Signatures to be given after the completion of section 6

Date: Date: Date:

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Head of Department's signature

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Institute and department

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7. Transfusion medicine

7A: Blood donation

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | |
|--|----------------------------------|-----------------------|-----------------------|-----------------------|
| a Selection of blood donors | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b Epidemiology and screening for blood borne infections | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c Blood collection procedures | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7B: Clinical use of blood components

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | |
|---|----------------------------------|-----------------------|-----------------------|-----------------------|
| a Indication, choice and application of blood components | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b Use of blood products and alternatives in medical patients (e.g. liver, renal, cardiac disease, hematological) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c Use of blood products and alternatives in surgical and obstetric patients (e.g. trauma, cardiac surgery) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d Use of blood products and alternatives in fetal, neonatal and pediatric patients | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e Blood alternatives. Management of patients who refuse blood transfusion. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f Transfusion reactions and complications, including hemovigilance | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7C: Specific techniques

The trainee has received training in:

no level level 1 level 2 level 3

- | | | | | |
|--|----------------------------------|-----------------------|-----------------------|-----------------------|
| a Indications and complications of apheresis | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b Indications and complications of therapeutic phlebotomy | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Signatures to be given after the completion of section 7

Date: Date: Date:

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8. General skills

8A: Basic biological concepts

The trainee has received training in:

no level level 1 level 2 level 3

a	Hematopoiesis and stem cell biology	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b	Chromosome and gene structure	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c	The role of deoxyribonucleic acid (DNA), ribonucleic acid (RNA) and proteins in normal cellular processes	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d	Basic concepts of transcription and translation, epigenetic regulation, RNA splicing, signal transduction, cell cycle regulation and apoptosis and methods of investigation	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e	Mechanisms in hemostasis	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8B: Evidence-based medicine

The trainee has received training in:

no level level 1 level 2 level 3

a	Fundamental principles of evidence-based medicine	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b	Critical appraisal of scientific literature including statistical methods	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c	Strategic and economic implications of combining drugs and clinical biomarkers	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8C: Good medical practice and clinical trials

The trainee has received training in:

	no level	level 1	level 2	level 3
a Multidisciplinary decision-making	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Clinical trial-related international and local guidelines and legislation (good clinical practice)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Obtaining informed consent in clinical trials and in routine daily medical practice	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Methods for assessing patient reported outcomes including quality of life	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e The impact of age on patient management (geriatric/co-morbidity assessment) rephrased	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8D: Ethics and law

The trainee has received training in:

	no level	level 1	level 2	level 3
a Basic principles of medical ethics (including HELSINKI DECLARATION)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Functions of the Ethics Committee	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c National regulations on how to manage a patient with reduced autonomy	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Regulations concerning the use of human cells and tissues (bio-banking)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Basic principles of health economics and cost-effectiveness	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f European and national directives on patient rights	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g Definition and disclosure of conflict of interest	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8E: Communication skills and psychosocial issues

The trainee has received training in:

no level level 1 level 2 level 3

a Communication with patients	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Communication with patients' relatives and cohabitants	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c Communication within a multi-disciplinary team	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d Psychosocial assessment	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e Taking a history and physical examination directed at hematological diseases, e.g. bleeding disorders, inherited malignancies, etc.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8F: Palliative care and End-of-life

The trainee has received training in:

no level level 1 level 2 level 3

a Palliative care decisions	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b Management and decision-making related to end-of-life situations	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c National legal requirements regarding euthanasia	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Signatures to be given after the completion of section 8

Date: Date: Date:

Mentor's signature

Trainee's signature

Head of Department's signature

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Institute and department

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Appendices

APPENDIX I. EHA Curriculum Committee:

Antonio Almeida	Instituto Português de Oncologia de Lisboa - IPO, Portugal
Cheng Hock Toh	Royal Liverpool University Hospital, United Kingdom
Cem Ar	Istanbul University, Turkey
Margarita Guenova	National Specialised University Hospital for Active Treatment of Hematological Diseases, Bulgaria
Eva Hellström-Lindberg	Karolinska University Hospital Huddinge, Sweden
Maria Liljeholm	Umeå University, Sweden
Marielle Wondergem	VUmc, the Netherlands
Tomás Navarro	Catalan Institute of Oncology, Spain

APPENDIX II. Curriculum Update Working Group:

Member	Section	Role	Country
Mark Layton	1	hematologist	UK
Antonio Almeida	1	hematologist, Chair Curriculum Committee	Portugal
Eva Hellström Lindberg	2	hematologist, Chair Curriculum update group	Sweden
Gert Ossenkoppele	2	hematologist	The Netherlands
Marek Trneny	3	hematologist	Czech Republic
Tomas Navarro	3	hematologist	Spain
Nicolaus Kröger	4	hematologist	Germany
Michaela Fontenay	5	hematologist	Germany
Margarita Guenova	5	hematologist	Bulgaria
Birgitta Sander	5	patologist	Sweden
Paul Kyrle	6	hematologist	Austria
Cheng Hock Toh	6	hematologist/coagulation specialist	UK
Daniele Prati	7	transfusion medicine specialist	Italy
Charis Matsouka	7	hematologist	Greece
Hamdi Akan	8	hematologist	Turkey
Dominque Bron	8	hematologist	Belgium
Janet Strivens	all	educational advisor	UK

APPENDIX III. The European Hematology Curriculum has been endorsed by the:

Austrian Society of Hematology and Oncology
Armenian Association of Hematology and Transfusiology
Albania Association of Haematology
Association of Hematology and Transfusion of Bosnia and Herzegovina
Belgian Hematology Society
Bulgarian Society of Clinical and Transfusion Hematology
Cyprus Society of Haematology
Czech Hematology Society (a member of the Czech Medical Society)
Danish Society of Hematology
Dutch Society of Hematology
Estonian Society of Hematology
Finnish Association of Hematology
French Society of Hematology
Georgian Association of Hematology and Transfusiology
German Society of Hematology and Oncology
Haematology Association of Ireland
Hellenic Society of Hematology
Hematology Society of Iceland
Hungarian Society of Hematology
Israeli Society of Hematology and Blood Transfusion
Italian Society of Hematology (SIE)
Latvian Hematology Society
Lithuanian Society of Hematology
Luxembourg Society of Oncology
Macedonian Society of Hematology
Norwegian Society of Hematology
Polish Society of Hematology and Transfusion Medicine
Portuguese Society of Hematology
Romanian Society of Hematology
Scientific and Practical Society of Hematologists and Transfusiologists from the Republic of Moldova
Slovak Society of Hematology and Transfusiology of Slovak Medical Association
Slovenian Society of Hematology
Spanish Society of Hematology and Hemotherapy
Swedish Society of Hematology
Swiss Society of Hematology
The Haematological Section of Serbian Medical
Turkish Society of Hematology
Ukrainian Hematology Association