REQUIRED COMPETENCY AREAS, GOALS, AND OBJECTIVES FOR POSTGRADUATE YEAR TWO (PGY2) ONCOLOGY PHARMACY RESIDENCIES

Prepared Jointly with the Hematology/Oncology Pharmacy Association

Introduction

The competency areas, goals, and objectives are for use with the *ASHP Accreditation Standard for Postgraduate Year Two (PGY2) Pharmacy Residency Programs.* The first five competency areas described herein are required, and the others are elective.

The required competency areas and all of the goals and objectives they encompass must be included in all programs. Programs may add one or more additional competency areas. Programs selecting an additional competency area are not required to include all of the goals and objectives in that competency area. In addition to the potential additional competency areas described in this document, programs are free to create their own additional competency areas with associated goals and objectives. Each of the goals encompassed by the program's selected program competency areas (required and additional) must be evaluated at least once during the residency year. In addition, elective competency areas may be selected for specific residents only.

Each of the objectives listed in this document has been classified according to educational taxonomy (cognitive, affective, or psychomotor) and level of learning. An explanation of the taxonomies is available elsewhere.[1]

Competency areas for PGY1 pharmacy residencies are available on the ASHP website. PGY2 competency areas, goals, and objectives in oncology pharmacy are differentiated from those from PGY1 by specialization and the expectation of PGY2 residents for greater work competence and proficiency.

Definitions
Competency Areas: Categories of the residency graduates' capabilities.

Competency areas are classified into one of three categories:

Required: Five competency areas are required (all programs must include them and all their associated goals and objectives).

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[1] Anderson, L. W. and Krathwohl, D. R., et al (Eds.) (2001) A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. Allyn & Bacon. Boston, MA (Pearson Education Group).

Additional (for program): Competency area(s) that residency programs may choose to use (in addition to the four required areas) to meet program-specific program needs. Additional competency areas also include those developed by individual programs.

Elective (for specific residents): Competency area(s) or specific goals and objectives within the competency area(s) selected optionally for specific resident(s).

Educational Goals (Goal): Broad statement of abilities.

Educational Objectives: Observable, measurable statements describing what residents will be able to do as a result of participating in the residency program.

Criteria: Examples that describe competent performance of educational objectives. Since the criteria are examples, they are not all required but are intended to be used to give feedback to residents on how well they are doing and how they can improve on the skill described in educational objectives while they engage in an activity.

Activities: The ASHP Accreditation Standard for Postgraduate Year Two (PGY2) Pharmacy Residency Programs requires that learning activities be specified for each educational objective in learning experience descriptions. Activities are what residents will do to learn and practice the skills described in objectives. Activities are the answer to the question "What can residents do in the context of this learning experience that will provide the kind of experiences necessary to achieve the educational objective?" (Compare and contrast activities with criteria by referring to the definition of criteria immediately above.) Specified activities should match the Bloom's Taxonomy learning level stated in parentheses before each objective.

Example:
Objective R1.1.2: (Applying) Interact effectively with patients, family members, and caregivers.

Learning activity: Provide education to patients regarding proper medication use and administration, adherence, and possible adverse drug effects for all new medications initiated during clinic appointments.

Criteria:
- Interactions are respectful and collaborative.
- Uses effective communication skills.
- Shows empathy.
- Empowers patients to take responsibility for their health.
- Demonstrates cultural sensitivity.

Competency Area R1: Patient Care
(See the appendix for additional specific requirements.)

Goal R1.1: In collaboration with the health care team, provide comprehensive medication management to oncology patients following a consistent patient care process*.

Objective R1.1.1: (Applying) Interact effectively with health care teams to manage oncology patients' medication therapy.
Criteria:
- Interactions are cooperative, collaborative, communicative, and respectful.
- Demonstrates skills in negotiation, conflict management, and consensus building.
- Demonstrates advocacy for the patient.
- Effectively contributes pharmacotherapy knowledge and patient care skills as an essential member of the healthcare team.

Objective R1.1.2: (Applying) Interact effectively with oncology patients, family members, and caregivers.
Criteria:
- Interactions are respectful and collaborative.
- Maintains accuracy and confidentiality of patients' protected health information.
- Uses effective communication skills.
- Shows empathy.
- Empowers patients, family members, and caregivers regarding the patient's well-being and health outcomes.
- Demonstrates cultural competence and sensitivity.
- Communicates with family members to obtain patient information when patients are unable to provide the information.
- Ensures understanding of, and consensus with, care plans.
- Utilizes effective motivational interviewing techniques, such as goal setting and identification of barriers for improved health.
- Demonstrates advocacy for caregivers.

Objective R1.1.3: (Analyzing) Collect information on which to base safe and effective medication therapy for oncology patients.
Criteria:
- Collection/organization methods are efficient and effective, including interviewing techniques.
- Collects relevant information about medication therapy, including:
  o History of present illness.
    - Current stage and status of oncologic disease.
  o Relevant health data that may include past medical history, health and wellness information, and physical assessment findings.
  o Social history.
- Medication history, including prescription, non-prescription, illicit, recreational, and non-traditional therapies; other dietary supplements; immunizations; and allergies/medication intolerances.

