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:

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

<table>
<thead>
<tr>
<th>Hematologic Neoplasms</th>
<th>14% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute leukemia and myelodysplasia</td>
<td>3%</td>
</tr>
<tr>
<td>Acute myeloid leukemia (AML)</td>
<td></td>
</tr>
<tr>
<td>Acute promyelocytic leukemia (APL)</td>
<td></td>
</tr>
<tr>
<td>AML with recurrent genetic abnormalities</td>
<td></td>
</tr>
<tr>
<td>AML with myelodysplasia-related changes</td>
<td></td>
</tr>
<tr>
<td>Therapy-related myeloid neoplasms</td>
<td></td>
</tr>
<tr>
<td>AML not otherwise specified</td>
<td></td>
</tr>
<tr>
<td>Myeloid sarcoma</td>
<td></td>
</tr>
</tbody>
</table>
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
Cryoglobulinemia
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
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
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
  - Pancoast tumor
- 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 and other high-risk features

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  
- Tubular carcinoma  
- Male breast cancer  
- Pregnancy-associated breast cancer

<table>
<thead>
<tr>
<th>Genitourinary Cancer</th>
<th>12% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Germ cell tumors</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>- Seminoma</td>
<td></td>
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<tr>
<td>- Nonseminoma</td>
<td></td>
</tr>
<tr>
<td>- Germ cell tumor type not specified</td>
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<tr>
<td><strong>Prostate cancer</strong></td>
<td>5%</td>
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<tr>
<td>- Localized disease</td>
<td></td>
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<tr>
<td>- Locally advanced disease</td>
<td></td>
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<tr>
<td>- Prostate-specific antigen-only nonmetastatic disease</td>
<td></td>
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<tr>
<td></td>
<td>Castration-sensitive disease</td>
</tr>
<tr>
<td></td>
<td>Castration-resistant disease</td>
</tr>
<tr>
<td>- Metastatic disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metastatic castration-sensitive disease</td>
</tr>
<tr>
<td></td>
<td>Metastatic castration-resistant disease</td>
</tr>
<tr>
<td></td>
<td>Special issues in prostate cancer</td>
</tr>
<tr>
<td></td>
<td>Small cell carcinoma</td>
</tr>
<tr>
<td><strong>Renal cell cancer</strong></td>
<td>2.5%</td>
</tr>
<tr>
<td>- Localized disease</td>
<td></td>
</tr>
<tr>
<td>- Metastatic disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Special issues in renal cell cancer</td>
</tr>
<tr>
<td></td>
<td>Bilateral renal tumors</td>
</tr>
<tr>
<td></td>
<td>Non-clear cell histologies</td>
</tr>
<tr>
<td><strong>Urothelial and other genitourinary cancers</strong></td>
<td>2.5%</td>
</tr>
<tr>
<td>- Bladder cancer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-muscle-invasive disease</td>
</tr>
<tr>
<td></td>
<td>Muscle-invasive disease</td>
</tr>
<tr>
<td></td>
<td>Metastatic disease</td>
</tr>
<tr>
<td></td>
<td>Other urothelial cancers</td>
</tr>
<tr>
<td></td>
<td>Upper tract urothelial cancer</td>
</tr>
<tr>
<td></td>
<td>Urethral cancer</td>
</tr>
<tr>
<td><strong>Adrenal tumors</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>- Adrenocortical carcinoma</td>
<td></td>
</tr>
<tr>
<td>- Pheochromocytoma and paraganglioma</td>
<td></td>
</tr>
<tr>
<td>- Adrenal metastasis</td>
<td></td>
</tr>
</tbody>
</table>
### Gynecologic Cancer 4% of Exam

