

## Medical Oncology

### Certification Examination Blueprint

#### Purpose of the exam

The exam is designed to evaluate the knowledge, diagnostic reasoning, and clinical judgment skills expected of the certified medical oncologist 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 medical oncologist.

#### 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:

Medical Content Category	% of Exam
Hematologic Neoplasms	14%
Thoracic Cancer	11%
Breast Cancer	13%
Genitourinary Cancer	12%
Gynecologic Cancer	4%
Gastrointestinal Cancer	13.5%
Skin Cancer, Sarcomas, and Unknown Primary Site	6%
Anticancer Therapeutics, Clinical Research Methodology, and Ethics	9.5%
Palliative Care, Survivorship, and Communication	11%
Head, Neck, Thyroid, and Central Nervous System Malignancies	4%
Genetics, Genomics, and Tumor Biology	2%
	100%

## **Exam format**

The exam is composed of multiple-choice questions, predominantly describing patient scenarios. Most or all of the multiple-choice questions will be in the single-best-answer format; a small number may be multiple-response questions that require the selection of two or three correct options. The specific number of options to select will be indicated in text of the multiple-response questions.

Questions 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, computed tomograms, photomicrographs, magnetic resonance images, an equianalgesic table, bone scans, family pedigree charts, nomograms, and other media to illustrate relevant patient findings.

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

<b>Hematologic Neoplasms</b>	<b>14%</b> of Exam
<b>Acute leukemia and myelodysplasia</b>	3%
Acute myeloid leukemia (AML)	
Acute promyelocytic leukemia (APL)	
AML with recurrent genetic abnormalities	
AML with myelodysplasia-related changes	
Therapy-related myeloid neoplasms	
AML not otherwise specified	
Myeloid sarcoma	

Acute lymphoblastic leukemia/lymphoma	
Myelodysplastic syndromes	
Chronic myelomonocytic leukemia	
<b>Chronic myeloid leukemia and myeloproliferative neoplasms</b>	2%
Chronic myeloid leukemia	
Myeloproliferative neoplasms	
<b>Chronic lymphoproliferative leukemias</b>	2%
Chronic lymphocytic leukemia/small lymphocytic lymphoma	
Hairy cell leukemia	
T-cell prolymphocytic leukemia	
T-cell large granular lymphocytic leukemia	
Monoclonal B-cell lymphocytosis	
<b>Hodgkin lymphoma</b>	<2%
Early-stage disease	
Advanced disease	
<b>Multiple myeloma and plasma cell dyscrasias</b>	2%
Multiple myeloma/plasma cell leukemia	
Solitary plasmacytoma	
Primary amyloidosis	
Cryoglobulinemia	
Monoclonal gammopathy of undetermined significance (MGUS)	
Lymphoplasmacytic lymphoma (including Waldenström macroglobulinemia)	
<b>Non-Hodgkin lymphoma</b>	4%
Diffuse large B-cell lymphoma	
Follicular lymphoma	
Burkitt lymphoma	
Mantle cell lymphoma	
NK-T cell lymphoma	
Anaplastic large cell lymphoma	
Extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue (MALT lymphoma)	
Nodal marginal zone lymphoma	
Human immunodeficiency virus (HIV)-associated lymphoma	
Human T-cell lymphotropic virus type 1-associated lymphoma (adult T-cell leukemia/lymphoma)	
Cutaneous T-cell lymphoma	
Primary central nervous system lymphoma	
Post-transplantation lymphoproliferative syndromes	
Peripheral T-cell lymphoma	