- Patient assessment (examples include, but are not limited to, physiologic monitoring, laboratory values (including organ function), pathology, molecular testing, vital signs, microbiology results, diagnostic imaging, procedural results, and scoring systems).
  o Regimen and line of anticancer systemic therapy, as applicable (current and past regimens).
  o Pharmacogenomics and pharmacogenetic information, if available.
  o Adverse drug reactions.
  o Medication adherence and persistence.
  o Patient lifestyle habits, preferences and beliefs, health and functional goals, and socioeconomic factors that affect access to medications and other aspects of care.
  o Identify missing information vital to medical care/cancer treatment.
- Sources of information are the most reliable available, including electronic, face-to-face, and others.
- Documentation method and system is functional for subsequent problem solving and decision making.
- Clarifies information as needed.
- Demonstrates understanding of limitations of information in health records.
- Poses appropriate questions as needed.

Objective R1.1.4: (Analyzing) Analyze and assess information on which to base safe and effective medication therapy for oncology patients.
Criteria:
- Includes accurate assessment of patient's:
  o Health and performance status.
  o Risk factors.
  o Cultural factors.
  o Health literacy.
  o Access to medications.
  o Immunization status.
  o Need for preventive care and other services, when appropriate.
  o Insurance/payer status.
  o Other aspects of care, as applicable.
- Identifies medication therapy problems, including:
  o Lack of indication for medication.
  o Medical conditions for which there is no medication prescribed.
  o Medication prescribed or continued inappropriately for a particular medical condition.
  o Suboptimal medication regimen (e.g., dose, dosage form, duration, schedule, route of administration, method of administration).
  o Medication toxicity requiring medication therapy modifications.
  o Abnormal lab values requiring medication therapy modifications.
  o Medication accumulative lifetime dose (if applicable).
  o Therapeutic duplication.
  o Adverse drug or device-related events or the potential for such events.
  o Clinically significant drug–drug, drug–disease, drug–nutrient, drug–DNA test interaction, drug–laboratory test interaction, or the potential for such interactions.
  o Use of harmful social, recreational, nonprescription, nontraditional, or other medication therapies.
  o Patient not receiving full benefit of prescribed medication therapy.

- Problems arising from the financial impact of medication therapy or medication reimbursement challenges for the patient.
- Patient lacks understanding of medication therapy.
- Patient not adhering to medication regimen and root cause (e.g., knowledge, recall, motivation, financial, system).
- Patient assessment.
- Laboratory monitoring needed.
- Discrepancy between prescribed medications and established care plan for the patient.
- Performs accurate physical assessment as appropriate for medication related issues.

Objective R1.1.5: (Creating) Design or redesign safe and effective patient-centered therapeutic chemotherapy and supportive care regimens and monitoring plans (care plans) for oncology patients.
Criteria:
- Specifies evidence-based, measurable, achievable therapeutic goals that include consideration of:
  - Relevant patient-specific information, including culture and preferences.
  - The goals of other inter-professional team members.
  - The patient's disease state(s).
    - Histology/pathology.
    - Disease sites.
    - Virology (when applicable).
  - Medication-specific information.
  - Best evidence, including clinical guidelines and the most recent literature.
  - Effectively interprets new literature for application to patient care.
  - Ethical issues involved in the patient's care.
  - Quality-of-life issues specific to the patient.
  - End of life issues, when needed.
  - Integration of all the above factors influencing the setting of goals.
- Designs/redesigns chemotherapy and supportive care regimens that:
  - Are appropriate for the disease states and symptoms being treated.
  - Reflect:
    - Clinical experience.
    - The therapeutic goals established for the patient.
    - The patient's and caregiver's specific needs.
    - Consideration of:
      - Any pertinent pharmacogenomic or pharmacogenetic factors.
      - Best evidence.
      - Pertinent ethical issues.
      - Pharmacoeconomic components (patient, medical, and systems resources).
      - Patient preferences, culture, and/or language differences.
      - Patient-specific factors, including physical, mental, emotional, and financial factors that might impact adherence to the regimen.
      - Drug shortages.
  - Adhere to the health system's medication-use policies.
  - Follow applicable ethical standards.
  - Address wellness promotion and lifestyle modification.
  - Support the organization's or patient's insurance formulary.
  - Address medication-related problems and optimize medication therapy.

- o Engage the patient through education, empowerment, and promotion of self-management.
- o Effectively contributes to team that secures reimbursement for anti-cancer medications.
- Designs/redesigns chemotherapy and supportive care monitoring plans that:
  - o Effectively evaluate achievement of therapeutic goals.
  - o Ensure adequate, appropriate, and timely follow-up.
  - o Establish parameters that are appropriate measures of therapeutic goal achievement.
  - o Reflect consideration of best evidence.
  - o Select the most reliable source for each parameter measurement.
  - o Have appropriate value ranges selected for the patient.
  - o Have parameters that measure efficacy.
  - o Have parameters that measure potential adverse drug events.
  - o Have parameters that are cost-effective.
  - o Have obtainable measurements of the parameters specified.
  - o Reflects consideration of compliance.
  - o Reflects preferences and needs of the patient.
  - o Represents the highest level of patient care.

