

2019 Oncology Pharmacy Preparatory Review and Recertification Course Learning Objectives

Breast Cancer

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for patients with breast cancer.
- Discuss short- and long-term goals, including post-therapy and survivorship, with the patient with breast cancer and her or his caregiver.
- Determine appropriate pharmacotherapy for a patient with breast cancer based on genomic test results.
- Identify appropriate diagnostic and prognostic tests related to breast cancer.
- Select relevant information and guidance for the public regarding breast cancer-related issues (e.g., cancer risk factors, prevention, screening).

Gynecologic Malignancies

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, management, and monitoring plan taking into consideration efficacy and safety outcomes of clinical trials and current treatment guidelines for a patient with a gynecologic malignancy
- Compare and contrast the efficacy and toxicity of different routes of drug administration, including IP chemotherapy, in the treatment of ovarian cancer.
- Determine short- and long-term goals, including post-therapy and survivorship, with a patient with a gynecologic malignancy and her caregiver.
- Select relevant information and provide guidance for the public regarding gynecologic malignancy-related issues (e.g., risk factors, prevention and screening) for gynecologic malignancies.
- Cervical and Endometrial malignancies are covered in the handout only.

Prostate Cancer

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for patients with prostate cancer.

- Identify appropriate diagnostic, prognostic and monitoring tests for a patient with prostate cancer.
- Determine short- and long-term goals, including post-therapy and survivorship, with a patient with prostate cancer and his caregiver.
- Select relevant information and guidance for the public regarding prostate cancer-related issues (e.g., factors, prevention, screening).

Pediatric Malignancies and Supportive Care

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for pediatric patients with cancer.
- Assess the prognostic impact of relevant cancer-related molecular biology testing for a pediatric patient with cancer.
- Discuss with a pediatric patient who has cancer and his or her caregiver the short-and long-term treatment goals, including post-therapy and survivorship.
- Assess the impact of pharmacogenomics on the efficacy and toxicity of relevant anticancer and supportive-care agents for a pediatric patient with cancer.
- Assess the regulatory, ethical, and patient rights issues related to conducting research, including informed consent and confidentiality.

Upper Gastrointestinal and Hepatocellular Carcinomas

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, management, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for patients with esophageal, gastric, or hepatic malignancies.
- Assess the impact of pharmacogenomics on the efficacy and toxicity of relevant anticancer agents used for gastrointestinal malignancies.
- Devise and communicate appropriate plans for preventing, monitoring, and treating radiation recall and other complications of radiation therapy.

Bladder, Renal Cell, and Testicular Cancers

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for patients with bladder, renal cell, or testicular carcinoma.
- Determine short- and long-term goals, including post-therapy and survivorship, with a patient with bladder, renal cell, or testicular carcinoma and his or her caregiver.

- Devise and communicate appropriate plans for preventing, monitoring, and treating adverse reactions associated with the treatment with tyrosine kinase inhibitors and mTOR inhibitors.

Melanoma and Non-Melanoma Skin Cancers

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for patients with melanoma
- Identify relevant cancer-related molecular biology testing for a patient with melanoma
- Devise and communicate appropriate plans for preventing, monitoring and treating adverse reactions associated with the treatment of melanoma, including thyroid level monitoring for chemotherapy agents, immune-mediated toxicities and toxicity from BRAF inhibitors.
- Determine long-term goals, including post-therapy and survivorship, with the patient with melanoma or non-melanoma skin cancer and his or her caregiver
- Select relevant information and guidance for the public regarding melanoma and non-melanoma skin cancer-related issues (e.g. risk factors, prevention, and screening).
- Non-melanoma skin cancers, including basal cell, squamous cell and Merkel Cell carcinomas are also included in the handout only.

