Purpose of the exam

The exam is designed to evaluate the knowledge, diagnostic reasoning, and clinical judgment skills expected of the certified hematologist in the broad domain of the discipline. The ability to make appropriate diagnostic and management decisions that have important consequences for patients will be assessed. The exam may require recognition of common as well as rare clinical problems for which patients may consult a certified hematologist.

Exam content

Exam content is determined by a pre-established blueprint, or table of specifications. The blueprint is developed by ABIM and is reviewed annually and updated as needed for currency. Trainees, training program directors, and certified practitioners in the discipline are surveyed periodically to provide feedback and inform the blueprinting process.

The primary medical content categories of the blueprint are shown below, with the percentage assigned to each for a typical exam:

<table>
<thead>
<tr>
<th>Medical Content Category</th>
<th>% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hematopoietic System</td>
<td>25%</td>
</tr>
<tr>
<td>Coagulation</td>
<td>27%</td>
</tr>
<tr>
<td>Hematologic Neoplastic Disorders</td>
<td>35%</td>
</tr>
<tr>
<td>Transfusion Medicine</td>
<td>5%</td>
</tr>
<tr>
<td>Cellular Therapy</td>
<td>8%</td>
</tr>
</tbody>
</table>

Exam questions in the content areas above may also address topics related to pregnancy and contraception that are important to the practice of hematology (approximately 4% of the exam).
ABIM is committed to working toward health equity and believes that board-certified physicians should have an understanding of health care disparities. Therefore, health equity content that is clinically important to each discipline will be included in assessments, and the use of gender, race, and ethnicity identifiers will be re-evaluated.

Exam format

The exam is composed of up to 240 single-best-answer multiple-choice questions, of which approximately 40 are new questions that do not count in the examinee’s score. Most questions describe patient scenarios and ask about the work done (that is, tasks performed) by physicians in the course of practice:

- Making a diagnosis
- Ordering and interpreting results of tests
- Recommending treatment or other patient care
- Assessing risk, determining prognosis, and applying principles from epidemiologic studies
- Understanding the underlying pathophysiology of disease and basic science knowledge applicable to patient care

Clinical information presented may include patient photographs, radiographs, photomicrographs, and other media to illustrate relevant patient findings. Learn more information on how exams are developed.

A tutorial including examples of ABIM exam question format can be found at http://www.abim.org/certification/exam-information/hematology/exam-tutorial.aspx.

The blueprint can be expanded for additional detail as shown below. Each of the medical content categories is listed there, and below each major category are the content subsections and specific topics that may appear in the exam. Please note: actual exam content may vary.

<table>
<thead>
<tr>
<th>Hematopoietic System</th>
<th>25% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal hematopoiesis</td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Disorders of red blood cells or iron</td>
<td>21%</td>
</tr>
<tr>
<td>Red blood cell production disorders</td>
<td>4%</td>
</tr>
<tr>
<td>Nutritional deficiencies</td>
<td></td>
</tr>
</tbody>
</table>
Anemia of chronic inflammation
Red cell aplasia and hypoplasia
Sideroblastic anemia

Red blood cell destruction disorders

15%
Thalassemias
  Alpha thalassemia
  Beta thalassemia
  Hemoglobin E disorders

Sickle cell disorders

4.5%
  Sickle cell trait
  Sickle cell anemia (hemoglobin SS disease)
  Hemoglobin SC disease
  Sickle cell-β⁰ and sickle cell-β⁺-thalassemias

Non-sickle hemoglobinopathies
Autoimmune hemolytic anemias (AIHA)
  Warm antibody-mediated autoimmune hemolytic anemia
  Cold antibody-mediated autoimmune hemolytic anemia
  Drug-induced hemolysis

Metabolic abnormalities and enzyme deficiency hemolytic anemias
  Oxidant hemolysis, including glucose-6-phosphate dehydrogenase (G6PD) deficiency
  Pyruvate kinase deficiency and other metabolic deficiencies

Paroxysmal nocturnal hemoglobinuria
Red blood cell membrane disorders
Microangiopathic hemolytic anemias
  (other than TTP, HUS, or DIC)
Non-autoimmune, acquired hemolytic anemias
  Erythrocytosis
  Porphyrias
  Hemochromatosis