Objective R1.1.6: (Applying) Ensure implementation of therapeutic regimens for chemotherapy and supportive care and monitoring plans (care plans) for oncology patients by taking appropriate follow-up actions.
Criteria:
- Effectively recommends or communicates patients' regimens and associated monitoring plans to relevant members of the health care team and patients.
  - o Poses appropriate questions as needed.
  - o Recommendation is persuasive.
  - o Therapy corresponds with the recommended regimen.
  - o Tests correspond with the recommended monitoring plan.
  - o Recommendations are provided in a clear, concise manner with provision of all accompanying rationale, and timely.
  - o Presentation of recommendation includes patient's right to refuse treatment.
  - o If patient refuses treatment, pharmacist exhibits responsible professional behavior.
  - o Creates an atmosphere of collaboration.
  - o Skillfully defuses negative reactions.
  - o Communication conveys expertise.
  - o Communication is assertive but not aggressive.
  - o Where the patient has been directly involved in the design of the plans, communication reflects previous collaboration appropriately.
- Ensures recommended plan is implemented effectively for the patient, including ensuring that the:
  - o Plan represents the highest level of patient care.
  - o Regimen is initiated at the appropriate time.
  - o Patient receives their medication as directed.
  - o Medications in situations requiring immediacy are effectively facilitated.
  - o Medication orders are clear and concise to include appropriate supportive medications.
  - o Activity complies with the health system's policies and procedures.
  - o Tests are ordered and performed at the appropriate time.
  - o Ordering of anti-cancer and/or supportive care therapies is consistent with clinical and operational best practices/guidelines (e.g., ASCO, NCCN, MASCC, ASHP, HOPA).

- Takes appropriate action based on analysis of monitoring results (redesign regimen and/or monitoring plan if needed).
- Appropriately initiates, modifies, discontinues, or administers medication therapy as authorized.
- Responds appropriately to notifications and alerts in electronic medical records and other information systems that support medication ordering processes (based on factors such as patient weight, age, gender, comorbid conditions, drug interactions, renal function, and hepatic function).
- Provides thorough and accurate education to patients and caregivers, when appropriate, including information on medication therapy, adverse effects, compliance, appropriate use, handling, and medication administration.
- Addresses medication- and health-related problems and engages in preventive care strategies, including vaccine administration, cancer prevention, and cancer screening.
- Schedules or discusses follow-up care as needed to achieve goals of therapy, as appropriate.

Objective R1.1.7: (Applying) For oncology patients, document direct patient care activities appropriately in the medical record or where appropriate.
Criteria:
- Accurately and concisely communicates drug therapy recommendations to healthcare professionals representing different disciplines.
- Documentation is accessible between care settings.
- Appropriately documents patient/caregiver communication and all relevant direct patient care activities in a timely manner.

Objective R1.1.8: (Applying) Using an organized collection of patient-specific information, summarize the heath care needs of individuals with cancer.
Criteria:
- Effectively summarizes the patient's overall cancer picture including previous treatment, current treatment, and planned future treatments.
- Appropriately identifies goals of therapy for patient.
- Recognizes acute and non-acute patient issues.
- Presents an accurate, complete, and appropriately prioritized problem list (oncology and non-oncology problems).
- Accurately describes each problem in detail and defines plan for each problem.

Objective R1.1.9: (Applying) Demonstrate responsibility to oncology patients.
Criteria:
- Gives priority to patient care activities.
- Appropriately determines which individuals with cancer to focus on if given limited time and multiple patient care responsibilities.
- Plans prospectively.
- Routinely completes all steps of the medication management process.
- Assumes responsibility for medication therapy outcomes.
- Actively works to identify the potential for significant medication-related problems.
- Actively pursues all significant existing and potential medication-related problems until satisfactory resolution is obtained.
- Helps patients learn to navigate the health care system, as appropriate.
- Informs patients how to obtain their medications in a safe, efficient, and cost-effective manner.

- Determines barriers to patient compliance and makes appropriate adjustments.

Goal R1.2: Ensure continuity of care during transitions of oncology patients between care settings.

Objective R1.2.1: (Applying) Manage transitions of care effectively for oncology patients.
Criteria:
- Effectively participates in obtaining or validating a thorough and accurate medication history.
- Conducts thorough medication reconciliation when necessary.
- Follows up on all identified drug-related problems.
- Participates effectively in medication education.
- Provides accurate and timely follow-up information when patients transfer to another facility, level of care, pharmacist, or provider, as appropriate.
- Follows up with patient in a timely and caring manner.
- Provides additional effective monitoring and education, as appropriate.
- Takes appropriate and effective steps to help avoid unnecessary hospital admissions and/or readmissions.
- Effectively manage anti-cancer therapies including oral chemotherapy continued through transitions.
- Assures non-formulary anticancer medications are evaluated for appropriate continuation or discontinuation on transition of care and employ process for patient to obtain medication when appropriate.
- Works effectively with specialty pharmacies during transitions.
- Utilizes alternative communication methods when documentation in one medical record is not an option.

Goal R1.3: Manage and facilitate delivery of medications to support safe and effective drug therapy for oncology patients.

Objective R1.3.1: (Applying) Prepare and dispense anti-cancer and hazardous medications for oncology patients following best practices and the organization's policies and procedures.
Criteria:
- Uses appropriate procurement processes.
- Correctly interprets appropriateness of a medication order before preparing or permitting the distribution of the first dose, including:
  - Identifying, clarifying, verifying, and correcting any medication order errors.
  - Considering complete patient-specific information.
  - Identifying existing or potential drug therapy problems.
  - Determining an appropriate solution to an identified problem.
  - Securing consensus from the prescriber for modifications to therapy.
  - Ensuring that the solution is implemented.
  - Employs double-check processes as specified in best practices.
- Prepares medication using appropriate techniques and following the organization's policies and procedures and applicable professional standards, including:
  - When required, accurately calibrating equipment.

