ABIM/ASCO Medical Oncology: Learning & Assessment

Breast Cancer

Maintenance of Certification Assessment Blueprint

**Purpose of the assessment**
The assessment is designed to evaluate the knowledge, diagnostic reasoning, and clinical judgment skills expected of the certified medical oncologist. The ability to make appropriate diagnostic and management decisions that have important consequences for patients will be assessed.

**Assessment content**
Assessment content is determined by a pre-established blueprint, or table of specifications. The blueprint is developed by ABIM and ASCO 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 and secondary medical content categories of the blueprint are shown below, with the percentage assigned to each for a typical assessment:

<table>
<thead>
<tr>
<th>Medical Content Category</th>
<th>% of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Cancer</td>
<td>75%</td>
</tr>
<tr>
<td>Pre-malignant conditions and high-risk factors</td>
<td>3%</td>
</tr>
<tr>
<td>Carcinoma in situ</td>
<td>6%</td>
</tr>
<tr>
<td>Early-stage and locally advanced invasive carcinoma</td>
<td>25%</td>
</tr>
<tr>
<td>Inflammatory disease</td>
<td>6%</td>
</tr>
<tr>
<td>Locally recurrent disease</td>
<td>6%</td>
</tr>
<tr>
<td>Metastatic disease</td>
<td>26%</td>
</tr>
<tr>
<td>Less common histologies and clinical scenarios</td>
<td>3%</td>
</tr>
<tr>
<td>Medical Oncology Core*</td>
<td>25%</td>
</tr>
<tr>
<td>Anticancer therapeutics, clinical research methodology, and ethics</td>
<td>10%</td>
</tr>
<tr>
<td>Palliative care, survivorship, and communication</td>
<td>11%</td>
</tr>
<tr>
<td>Genetics, genomics, and tumor biology</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Medical Oncology Core content includes topics relevant to all medical oncologists, regardless of what disease(s) they focus on in practice.*
**Assessment format**

The assessment is composed of multiple-choice questions, predominantly describing patient scenarios. All questions will be in the single-best-answer format.

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

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.


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

<table>
<thead>
<tr>
<th>Breast Cancer</th>
<th>75% of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Premalignant conditions and high-risk factors</strong></td>
<td>3%</td>
</tr>
<tr>
<td>High-risk histologies (including atypical ductal hyperplasia and atypical lobular hyperplasia)</td>
<td></td>
</tr>
<tr>
<td>Genetic predispositions and other high-risk features</td>
<td></td>
</tr>
<tr>
<td><strong>Carcinoma in situ</strong></td>
<td>6%</td>
</tr>
<tr>
<td><strong>Early-stage and locally advanced invasive carcinoma</strong></td>
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</tr>
<tr>
<td>HER2-positive disease</td>
<td></td>
</tr>
<tr>
<td>HER2-negative, hormone receptor–positive disease</td>
<td></td>
</tr>
<tr>
<td>HER2-negative, hormone receptor–negative (triple-negative) disease</td>
<td></td>
</tr>
<tr>
<td><strong>Inflammatory disease</strong></td>
<td>6%</td>
</tr>
</tbody>
</table>
Locally recurrent disease
  In-breast recurrence
  Chest wall recurrence

Metastatic disease
  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

Anticancer Therapeutics, Clinical Research Methodology, and Ethics
10% of Assessment

Note: The Breast Cancer assessment will only test knowledge of drugs that are used to treat breast cancer and its symptoms.

Principles of allied disciplines
  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

**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

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**Palliative Care, Survivorship, and Communication**

**Clinical manifestations of advanced cancer and its treatment**

- 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
Thoracic manifestations
  Pleural and pericardial effusions
  Pneumonitis
  Dyspnea
  Cough
Fatigue
Psychiatric manifestations
  Depression
  Anxiety
  Delirium
Infectious risks and complications
  Infections
  Febrile neutropenia
Lymphedema
Cardiac manifestations
  Pericardial effusions
  Superior vena cava syndrome

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

Genetics, Genomics, and Tumor Biology 4% of Assessment

Note: The Breast Cancer assessment will only test knowledge of heritable cancer syndromes that are related to breast cancer.

Cancer biology and genetics <2%
Carcinogenesis
Genomics

Tumor immunology <2%

Heritable cancer syndromes <2%
Li-Fraumeni syndrome (TP53)
BRCA1 and BRCA2 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%