<b>Thoracic Cancer</b>	<b>11%</b> of Exam
<b>Non-small cell lung cancer</b>	9%
Early-stage disease	
Resectable disease	
Unresectable disease	
Locally advanced disease	
Stage IIIA disease	
Stage IIIB disease	
Stage IIIC disease	
Pancoast tumor	
Metastatic disease	
Adenocarcinoma	
Squamous cell carcinoma	
<b>Small cell lung cancer</b>	<2%
Limited disease	
Extensive disease	
<b>Mesothelioma and thymus cancer</b>	<2%
Mesothelioma	
Thymus cancer	
<b>Breast Cancer</b>	<b>13%</b> of Exam
<b>Premalignant conditions and high-risk factors</b>	<2%
High-risk histologies (including atypical ductal hyperplasia and atypical lobular hyperplasia)	
Genetic predispositions and other high-risk features	
<b>Carcinoma in situ</b>	<2%
<b>Early-stage and locally advanced invasive carcinoma</b>	4.5%
HER2-positive disease	
HER2-negative, hormone receptor–positive disease	
HER2-negative, hormone receptor–negative (triple-negative) disease	
<b>Inflammatory disease</b>	<2%
<b>Locally recurrent disease</b>	<2%
In-breast recurrence	
Chest wall recurrence	
<b>Metastatic disease</b>	4.5%
HER2-positive metastatic disease	
HER2-negative, hormone receptor–positive metastatic disease	
HER2-negative, hormone receptor–negative, (triple-negative) metastatic disease	

<b>Less common clinical scenarios</b>	<2%
Tubular carcinoma	
Male breast cancer	
Pregnancy-associated breast cancer	

<b>Genitourinary Cancer</b>	<b>12%</b> of Exam
<b>Germ cell tumors</b>	<2%
Seminoma	
Nonseminoma	
Germ cell tumor type not specified	
<b>Prostate cancer</b>	5%
Localized disease	
Locally advanced disease	
Prostate-specific antigen-only nonmetastatic disease	
Castration-sensitive disease	
Castration-resistant disease	
Metastatic disease	
Metastatic castration-sensitive disease	
Metastatic castration-resistant disease	
Special issues in prostate cancer	
Small cell carcinoma	
<b>Renal cell cancer</b>	2.5%
Localized disease	
Metastatic disease	
Special issues in renal cell cancer	
Bilateral renal tumors	
Non-clear cell histologies	
<b>Urothelial and other genitourinary cancers</b>	2.5%
Bladder cancer	
Non-muscle-invasive disease	
Muscle-invasive disease	
Metastatic disease	
Other urothelial cancers	
Upper tract urothelial cancer	
Urethral cancer	
<b>Adrenal tumors</b>	<2%
Adrenocortical carcinoma	
Pheochromocytoma and paraganglioma	
Adrenal metastasis	

<b>Gynecologic Cancer</b>	<b>4%</b> of Exam
<b>Cervical cancer</b>	<2%
Local-regional disease (stages II and III)	
Recurrent and metastatic disease	
<b>Ovarian, fallopian tube, and primary peritoneal cancers</b>	2%
Epithelial ovarian, fallopian tube, and primary peritoneal cancers	
Stage I	
Stages II-IV	
Nonepithelial ovarian cancers	
Low malignant potential (borderline) cancers	
<b>Other gynecologic malignancies</b>	<2%
Endometrial cancer	
Uterine sarcoma	
Gestational trophoblastic disease	
Cancers of the vulva and vagina	

<b>Gastrointestinal Cancer</b>	<b>13.5%</b> of Exam
<b>Anal cancer</b>	<2%
Local-regional disease	
Recurrent and metastatic disease	
<b>Biliary tree and gallbladder cancer</b>	<2%
Local-regional disease	
Recurrent and metastatic disease	
<b>Colorectal cancer</b>	4.5%
Colon cancer	
Local-regional disease	
Recurrent and metastatic disease	
Rectal cancer	
Local-regional disease	
Recurrent and metastatic disease	
<b>Esophageal cancer</b>	<2%
Local-regional disease	
Recurrent and metastatic disease	
<b>Gastric cancer</b>	<2%
Resectable disease	
Unresectable and metastatic disease	