- o Ensuring that solutions are appropriately concentrated, without incompatibilities; stable; and appropriately stored.
  - o Adhering to appropriate safety and quality assurance practices.
  - o Demonstrates understanding and/or utilizes appropriate personal protective equipment when preparing hazardous medications.
  - o Preparing labels that conform to the health system's policies and procedures.
  - o Ensuring that medication has all necessary and appropriate ancillary labels.
  - o Inspecting the final medication before dispensing.
  - o Demonstrates understanding of appropriate chemotherapy preparation technique, including closed system transfer devices (if applicable).
  - o Ensures expiration dates and lot numbers are documented appropriately.
  - o Confirms chemotherapy waste is appropriately controlled.
  - o Employs double-check processes as specified in best practices.
- When dispensing medication products:
  - o Follows the organization's policies and procedures.
  - o Ensures the patient receives the medication(s) as ordered.
  - o Ensures the integrity of medication dispensed.
  - o Provides any necessary written and/or verbal counseling.
  - o Ensures the patient receives medication on time.
- Ensures proper repackaging and relabeling of medications, including compounded medications (sterile and nonsterile). Maintains accuracy and confidentiality of patients' protected health information.
- Obtains agreement on modifications to medication orders when acting in the absence of, or outside, an approved protocol or collaborative agreement.

Objective R1.3.2: (Applying) Manage aspects of the medication-use process related to formulary management for oncology patients, including anti-cancer medications.
Criteria:
- Follows appropriate procedures regarding exceptions to the formulary, if applicable, in compliance with policy.
- Ensures non-formulary medications are dispensed, administered, and monitored in a manner that ensures patient safety.

Objective R1.3.3: (Applying) Facilitate aspects of the medication-use process related to oversight of dispensing for oncology patients, including anti-cancer medications.
Criteria:
- When appropriate, follows the organization's established protocols.
- Makes effective use of relevant technology to aid in decision-making and increase safety.
- Demonstrates commitment to medication safety in medication-use processes.
- Effectively prioritizes workload and organizes workflow.
- Checks the accuracy of the work of pharmacy technicians, clerical personnel, pharmacy students, and others according to applicable laws and institutional policies.
- Promotes safe and effective medication use on a day-to-day basis.
- Demonstrates understanding and implements best practices for the safe administration and management of chemotherapy.

Competency Area R2: Advancing Practice and Improving Patient Care

Goal R2.1: Demonstrate ability to manage formulary and medication-use processes for oncology patients, as applicable to the organization.

Objective R2.1.1: (Creating) Prepare or revise a drug class review, monograph, treatment guideline, policy, or protocol related to care of oncology patients. Guidance: Can include technology-related improvements.
Criteria:
- Displays objectivity.
- Effectively synthesizes information from available primary literature.
- Applies evidenced-based principles.
- Analyzes pertinent sources of information.
- Considers medication-use safety and resource utilization.
- Uses the appropriate format.
- Effectively communicates any changes in medication formulary, utilization, or other procedures to interdisciplinary members.
- Demonstrates appropriate confidence and assertiveness in presentation to internal and external stakeholders.

Objective 2.1.2: (Evaluating) Participate in a medication-use evaluation related to care for oncology patients. (Guidance: This should not be the major project but may be part of the project.)
Criteria:
- Uses evidence-based principles to develop criteria for use.
- Demonstrates a systematic approach in data collection.
- Accurately analyzes data gathered.
- Demonstrates appropriate confidence and assertiveness in presentation of results and outcome to internal and external stakeholders.
- Implements approved changes, as applicable.

Objective 2.1.3: (Applying) Participate in the review of medication event reporting and monitoring related to care for oncology patients.
Criteria:
- Effectively uses currently available technology and automation that supports a safe medication-use process.
- Appropriately and accurately determines, investigates, reports, tracks, and trends adverse drug events, medication errors, and efficacy concerns using accepted institutional resources and programs.

Objective 2.1.4: (Analyzing) Identify opportunities for improvement of the medication-use system related to care for oncology patients.
Criteria:
- Identifies problems and opportunities for improvement and analyzes relevant background data.
- Evaluates data generated by health information technology or automated systems to identify opportunities for improvement.
- Utilizes best practices to identify opportunities for improvements.

- When needed, makes medication-use policy recommendations based on a review of practice standards, guidelines, and other evidence [e.g., National Quality Measures, Institute for Safe Medication Practices alerts, Joint Commission sentinel alerts, American Society of Clinical Oncology (ASCO), Oncology Nursing Society (ONS), National Comprehensive Cancer Network (NCCN), Hematology/Oncology Pharmacy Association (HOPA) guidelines, ASHP guidelines (Guidelines on Handling Hazardous Drugs and Guidelines on Preventing Medication Errors with Chemotherapy and Biotherapy)].

Goal R2.2: Demonstrate ability to conduct a quality improvement or research project.

Ideally, objectives R2.2.1-R2.2.6 will be addressed through residents working on one quality improvement or research project; however, if this is not possible, all objectives must be addressed by the end of the residency year and can be addressed through work on more than one initiative.

Objective R2.2.1: (Analyzing) Identify and/or demonstrate understanding of a specific project topic to improve care of oncology patients or a topic for advancing the pharmacy profession or oncology pharmacy.
Criteria:
- Appropriately identifies problems and opportunities for improvement and analyzes relevant background scientific data.
- Evaluates data generated by health information technology or automated systems to identify opportunities for improvement.
- Utilizes best practices to identify opportunities for improvements.
- When needed, makes medication-use policy recommendations based on a review of practice standards, guidelines, and other evidence [e.g., National Quality Measures, Institute for Safe Medication Practices alerts, Joint Commission sentinel alerts, American Society of Clinical Oncology (ASCO), Oncology Nursing Society (ONS), National Comprehensive Cancer Network (NCCN), Hematology/Oncology Pharmacy Association (HOPA) guidelines, ASHP guidelines (Guidelines on Handling Hazardous Drugs and Guidelines on Preventing Medication Errors with Chemotherapy and Biotherapy)].