White blood cell disorders

<2%
  Granulocyte disorders
    Quantitative granulocyte disorders
    Qualitative granulocyte disorders
  Lymphocytopenia and lymphocyte dysfunction syndromes
  Leukocytosis
  Eosinophilia
  Hemophagocytic syndromes
Bone marrow failure syndromes

Aplastic anemia
  Inherited aplastic anemia
  Acquired aplastic anemia
Pancytopenia

Coagulation

Platelet and megakaryocyte disorders

Inherited disorders of platelet function
Acquired disorders of platelet function
  Drug-induced disorders
  Non-drug-induced disorders
Thrombocytopenia
  Inherited thrombocytopenia
  Acquired thrombocytopenia
    Immune thrombocytopenic purpura (ITP)
    Drug-induced thrombocytopenia
    Thrombotic thrombocytopenic purpura (TTP)
    Hemolytic uremic syndrome (HUS)
    Thrombocytopenia secondary to liver disease and splenic disorders

Thrombocytosis

Hemostasis

Molecular basis of coagulation and hemostatic agents
  Normal hemostasis
  Laboratory evaluation
  Hemostatic drugs
Inherited bleeding disorders (non-platelet)
  Von Willebrand disease
    Types 1, 2A, 2M, 2N, and 3
    Type 2B
    Modifiers of von Willebrand factor levels
  Hemophilia A and B
    Hemophilia A
    Hemophilia B
  Factor XI deficiency
  Factor deficiencies other than factor XI
Inherited vascular abnormalities
Acquired bleeding disorders (non-platelet)
  Factor inhibitors
Disseminated intravascular coagulation (DIC)
Acquired vascular abnormalities
Secondary acquired factor deficiencies

**Thrombosis**

Molecular basis of natural anticoagulants, fibrinolytic pathway, and anticoagulant therapy
Normal anticoagulant and fibrinolytic mechanisms
Laboratory evaluation
Anticoagulant drugs

Thrombotic disorders

Inherited thrombotic disorders
  Factor V Leiden and prothrombin G20210A
Deficiencies of natural anticoagulants
  (antithrombin, proteins C and S)
Hyperhomocysteinemia
Acquired thrombotic disorders
  Heparin-induced thrombocytopenia (HIT)
Anti-phospholipid antibody syndrome (APS)
Cancer-related thrombotic disorders
Thromboembolism at unusual sites
Thrombosis management (non-disease-specific)
Complications of thrombotic disorders

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**Hematologic Neoplastic Disorders**

**Myeloproliferative neoplasms**

Chronic myeloid leukemia
Polycythemia vera and secondary erythrocytosis
Primary myelofibrosis
Essential thrombocythemia
Mastocytosis
Chronic neutrophilic leukemia

**Acute leukemias and myelodysplasia**

Acute promyelocytic leukemia
Acute myeloid leukemia (non-promyelocytic)
Therapy-related myeloid neoplasms
Myeloid sarcoma/extramedullary leukemia
Myelodysplastic syndromes
Chronic myelomonocytic leukemia and
myelodysplastic/myeloproliferative
neoplasm overlap syndromes
B-cell acute lymphoblastic leukemia/lymphoma (B-ALL)
T-cell acute lymphoblastic leukemia/lymphoma (T-ALL)

B-cell neoplasms 13%
Chronic lymphoid leukemias
  Chronic lymphocytic leukemia/small lymphocytic
  lymphoma
  Monoclonal B-cell lymphocytosis
  Hairy cell leukemia
Plasma cell neoplasms
  Multiple myeloma
  Plasmacytomas
  Amyloidosis
  Castleman disease and POEMS syndrome
    (polyneuropathy, organ enlargement, endocrinopathy,
    Monoclonal plasma-proliferative disorder, skin changes)
  Monoclonal gammopathy of undetermined
  significance (MGUS)
Non-Hodgkin lymphomas, B-cell 7%
  Diffuse large B-cell lymphoma
  Follicular lymphoma
  Mantle cell lymphoma
  Marginal zone B-cell and mucosa-associated
  lymphoid tissue (MALT) lymphomas
  Burkitt lymphoma
  Primary central nervous system lymphoma
  Lymphoplasmacytic lymphoma (including Waldenström
  macroglobulinemia)
  General lymphoma issues (not specific to lymphoma type)