Research Design, Statistics, and Evaluating Oncology Literature

After participating in this continuing pharmacy education activity, learners should be able to:

- Evaluate the oncology literature, including study design, methodology, statistical analysis, and applicability of results to clinical practice for the oncology patient population.
- Select an appropriate statistical test (parametric or nonparametric) for use in evaluating findings from an oncology study based on the type of data (i.e., nominal, ordinal, continuous).
- Critique the validity and interpret the results of various types of oncology studies (e.g., meta-analyses, noninferiority trials).
- Interpret findings from the use of study endpoints (e.g., objective response, time to progression, adverse events, quality of life, overall survival) in oncology research.
- Define, calculate, and interpret sensitivity, specificity, positive and negative predictive values, measures of effect, correlation, and regression for an oncology study.
- Identify potential sources of bias and evaluate the appropriateness of conclusions drawn based on outcomes in an oncology study report.

Adult Acute Leukemias and Myelodysplastic Syndromes

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for adults with acute leukemia or myelodysplastic syndrome.

- Assess the prognostic impact of relevant cancer-related molecular biology testing for an adult with acute leukemia or myelodysplastic syndrome.
- Devise and communicate appropriate plans for preventing, monitoring, and treating adverse reactions from pharmacotherapy for acute leukemia and myelodysplastic syndrome in an adult, including tumor lysis syndrome, neurotoxicity, differentiation syndrome, and cardiac toxicity from arsenic trioxide, and other agents as appropriate.
- Determine appropriate pharmacotherapy for acute leukemia or myelodysplastic syndrome in an adult based on genomic test results.

Lymphomas

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan to include effectiveness, toxicities and outcomes, based on the most current guidelines for patients with lymphoma.
- Assess the prognostic impact of relevant cancer-related molecular biology testing.
- Devise and communicate appropriate plans for preventing, monitoring, and treating adverse reactions associated with pharmacotherapy for lymphoma and other cancers, including chemotherapy-induced pulmonary toxicities and extravasations.

Chronic Leukemias

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for patients with chronic leukemia.
- Assess the prognostic impact of relevant cancer-related molecular biology testing in a patient with chronic leukemia.
- Determine appropriate pharmacotherapy based on genomic test results in a patient with chronic leukemia.
- Devise and communicate appropriate plans for preventing, monitoring, and treating infusion-related reactions from monoclonal antibodies used in the treatment of hematologic malignancies
- Devise and communicate appropriate plans for preventing, monitoring, and treating adverse reactions associated with pharmacotherapy for the treatment of cancers, including hematologic toxicities from tyrosine kinase inhibitors used to treat chronic myelogenous leukemia

Hematopoietic Stem Cell Transplantation

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current guidelines for patients undergoing hematopoietic stem cell transplantation (HSCT).
- Debate the advantages and disadvantages of various methods of peripheral blood stem cell mobilization.
- Discern dose-limiting toxicities and appropriate strategies to prevent toxicity from chemotherapy agents employed in HSCT conditioning regimens, and differentiate between myeloablative, non-myeloablative, and reduced-intensity HSCT conditioning regimens.
- Create a plan for prevention and management of acute and chronic graft-versus-host disease (GVHD) using appropriate systemic and ancillary therapies.
- Discuss short- and long-term treatment goals, including post-therapy and survivorship, with the patient undergoing HSCT and his or her caregiver.

Lung Cancer

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for patients with lung cancer.
- Identify relevant cancer-related molecular biology testing for a patient with lung cancer.
- Assess the impact of pharmacogenomics on the efficacy and toxicity of relevant anticancer and supportive-care agents for a patient with lung cancer.
- Devise and communicate appropriate plans for preventing, monitoring and treating adverse reactions associated with pharmacotherapy for lung cancer.
- Develop and communicate a prevention and management strategy for chemotherapy-induced nausea and vomiting for patients with any type of cancer.
- Select relevant information and guidance for the public regarding lung cancer-related issues (e.g., risk factors, prevention, and screening).