<b>Hepatocellular cancer</b>	<2%
Resectable disease	
Unresectable, liver-only disease	
Metastatic disease	
<b>Gastrointestinal neuroendocrine tumors</b>	<2%
<b>Pancreatic cancer</b>	3%
Resectable disease	
Unresectable disease	
Metastatic and recurrent disease	
<b>Small bowel and appendiceal cancer</b>	<2%
Small bowel cancer	
Appendiceal cancer	
<b>Skin Cancer, Sarcomas, and Unknown Primary Site</b>	<b>6%</b> of Exam
<b>Melanoma</b>	2%
Invasive melanoma	
Regional nodal and in-transit metastasis	
Metastatic disease	
<b>Other skin cancers</b>	<2%
Squamous cell and basal cell cancer of the skin	
Local-regional disease	
Recurrent and metastatic disease	
Merkel cell carcinoma	
<b>Bone and soft-tissue sarcomas</b>	<2%
Localized primary disease	
Local disease recurrence	
Metastatic disease	
Gastrointestinal stromal tumor (GIST)	
Local-regional disease	
Recurrent and metastatic disease	
<b>Unknown primary site</b>	2%
<b>Anticancer Therapeutics, Clinical Research Methodology, and Ethics</b>	<b>9.5%</b> of Exam
<b>Principles of allied disciplines</b>	<2%
Surgical oncology	
Radiation oncology	
Interventional radiology	
Pathology	

## Anticancer therapeutics

7.5%

### Cytotoxic chemotherapy agents

- Alkylating agents

- Antimetabolites

- Antitubulin agents

- Anthracyclines

- Topoisomerase I inhibitors

- Topoisomerase II inhibitors

- Bleomycin and other DNA-damaging agents

### Chemotherapy-drug interactions

### Hormonal therapies

- Estrogens and selective estrogen response modifiers

- Progestins and antiprogestins

- Aromatase inhibitors

- Androgens and antiandrogens

- Gonadotropin-releasing hormone analogues

- Glucocorticoids

### Small molecule kinase inhibitors

- BCR-ABL1 inhibitors

- Epidermal growth factor receptor (EGFR) inhibitors

- Vascular endothelial growth factor receptor (VEGFR)/multitargeted inhibitors

- BRAF inhibitors

- Anaplastic lymphoma kinase (ALK) and mesenchymal epithelial transition (MET) growth factor inhibitors

- RET, ROS1, and NTRK inhibitors

- Mitogen-activated protein kinase (MEK) inhibitors

- Bruton tyrosine kinase (BTK) inhibitors

- Janus kinase (JAK) inhibitors

- Phosphoinositide-3 kinase (PI3K) inhibitors

- Mammalian target of rapamycin (mTOR) inhibitors

- Cyclin-dependent kinase (CDK) inhibitors

### Agents with epigenetic activity

- Histone deacetylase (HDAC) inhibitors

- DNA methyltransferase inhibitors

### Metabolic inhibitors other than antimetabolites

### Monoclonal antibodies and antibody conjugates other than immune checkpoint inhibitors

- Monoclonal antibodies targeting EGFR, HER2, HER3, HER4

- Monoclonal antibodies targeting VEGFR pathway



Monoclonal antibodies targeting B cell antigens (including CD20)	
Monoclonal antibodies targeting interleukin-6 (IL-6)	
Bispecific monoclonal antibodies	
Monoclonal antibody immune checkpoint inhibitors	
Agents targeting cytotoxic T-lymphocyte-associated antigen 4 (CTLA4)	
Agents targeting programmed cell death protein 1 (PD-1) and programmed cell death ligand 1 (PD-L1)	
Tumor vaccines and viral-based immunotherapeutics	
Cytokines	
Agents with other novel or specific targets	
Proteasome inhibitors	
Immunomodulatory drugs (IMiDs)	
Hedgehog (Hh) inhibitors	
Poly(ADP-ribose) polymerase (PARP) inhibitors	
Arsenicals	
Cellular therapeutics	
High-dose therapy with stem cell rescue (autologous and allogeneic)	
Chimeric antigen receptor (CAR) T-cell therapy	
<b>Clinical research methodology and ethics</b>	<b>&lt;2%</b>
Clinical research methodology	
Design and interpretation of clinical trials	
Tumor assessment, imaging, and end points	
Surrogate end points	
Ethics	
Human subjects and regulatory and legal issues	
Physician behavior and conflict of interest	