Objective R2.2.2: (Creating) Develop a plan or research protocol for a practice quality improvement or research project for the care of oncology patients or a topic for advancing the pharmacy profession or oncology pharmacy.
Criteria:
- Develops sound research or quality improvement question that can be addressed in the desired time frame, if appropriate.
- Applies safety design practices (e.g., standardization, simplification, human factors training, lean principles, FOCUS-PDCA, other process improvement or research methodologies) appropriately and accurately.
- Acts in accordance with the ethics of research on human subjects, if applicable.
- Develops a comprehensive plan which entails a clearly defined process.
- Plan for improvement includes appropriate reviews and approvals required by department or organization (e.g., IRB, funding) and addresses the concerns of all stakeholders.
- Applies evidence-based principles.

- Plan design is practical to implement and is expected to remedy or minimize the identified challenge or deficiency.

Objective R2.2.3: (Evaluating) Collect and evaluate data for a practice quality improvement or research project for the care of oncology patients or a topic for advancing the pharmacy profession or oncology pharmacy.
Criteria:
- Collects the appropriate types of data as required by project design.
- Uses appropriate electronic data and information from internal information databases, external online databases, appropriate Internet resources, and other sources of decision support, as applicable.
- Uses appropriate methods for analyzing data in a prospective and retrospective clinical, humanistic, and/or economic outcomes analysis.
- Develops and follows an appropriate research or project timeline.
- Correctly identifies need for additional modifications or changes to the project.
- Accurately assesses the impact of the project, including its sustainability, using operational, clinical, economic, and/or humanistic outcomes of patient care.
- Applies results of a prospective or retrospective clinical, humanistic, and/or economic outcomes analysis to internal business decisions and modifications to a customer's formulary or benefit design as appropriate.
- Uses continuous quality improvement (CQI) principles to assess the success of the implemented change, if applicable.
- Considers the impact of the limitations of the project or research design on the interpretation of results.
- Accurately and appropriately develops plan to address opportunities for additional changes.

Objective R2.2.4: (Applying) Implement a quality improvement or research project to improve care of oncology patients or for a topic for advancing the pharmacy profession or oncology pharmacy.
Criteria:
- Creates and adheres to established timeline.
- Implements the project as specified in its design.
- Collects data as required by project design.
- Participates in plan for project results and/or recommendations to be implemented for health system.

Objective R2.2.5: (Evaluating) Assess changes or need to make changes to improve care of oncology patients or for a topic for advancing the pharmacy profession or oncology pharmacy.
Criteria:
- Evaluate data and/or outcome of project accurately and fully.
- Includes operational, clinical, economic, and humanistic outcomes of patient care, if applicable.
- Uses continuous quality improvement (CQI) principles to assess the success of the implemented change, if applicable.
- Correctly identifies need for additional modifications or changes based on outcome.
- Compares results to what is already known from the literature.
- Accurately assesses the impact of the project, including its sustainability (if applicable).
- Accurately and appropriately develops plan to address opportunities for additional changes.

Objective R2.2.6: (Creating) Effectively develop and present, orally and in writing, a final project report suitable for publication related to care for oncology patients or for a topic for advancing the pharmacy profession or oncology pharmacy at a local, regional, or national conference. (The presentation can be virtual.)
Criteria:
- Outcome of change is reported accurately to stakeholders(s) and/or policy-making bodies according to departmental or organizational processes.
- Report includes implications for changes to or improvement in pharmacy practice.
- Report uses an accepted manuscript style suitable for publication in the professional literature.
- Delivers effective oral presentation within department and organization or to an external audience (regional, national).
- Use effective communication and presentation skills and tools (e.g., handouts, slides) to convey points successfully.
- Effectively present results and/or plan (e.g., accurately recommends or contributes to recommendation for operational change, implementation of medication guideline or restriction, or treatment protocol implementation) to appropriate audience.
- Demonstrates appropriate confidence and assertiveness in presentation to external stakeholders.

Competency Area R3: Leadership and Management

Goal R3.1: Demonstrate leadership skills for successful self-development in the provision of care for oncology patients.

Objective R3.1.1: (Applying) Demonstrate personal, interpersonal, and teamwork skills critical for effective leadership in the provision of care for oncology patients.
Criteria:
- Demonstrates effective time management.
- Manages conflict effectively.
- Demonstrates effective negotiation skills.
- Demonstrates ability to lead inter-professional teams.
- Uses effective communication skills and styles.
- Demonstrates understanding of perspectives of various health care professionals.
- Effectively expresses benefits of personal profession-wide leadership and advocacy.

Objective R3.1.2: (Applying) Apply a process of ongoing self-evaluation and personal performance improvement in the provision of care for oncology patients and management of one's own oncology pharmacy practice.
Criteria:
- Accurately summarizes own strengths and areas for improvement (in knowledge, values, qualities, skills, and behaviors).
- Effectively uses a self-evaluation process for developing professional direction, goals, and plans.
- Effectively engages in self-evaluation of progress on specified goals and plans.
- Demonstrates ability to use and incorporate constructive feedback from others.
- Effectively uses principles of continuous professional development (CPD) planning (reflect, plan, act, evaluate, record/review).

Goal R3.2: Demonstrate management skills in the provision of care for oncology patients.