Immunodeficiency-associated lymphoproliferative disorders <2%
  Post-transplantation lymphoproliferative disorders (solid organ transplant)
  Lymphomas associated with human immunodeficiency
  virus (HIV) infection or primary immune disorders
Lymphoproliferative disorders associated with iatrogenic immunodeficiency

**T-cell and NK-cell neoplasms** <2%
- Cutaneous T-cell lymphoma (mycosis fungoides and Sézary syndrome)
- T-cell lymphomas
- Adult T-cell leukemia/lymphoma
- Large granular lymphocyte leukemia
- Prolymphocytic leukemia

**Hodgkin lymphoma** 2%
- Classical Hodgkin lymphoma
- Nodular lymphocyte-predominant Hodgkin lymphoma

**Histiocytic and dendritic cell neoplasms** <2%

**Myeloid and lymphoid neoplasms with eosinophilia and Abnormalities of PDGFRα, PDGFRβ, or FGFR1** <2%

**Complications of hematologic malignancies** <2%
- Tumor lysis syndrome
- Spinal cord compression
- Paraneoplastic disorders

**Pharmacology** 2.5%
- Toxicities and complications, including
cytopenic complications
- Drug dosing and dose modifications

**Clinical trial design and interpretation** <2%

**Transfusion Medicine** 5% of Exam

**Clinical indications for the use of blood products** <2%
- Red blood cell preparations
- Platelet preparations
- Fresh frozen plasma
- Cryoprecipitate

**Risks associated with blood products** 4%
- Risks associated with administration
- Allergic reactions
  - Nonanaphylactic allergic reactions
  - IgA deficiency
  - Anaphylactic reactions
Graft-versus-host disease
Electrolyte disturbances
Infectious organisms
Alloimmunizations
Transfusion reactions
  - Hemolytic reactions
  - Febrile reactions
  - Transfusion-related acute lung injury (TRALI)
  - Transfusion-associated circulatory overload (TACO)
Post-transfusion purpura and other risks associated with administration
Risks associated with therapeutic apheresis procedures

**Management of patients who refuse transfusion** <2%

<table>
<thead>
<tr>
<th>Cellular Therapy</th>
<th>8% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hematopoietic cell biology and engraftment</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Biology of hematopoietic cell transplantation</td>
<td></td>
</tr>
<tr>
<td>Biologic and immunologic relationship between donor and host</td>
<td></td>
</tr>
<tr>
<td><strong>Hematopoietic cell transplantation in the management of hematologic diseases</strong></td>
<td>2%</td>
</tr>
<tr>
<td>Autologous HCT</td>
<td></td>
</tr>
<tr>
<td>Allogeneic HCT</td>
<td></td>
</tr>
<tr>
<td><strong>Conditioning regimens</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Regimen intensity</td>
<td></td>
</tr>
<tr>
<td>Toxicities</td>
<td></td>
</tr>
<tr>
<td><strong>Supportive care</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Preventing infectious disease</td>
<td></td>
</tr>
<tr>
<td>Transfusion support, including graft compatibility and blood product issues</td>
<td></td>
</tr>
<tr>
<td><strong>Graft-versus-host disease (GVHD)</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Acute GVHD</td>
<td></td>
</tr>
<tr>
<td>Chronic GVHD</td>
<td></td>
</tr>
<tr>
<td><strong>Other complications after hematopoietic cell transplantation</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Engraftment failure or rejection</td>
<td></td>
</tr>
<tr>
<td>Infections</td>
<td></td>
</tr>
<tr>
<td>Organ toxicity</td>
<td></td>
</tr>
</tbody>
</table>
Transplant-associated thrombotic microangiopathy
Post-transplant lymphoproliferative disorder
Late effects

**Disease relapse**
<2%

**Chimeric antigen receptor (CAR) T-cell therapy and other genetically modified cell therapy**
<2%

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