Medical Oncology Blueprint

Certification Examination (CERT)

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
Anticancer Therapeutics, Clinical Research Methodology, and Ethics	9.5%
Palliative Care, Survivorship, and Communication	11%
Genetics, Genomics, and Tumor Biology	2%
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%
Head, Neck, Thyroid, and Central Nervous System Malignancies	4%
	100%

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 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. 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/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.

Anticancer Therapeutics, Clinical Research Methodology, and Ethics	**9.5%** of Exam

- **Principles of allied disciplines** <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)/AKT 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
- Monoclonal antibodies targeting VEGFR pathway
- Monoclonal antibodies targeting B cell antigens (including CD20)
- 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

Agents with other novel or specific targets
- Proteasome inhibitors
- Immunomodulatory drugs (IMiDs)
- 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

Clinical research methodology and ethics <2%

Clinical research methodology
- Design and interpretation of clinical trials
- Tumor assessment, imaging, and end points

Ethics
- Human subjects and regulatory and legal issues
- Conflict of interest

Palliative Care, Survivorship, and Communication	**11%** of Exam

Clinical manifestations of advanced cancer and its treatment	4.5%
Cutaneous and mucosal manifestations	
Endocrine manifestations	
Gastrointestinal manifestations	
Hematologic manifestations	
Musculoskeletal manifestations	
Neurologic manifestations	
Renal, metabolic, and nutritional manifestations	
Paraneoplastic syndromes	
Cardiothoracic manifestations	
Fatigue	
Psychiatric manifestations	
Infectious risks and complications	
Lymphedema	
Cancer pain	2%
Use of opioids	
Use of nonopioids	
Survivorship issues	<2%
Fertility and sexual health	
Second primary cancers	
Secondary cancer prevention	
Nonmalignant sequelae	
Surveillance	
End-of-life issues	2%
Hospice	
Feeding and nutrition	
Decision making/communication	
Procedure-related issues	<2%
Chemotherapy administration	
Bone marrow aspiration, biopsy, and interpretation	
Tumor assessment	
Thoracentesis	
Paracentesis	
Feeding tubes	

Communication <2%

- Communicating prognosis and other clinical information
- Discussing goals of care
- Discussing survivorship issues

Genetics, Genomics, and Tumor Biology — **2%** of Exam

Cancer biology and genetics <2%

- Carcinogenesis
- Genomics

Tumor immunology <2%

Heritable cancer syndromes <2%

- Li-Fraumeni syndrome (*TP53*)
- *BRCA1* and *BRCA*2 syndromes
- Familial colorectal cancer
  - Familial adenomatous polyposis
  - Lynch syndrome (hereditary nonpolyposis colorectal cancer)
- Multiple endocrine neoplasia and familial medullary thyroid cancer syndromes

Cancer epidemiology <2%

Hematologic Neoplasms — **14%** of Exam

Acute leukemia and myelodysplasia 3%

- Acute myeloid leukemia (AML)
  - Acute promyelocytic leukemia (APL)
  - AML with recurrent genetic abnormalities
  - AML with myelodysplasia-related changes
  - AML not otherwise specified
  - Myeloid sarcoma
- Acute lymphoblastic leukemia/lymphoma
- Myelodysplastic syndromes
- Chronic myelomonocytic leukemia

Chronic myeloid leukemia and myeloproliferative neoplasms	2%
Chronic myeloid leukemia	
Myeloproliferative neoplasms	
Chronic lymphoproliferative leukemias	2%
Chronic lymphocytic leukemia/small lymphocytic lymphoma	
Hairy cell leukemia	
T-cell prolymphocytic leukemia	
T-cell large granular lymphocytic leukemia	
Monoclonal B-cell lymphocytosis	
Hodgkin lymphoma	<2%
Early-stage disease	
Advanced disease	
Multiple myeloma and plasma cell dyscrasias	2%
Multiple myeloma/plasma cell leukemia	
Solitary plasmacytoma	
Primary amyloidosis	
Monoclonal gammopathy of undetermined significance (MGUS)	
Lymphoplasmacytic lymphoma (including Waldenström macroglobulinemia)	
Non-Hodgkin lymphoma	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	
Cutaneous T-cell lymphoma	
Primary central nervous system lymphoma	
Post-transplantation lymphoproliferative syndromes	
Peripheral T-cell lymphoma	