Objective R3.2.1: (Understanding) Explain the elements of the pharmacy enterprise related to oncology and their relationship to the health care system.
Criteria:
- Identifies appropriate resources to keep updated on trends and changes within pharmacy and health care.
- Explains changes to laws and regulations (e.g., value-based purchasing, consumer-driven health care, reimbursement models) related to medication use.
- Explains external quality metrics (e.g., FDA-mandated Risk Evaluation and Mitigation Strategy) and how they are developed, abstracted, reported, and used.
- Describes the governance of the health care system and leadership roles.

Objective R3.2.2: (Understanding) Explain factors that influence departmental planning.
Criteria:
- Identifies and explains factors that influence departmental planning, including:
  - Financial management of oncology related treatments.
  - Accreditation, legal, regulatory, and safety requirements.
  - Facilities design for oncology specific pharmacy design.
  - The organization's political and decision-making structure.
- Explains the potential impact of factors on departmental planning.

Objective R3.2.3: (Applying) Contribute to oncology departmental management.
Criteria:
- Helps identify and/or explain significant departmental needs.
  - Manpower/staffing.
  - Staff scheduling and contingencies.
  - Staff qualifications.
  - Assesses and develops educational opportunities for oncology service line staff.
- Helps develop and/or understand plans that address departmental needs.
  - Orientation.
  - Training and supervision.
  - Effectively participate in, or evaluate, strategic plan.
- Participates effectively on committees or informal work groups to complete group projects, tasks, or goals.
- Participates effectively in implementing changes, using change management and quality improvement best practices and tools, consistent with team, departmental, and organizational goals and policy.
- Evaluate inpatient/outpatient oncology pharmacy services.
- Appraises current reimbursement practices of oncology agents.
- Explains the strategic planning process.

Objective R3.2.4: (Applying) Contribute the oncology pharmacist's perspective to technology and automation systems decisions.
Criteria:

- Effectively contributes to the organization's design of its technology and automation systems, when appropriate, (e.g., CPOE, software, smart pumps).
- Effectively contributes to the organization's implementation of its technology and automation systems, when appropriate.
- Effectively contributes to the organization's maintenance of its technology and automation systems, when appropriate.

Objective R3.2.5: (Applying) Manage one's own oncology care practice effectively.
Criteria:
- Review and interpret the most recent primary literature.
- Evaluate clinical practice activities for potential contributions to scholarship
- Accurately assesses successes and areas for improvement (e.g., a need for operational projects or education) in managing one's clinical own practice.
- Makes accurate, criteria-based assessments of one's own ability to perform practice tasks.
- Regularly integrates new learning into subsequent performances of a task until expectations are met.
- Assumes responsibility for personal work quality and improvement.
- Sets and meets realistic goals and timelines.
- Demonstrates awareness of own values, motivations, and emotions.
- Demonstrates enthusiasm, self-motivation, and a "can-do" approach.
- Strives to maintain a healthy work–life balance.
- Works collaboratively within the organization's political and decision-making structure.
- Demonstrates personal commitment to and adheres to organizational and departmental policies and procedures.
- Demonstrates pride in and commitment to the profession through appearance, personal conduct, planning to pursue board certification, and pharmacy association membership activities.

Competency Area R4: Teaching, Education, and Dissemination of Knowledge

Goal R4.1: Provide effective medication and practice-related education to oncology patients, caregivers, health care professionals, students, and the public (individuals and groups).

Objective R4.1.1: (Applying) Establish oneself as an organizational expert for oncology pharmacy-related information and resources.
Criteria:
- Identifies, and overcomes, barriers to the oncology pharmacist for earning credibility with members of the oncology multi-disciplinary team.
- Identifies, and overcomes, barriers to the pediatric pharmacist for earning credibility within the organization.
- Integrates drug information resources with clinical expertise and experiences to provide optimal recommendations for patient care to health care professionals.

Objective R4.1.2: (Applying) Design effective educational activities related to care of oncology patients.
Criteria:

- Accurately defines educational needs, including learning styles, with regard to target audience (e.g., individual versus group) and learning level (e.g., health care professional versus patient).
- Selects topics of significance to oncology pharmacy as outlined in the appendix.
- Defines educational objectives that are specific, measurable, at a relevant learning level (e.g., applying, creating, evaluating), and address the audiences' defined learning needs.
- Plans use of teaching strategies that match learner needs, including active learning (e.g., patient cases, polling).
- Selects content that is relevant, thorough, evidence-based (using primary literature where appropriate), timely and reflects best practices.
- Includes accurate citations and relevant references and adheres to applicable copyright laws.

Objective R4.1.3: (Applying) Use effective presentation and teaching skills to deliver education related to oncology pharmacy.
Criteria:
- Demonstrates rapport with learners.
- Captures and maintains learner/audience interest throughout the presentation.
- Implements planned teaching strategies effectively.
- Effectively facilitates audience participation, active learning, and engagement in various settings (e.g., small or large group, distance learning).
- Presents at appropriate rate and volume and without exhibiting poor speaker habits (e.g., excessive use of "um" and other interjections).
- Body language, movement, and expressions enhance presentations.
- Summarizes important points at appropriate times throughout presentations.
- Transitions smoothly between concepts.
- Effectively uses audio-visual aids and handouts to support learning activities.