<b>Palliative Care, Survivorship, and Communication</b>	<b>11%</b> of Exam
<b>Clinical manifestations of advanced cancer and its treatment</b>	4.5%
Cutaneous and mucosal manifestations	
Oral mucositis	
Rash	
Xerostomia	
Endocrine manifestations	

Gastrointestinal manifestations

Ascites and peritoneal metastases

Liver manifestations

Constipation

Diarrhea

Nausea and vomiting

Bowel obstruction

Esophagitis

Dysphagia

Hematologic manifestations

Bleeding

Thrombosis

Cytopenia (Neutropenia)

Anemia

Transfusion reactions

Musculoskeletal manifestations

Neurologic manifestations

Spinal cord compression

Neuropathy

Increased intracranial pressure

Progressive multifocal leukoencephalopathy

Radiation-related toxicity

Renal, metabolic, and nutritional manifestations

Tumor lysis syndrome

Hypercalcemia

Hyponatremia

Nutritional support

Paraneoplastic syndromes

Cardiothoracic manifestations

Pleural and pericardial effusions

Pneumonitis

Dyspnea

Cough

Superior vena cava syndrome

Fatigue

Psychiatric manifestations

Depression

Anxiety

Delirium

Infectious risks and complications	
Infections	
Febrile neutropenia	
Lymphedema	
<b>Cancer pain</b>	2%
Use of opioids	
Use of nonopioids	
<b>Survivorship issues</b>	<2%
Fertility and sexual health	
Second primary cancers	
Secondary cancer prevention	
Nonmalignant sequelae	
Surveillance	
<b>End-of-life issues</b>	2%
Hospice	
Feeding and nutrition	
Decision making	
<b>Procedure-related issues</b>	<2%
Chemotherapy administration	
Bone marrow aspiration, biopsy, and interpretation	
Tumor assessment	
Thoracentesis	
Paracentesis	
Feeding tubes	
<b>Communication</b>	<2%
Communicating prognosis and other clinical information	
Discussing goals of care	
Discussing survivorship issues	

<b>Head, Neck, Thyroid, and Central Nervous System Malignancies</b>	<b>4%</b> of Exam
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<b>Squamous cell carcinoma of the head and neck</b>	<2%
Human papillomavirus–positive disease	
Local-regional disease	
Recurrent and metastatic disease	
Human papillomavirus–negative disease	
Local-regional disease	
Recurrent and metastatic disease	
<b>Salivary gland tumors</b>	<2%

<b>Thyroid cancer</b>	<2%
Papillary	
Medullary	
Anaplastic	
<b>Nasopharyngeal carcinoma</b>	<2%
Local and regional disease	
Metastatic disease	
<b>Central nervous system malignancies</b>	<2%
Primary central nervous system lesions	
High-grade gliomas (astrocytoma and glioblastoma)	
Oligodendroglioma and other central nervous system lesions	
Metastatic central nervous system lesions	
Parenchymal metastases	
Meningeal metastases	

<b>Genetics, Genomics, and Tumor Biology</b>	<b>2%</b> of Exam
<b>Cancer biology and genetics</b>	<2%
Carcinogenesis	
Genomics	
<b>Tumor immunology</b>	<2%
<b>Heritable cancer syndromes</b>	<2%
Li-Fraumeni syndrome ( <i>TP53</i> )	
<i>BRCA1</i> and <i>BRCA2</i> syndromes	
Familial colorectal cancer	
Familial adenomatous polyposis	
Hereditary nonpolyposis colorectal cancer	
Multiple endocrine neoplasia and familial medullary thyroid cancer syndromes	
<b>Cancer epidemiology</b>	<2%

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