Lower Gastrointestinal and Pancreatic Cancers

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for patients with lower gastrointestinal (GI) or pancreatic cancers.
- Discuss short- and long-term treatment goals, including post-therapy and survivorship, with a patient with lower GI or pancreatic cancers and his or her caregiver.
- Assess the impact of pharmacogenomics on the efficacy and toxicity of relevant anticancer and supportive-care agents for a patient with lower GI or pancreatic cancers.

- Devise and communicate appropriate plans for preventing, monitoring and treating adverse reactions associated with pharmacotherapy for lower GI or pancreatic cancers including chemotherapy-induced diarrhea and dermatologic toxicities from epidermal growth factor receptor inhibitors.
- Select relevant information and guidance for the public regarding lower GI and pancreatic cancer-related issues (e.g., risk factors, prevention, screening).
- Devise and communicate appropriate plans for preventing, monitoring and treating adverse reactions associated with pharmacotherapy for lower GI or pancreatic cancers including hand-foot syndrome, hand foot skin reaction, neurotoxicity from oxaliplatin, and management of hypersensitivity reactions to monoclonal antibodies used for solid tumors

Head, Neck and Adult Central Nervous System (CNS) Malignancies

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, management and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for patients with head, neck, adult central nervous system (CNS) malignancies, or thyroid cancers.
- Select relevant information and provide guidance to the public regarding head and neck cancer-related issues (e.g., risk factors, prevention, and screening).
- Devise and communicate appropriate plans for preventing, monitoring, and treating adverse reactions associated with the treatment of cancers including cachexia, mucositis, and xerostomia.

Cancer-related Infectious Diseases

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific management and monitoring plan to address potential infection-related problems that may arise during or following cancer treatment based on the current guidelines for treating cancer-related infectious diseases.
- Determine short-and long-term treatment goals, including post-therapy, with a patient with a cancer-related infectious disease and his or her caregiver.

Oncology Practice Management

After participating in this continuing pharmacy education activity, learners should be able to:

- Evaluate oncology pharmacy services for compliance with established regulations and standards.
- Select quality-improvement activities that enhance the safety and effectiveness of the medication-use process in oncology patient care.

- Examine the professional practice standards and guidelines for the safe handling and administration of hazardous drugs.
- Consider national accreditation and federal regulatory requirements for the care of cancer patients receiving chemotherapy or other hazardous drugs.
- Evaluate resources and develop methods for handling and disposal of hazardous drugs and related materials.
- Consider medication reimbursement and patient assistance programs to optimize drug availability for oncology patients.
- Evaluate policies and procedures related to conducting research involving investigational drugs, including drug management in patients with cancer.

Multiple Myeloma

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, supportive care, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current guidelines for patients with multiple myeloma.
- Devise and communicate appropriate plans for preventing, monitoring and treating adverse reactions associated with the treatment of cancers, including bone metastases in multiple myeloma patients and thromboembolism, hypercalcemia of malignancy, and spinal cord compression in all oncology patients.
- Evaluate oncology pharmacy services for compliance with established REMS regulations and standards.

Adult Sarcoma

After participating in this continuing pharmacy education activity, learners should be able to:

- Design an appropriate patient-specific treatment, management, and monitoring plan taking into consideration efficacy and safety outcomes from clinical trials and current treatment guidelines for adult patients with sarcoma.
- Adjust treatment and monitoring plans as needed based on the pharmacokinetics of anticancer and supportive-care agents (e.g., methotrexate).
- Devise and communicate appropriate plans for preventing, monitoring and managing common problems associated with the treatment of adult patients with cancer including neurotoxicity from ifosfamide and hemorrhagic cystitis.

Pharmacogenomics in Oncology

After participating in this continuing pharmacy education activity, learners should be able to:

- Identify appropriate considerations for genetic interpretation in both the germline and somatic settings.

- Translate the results from somatic genetic testing into therapeutic recommendations based on prognostic, predictive and patient characteristics.
- Recognize the place in therapeutic decision making for companion diagnostic testing.