Objective R4.1.4: (Applying) Use effective written communication to disseminate knowledge related to oncology pharmacy.
Criteria:
- Writes in a manner that is easily understandable and free of errors.
- Demonstrates thorough understanding of the topic.
- Notes appropriate citations and references.
- Includes critical evaluation of the literature and knowledge advancements or a summary of what is currently known on the topic.
- Develops and uses tables, graphs, and figures to enhance reader's understanding of the topic when appropriate.
- Writes at a level appropriate for the target readership (e.g., physicians, pharmacists, other health care professionals, patients, the public).
- Creates one's own work and does not engage in plagiarism.

Objective R4.1.5: (Applying) Appropriately assess effectiveness of education related to care of oncology patients.
Criteria:
- Selects assessment method (e.g., written or verbal assessment or self-assessment questions, case with case-based questions, learner demonstration of new skill) that matches activity.
- Provides timely, constructive, and criteria-based feedback to learner.

- If used, assessment questions are written in a clear, concise format that reflects best practices for test item construction.
- Determines how well learning objectives were met.
- Plans for follow-up educational activities to enhance or support learning and (if applicable) ensure that goals were met.
- Identifies ways to improve education-related skills.
- Obtains and reviews feedback from learners and others to improve effectiveness as an educator.

Goal R4.2: Effectively employ appropriate preceptor roles when engaged in teaching students, pharmacy technicians, or fellow health care professionals in oncology.

Objective R4.2.1: (Analyzing) When engaged in teaching about the care of oncology patients, select a preceptor role that meets learners' educational needs.
Criteria:
- Identifies which preceptor role is applicable for the situation (direct instruction, modeling, coaching, facilitating).
  - o Selects direct instruction when learners need background content.
  - o Selects modeling when learners have sufficient background knowledge to understand the skill being modeled.
  - o Selects coaching when learners are prepared to perform a skill under supervision.
  - o Selects facilitating when learners have performed a skill satisfactorily under supervision.

Objective R4.2.2: (Applying) Effectively employ preceptor roles, as appropriate, when instructing, modeling, coaching, or facilitating skills related to care of oncology patients.
Criteria:
- Accurately assesses the learner's skill level to determine the appropriate preceptor role for providing practice-based teaching.
- Instructs students, technicians, or others as appropriate.
- Models skills, including "thinking out loud," so learners can "observe" critical-thinking skills.
- Coaches, including effective use of verbal guidance, feedback, and questioning, as needed.
- Facilitates, when appropriate, by allowing learner independence and using indirect monitoring of performance.

Competency Area R5: Oncology Investigational Drugs

Goal R5.1: Appropriately manage oncology investigational drugs and oncology investigational drug services.

Objective R5.1.1: (Evaluating) Accurately assess and/or actively participate in an institutional cancer-specific clinical trial.
Criteria:
- Effectively reviews or participates in protocol development with an institutional scientific review committee.
- Accurately evaluates a proposed clinical research trial in an institutional review board (IRB) meeting.

- Reviews informed consent document and assess medication specific information.
- Demonstrates understanding of the laws and regulations governing informed consent.
- Accurately evaluates study processes in the coordination of multi-site clinical trial.
- Proposes an effective protocol budget (e.g. – initiation, annual, dispensing, fees).
- Effectively participates in study on-site initiation, monitoring, and close-out visits.
- Accurately reports medication protocol deviations and adverse events.

Objective R.5.1.2: (Creating) Prepare and implement investigational medication sheets or documents and order templates for an assigned clinical research study.
Criteria:
- Develops complete and accurate medication information section for a protocol.
  - o For industry sponsored trials, reviews medication section and accurately assesses feasibility of preparation and distribution at institution.
- Prepares a pharmacy impact statement for implementation.
- Effectively educates pertinent pharmacy personnel and other clinical staff on clinical research study.
- Effectively develops a protocol-specific medication order template.

Objective R.5.1.3: (Applying) Facilitate the proper preparation and dissemination of investigational medications.
Criteria:
- Secures medications used in cancer clinical trials according to specified guidelines (e.g., NCI-sponsored, industry-sponsored, investigator sponsored).
- Documents dispensing of medications according to specified guidelines (e.g., NCI-sponsored, industry-sponsored, investigator sponsored).
- Monitors and documents storage conditions required by study sponsors.
- Adheres to institutional/state dispensing and labeling requirements.
- Provides counseling and emphasizes study adherence to patients receiving cancer investigational agents.

ELECTIVE COMPETENCY AREAS, GOALS, AND OBJECTIVES FOR POSTGRADUATE YEAR TWO (PGY2) ONCOLOGY PHARMACY RESIDENCIES

Competency Area E1: Teaching and Learning

Goal E1.1: Demonstrate foundational knowledge of teaching, learning, and assessment in healthcare education.

Objective E1.1.1: (Understanding) Explain strategies and interventions for teaching, learning, and assessment in healthcare education.
Criteria:
- Accurately differentiates teaching and learning.

- Discusses appropriate teaching strategies for learning environments, including small and large group, didactic and experiential.
- Describes various teaching approaches and benefits for different learning styles.
- Characterizes assessment tools available for learning environments.

Objective E1.1.2: (Understanding) Explain academic roles and associated issues.
Criteria:
- Resident can discuss and explain:
  - The role of a course syllabus.
  - The importance of academic honesty.
  - The importance of professionalism in academia.
  - The role of accreditation (ACPE), professional organizations (AACP) and Center for the Advancement of Pharmacy Education (CAPE) Outcomes on pharmacy curricula.
  - Faculty roles and responsibilities, including academic rank and promotion, and relationship between teaching, scholarship, and service.

Goal E1.2: Develops and practices a philosophy of teaching.