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Percentage</th>
<th>Disease Stages and Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical cancer</td>
<td>&lt;2%</td>
<td>Local-regional disease (stages II and III), Recurrent and metastatic disease</td>
</tr>
<tr>
<td><strong>Ovarian, fallopian tube, and primary peritoneal cancers</strong></td>
<td>2%</td>
<td>Epithelial ovarian, fallopian tube, and primary peritoneal cancers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stage I</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stages II-IV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nonepithelial ovarian cancers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low malignant potential (borderline) cancers</td>
</tr>
<tr>
<td><strong>Other gynecologic malignancies</strong></td>
<td>&lt;2%</td>
<td>Endometrial cancer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uterine sarcoma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gestational trophoblastic disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cancers of the vulva and vagina</td>
</tr>
</tbody>
</table>

### Gastrointestinal Cancer 13.5% of Exam

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Percentage</th>
<th>Disease Stages and Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anal cancer</td>
<td>&lt;2%</td>
<td>Local-regional disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recurrent and metastatic disease</td>
</tr>
<tr>
<td><strong>Biliary tree and gallbladder cancer</strong></td>
<td>&lt;2%</td>
<td>Local-regional disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recurrent and metastatic disease</td>
</tr>
<tr>
<td><strong>Colorectal cancer</strong></td>
<td>4.5%</td>
<td>Colon cancer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Local-regional disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recurrent and metastatic disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rectal cancer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Local-regional disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recurrent and metastatic disease</td>
</tr>
<tr>
<td><strong>Esophageal cancer</strong></td>
<td>&lt;2%</td>
<td>Local-regional disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recurrent and metastatic disease</td>
</tr>
<tr>
<td><strong>Gastric cancer</strong></td>
<td>&lt;2%</td>
<td>Resectable disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unresectable and metastatic disease</td>
</tr>
</tbody>
</table>
**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

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

**Melanoma**  2%  
Invasive 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%

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**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

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

Clinical research methodology and ethics

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

Palliative Care, Survivorship, and Communication 11% of Exam

Clinical manifestations of advanced cancer and its treatment 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

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

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

<table>
<thead>
<tr>
<th>Head, Neck, Thyroid, and Central Nervous System Malignancies</th>
<th>4% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squamous cell carcinoma of the head and neck &lt;2%</td>
<td></td>
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<tr>
<td>Human papillomavirus–positive disease</td>
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<tr>
<td>Local-regional disease</td>
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<tr>
<td>Recurrent and metastatic disease</td>
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<tr>
<td>Human papillomavirus–negative disease</td>
<td></td>
</tr>
<tr>
<td>Local-regional disease</td>
<td></td>
</tr>
<tr>
<td>Recurrent and metastatic disease</td>
<td></td>
</tr>
<tr>
<td>Salivary gland tumors &lt;2%</td>
<td></td>
</tr>
</tbody>
</table>
**Thyroid cancer**
- Papillary
- Medullary
- Anaplastic

**Nasopharyngeal carcinoma**
- Local and regional disease
- Metastatic disease

**Central nervous system malignancies**
- 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

<table>
<thead>
<tr>
<th>Genetics, Genomics, and Tumor Biology</th>
<th>2% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cancer biology and genetics</strong></td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Carcinogenesis</td>
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<tr>
<td>Genomics</td>
<td></td>
</tr>
<tr>
<td><strong>Tumor immunology</strong></td>
<td>&lt;2%</td>
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<tr>
<td><strong>Heritable cancer syndromes</strong></td>
<td>&lt;2%</td>
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<tr>
<td>Li-Fraumeni syndrome (TP53)</td>
<td></td>
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<tr>
<td>BRCA1 and BRCA2 syndromes</td>
<td></td>
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<tr>
<td>Familial colorectal cancer</td>
<td></td>
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<tr>
<td>- Familial adenomatous polyposis</td>
<td></td>
</tr>
<tr>
<td>- Hereditary nonpolyposis colorectal cancer</td>
<td></td>
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<tr>
<td>- Multiple endocrine neoplasia and familial medullary thyroid cancer syndromes</td>
<td></td>
</tr>
<tr>
<td><strong>Cancer epidemiology</strong></td>
<td>&lt;2%</td>
</tr>
</tbody>
</table>

January 2021