Thoracic Cancer	**11%** of Exam
Non-small cell lung cancer	9%
Early-stage disease	
Resectable disease	
Unresectable disease	
Locally advanced disease	
Stage IIIA disease	
Stage IIIB disease	
Stage IIIC disease	
Metastatic disease	
Adenocarcinoma	
Squamous cell carcinoma	
Small cell lung cancer	<2%
Limited disease	
Extensive disease	
Mesothelioma and thymus cancer	<2%
Mesothelioma	
Thymus cancer	

Breast Cancer	**13%** of Exam
Premalignant conditions and high-risk factors	<2%
High-risk histologies (including atypical ductal hyperplasia and atypical lobular hyperplasia)	
Genetic predispositions	
Carcinoma in situ	<2%
Early-stage and locally advanced invasive carcinoma	4.5%
HER2-positive disease	
HER2-negative, hormone receptor–positive disease	
HER2-negative, hormone receptor–negative (triple-negative) disease	
Inflammatory disease	<2%

Locally recurrent disease	<2%
In-breast recurrence	
Chest wall recurrence	
Metastatic disease	4.5%
HER2-positive metastatic disease	
HER2-negative, hormone receptor–positive metastatic disease	
HER2-negative, hormone receptor–negative, (triple-negative) metastatic disease	
Less common clinical scenarios	<2%
Tubular carcinoma	
Male breast cancer	
Pregnancy-associated breast cancer	

Genitourinary Cancer — **12%** of Exam

Germ cell tumors	<2%
Seminoma	
Nonseminoma	
Germ cell tumor type not specified	
Prostate cancer	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	
Renal cell cancer	2.5%
Localized disease	
Metastatic disease	
Special issues in renal cell cancer	

Urothelial and other genitourinary cancers 2.5%

- Bladder cancer
  - Non-muscle-invasive disease
  - Muscle-invasive disease
  - Metastatic disease
- Other urothelial cancers

Adrenal tumors <2%

- Adrenocortical carcinoma
- Pheochromocytoma and paraganglioma

Gynecologic Cancer — **4%** of Exam

Cervical cancer <2%

- Local-regional disease (stages II and III)
- Recurrent and metastatic disease

Ovarian, fallopian tube, and primary peritoneal cancers 2%

- Epithelial ovarian, fallopian tube, and primary peritoneal cancers
  - Stage I
  - Stages II-IV
- Nonepithelial ovarian cancers
- Low malignant potential (borderline) cancers

Other gynecologic malignancies <2%

- Uterine sarcoma
- Gestational trophoblastic disease
- Cancers of the vulva and vagina

Gastrointestinal Cancer — **13.5%** of Exam

Anal cancer <2%

- Local-regional disease
- Recurrent and metastatic disease

Biliary tree and gallbladder cancer	<2%
Local-regional disease	
Recurrent and metastatic disease	
Colorectal cancer	4.5%
Colon cancer	
Local-regional disease	
Recurrent and metastatic disease	
Rectal cancer	
Local-regional disease	
Recurrent and metastatic disease	
Esophageal cancer	<2%
Local-regional disease	
Recurrent and metastatic disease	
Gastric cancer	<2%
Resectable disease	
Unresectable and metastatic disease	
Hepatocellular cancer	<2%
Resectable disease	
Unresectable, liver-only disease	
Metastatic disease	
Gastrointestinal neuroendocrine tumors	<2%
Pancreatic cancer	3%
Resectable disease	
Unresectable disease	
Metastatic and recurrent disease	
Small bowel and appendiceal cancer	<2%
Small bowel cancer	
Appendiceal cancer	

Skin Cancer, Sarcomas, and Unknown Primary Site	**6%** of Exam

Melanoma	2%
Localized melanoma	
Regional nodal and in-transit metastasis	
Metastatic disease	

Other skin cancers <2%

- Squamous cell and basal cell cancer of the skin
  - Local-regional disease
  - Recurrent and metastatic disease
- Merkel cell carcinoma

Bone and soft-tissue sarcomas <2%

- Localized primary disease
- Local disease recurrence
- Metastatic disease
- Gastrointestinal stromal tumor (GIST)
  - Local-regional disease
  - Recurrent and metastatic disease

Unknown primary site 2%

Head, Neck, Thyroid, and Central Nervous System Malignancies — **4%** of Exam

Squamous cell carcinoma of the head and neck <2%

- Human papillomavirus–positive disease
  - Local-regional disease
  - Recurrent and metastatic disease
- Human papillomavirus–negative disease
  - Local-regional disease
  - Recurrent and metastatic disease

Salivary gland tumors <2%

Thyroid cancer <2%

- Papillary
- Medullary
- Anaplastic

Nasopharyngeal carcinoma <2%

- Local and regional disease
- Metastatic disease

Central nervous system malignancies <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

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