Objective E1.2.1: (Creating) Develop a teaching philosophy statement.
Criteria:
- Teaching philosophy includes:
  - Self-reflection on personal beliefs about teaching and learning; identification of attitudes, values, and beliefs about teaching and learning.
  - Illustrates personal beliefs on practice and how these beliefs and experiences are incorporated in a classroom or experiential setting with trainees.

Objective E1.2.2: (Creating) Prepare a practice-based teaching activity.
Criteria:
- Develops learning objectives using active verbs and measureable outcomes.
- Plans teaching strategies appropriate for the learning objectives.
- Uses materials that are appropriate for the target audience.
- Organizes teaching materials logically.
- Plans relevant assessment techniques.
- When used, develops examination questions that are logical, well-written, and test the learners' knowledge rather than their test-taking abilities.
- Participates in a systematic evaluation of assessment strategies (e.g., post-exam statistical analysis) when appropriate.
- Ensures activity is consistent with learning objectives in course syllabus.

Objective E1.2.3: (Applying) Deliver a practice-based educational activity, including didactic or experiential teaching, or facilitation.
Criteria:
- Incorporates at least one active learning strategy in didactic experiences appropriate for the topic.
- Uses effective skills in facilitating small and large groups.
- For experiential activities:
  - Organizes student activities (e.g., student calendar).
  - Effectively facilitates topic discussions and learning activities within the allotted time.

- o Effectively develops and evaluates learner assignments (e.g., journal clubs, presentations, SOAP notes).
- o Effectively assesses student performance.
- o Provides constructive feedback.

Objective E1.2.4: (Creating) Effectively document one's teaching philosophy, skills, and experiences in a teaching portfolio.
Criteria:
- Portfolio includes:
  - o A statement describing one's teaching philosophy.
  - o Curriculum vitae.
  - o Teaching materials including slides and other handouts for each teaching experience.
  - o Documented self-reflections on one's teaching experiences and skills, including strengths, areas for improvement, and plans for working on the areas for improvement.
  - o Peer/faculty evaluations.
  - o Student/learner evaluations.

Competency Area E2: Initiating an Oncology Pharmacy-Related Service

Goal E2.1: Develop a proposal for a new oncology pharmacy-related service.

Objective E2.1.1: (Creating) Write a proposal for an oncology pharmacy-related service.
Criteria:
- Proposal meets a perceived need of the health system and its patients.
- Proposal is clear and persuasive.

Objective E2.1.2: (Creating) Present a proposal for a new oncology pharmacy-related service.
Criteria:
- Identifies appropriate concerned entities as audience for presentation.
- Uses effective presentation skills.

Objective E 2.1.3: (Applying) Implement a new oncology pharmacy-related service.
Criteria:
- Identifies appropriate strategies for implementing the new service.
- Effectively employs selected strategies for implementing the new service.

Objective E 2.1.4: (Applying) Appraise a new oncology pharmacy service.
Criteria:
- Accurately evaluates adequacy of the new service in meeting the stated goals.

Competency Area E3: Oncology Credentialing

Goal E3.1: Successfully petition for credentialing as an oncology pharmacy practitioner.

Objective E3.1.1: (Applying) Follow established procedures to successfully apply (may be a hypothetical application if not permitted at the site) for credentialing as an oncology pharmacy practitioner.
Criteria:
- Follows established procedures to successfully apply for credentialing.
- Demonstrates understanding of the practice setting's policy for applying to be credentialed.

Competency Area E4: Publishing

Goal E4.1: Write and submit for publication pertinent medication-use information on cancer-related topics.

Objective E4.1.1: (Applying) Write an article for a publication on a cancer-related topic.
Criteria:
- Selects appropriate publication for submission of article.
- Writes in a style appropriate for the audience of the publication (e.g., health care professional and/or the public).

Objective E4.1.2: (Creating) Submit an article on a cancer-related topic for a peer-reviewed publication.
Criteria:
- Article is suitably formatted.
- Follows appropriate submission procedures.
- Effectively addresses reviewer comments, if appropriate.

Competency Area E5: Management of Oncology Medical Emergencies

Goal E5.1: Participate in the management of medical emergencies in oncology patients.

Objective E5.1.1: (Applying) Exercise skill as a team member in the management of medical emergencies in the oncology patient.
Criteria:
- Demonstrates understanding of organization's protocol for medical emergencies.
- Appropriately prepares and dispenses medications and calculates doses during medical emergencies.

Objective E5.1.2: (Complex Overt Response) When administration is appropriate, exercise skill in the administration of emergency medications for a patient.
Criteria:
- Uses appropriate techniques when administering emergency medications for patients.
- Effectively administers emergency medications for patients.

Competency Area E6: Specialty Pharmacy

Goal E6.1: Effectively fulfill the major functions of a specialty pharmacist, including intake, clinical management, fulfillment, and facilitating optimal outcomes.

Objective E6.1.1: (Applying) Effectively engage in clinical management activities for specialty pharmacy patients.
Criteria:
- Addresses Risk Evaluation and Mitigation Strategies (REMS) with anti-cancer medications.
- Develops individualized education plan for specialty pharmacy patients to achieve treatment goals.

Objective E6.1.2: (Evaluating) Effectively facilitate optimal treatment outcomes for specialty pharmacy patients.
Criteria:
- Determines clinical, patient-reported, operational, and financial data to be collected based on the parameters of disease state and medication, and how data will be obtained from internal and external sources.
- Obtain, collect, and extract clinical, patient-reported, operational, and financial data.
- Analyzes and interprets clinical and patient-reported data to determine clinical and patient-reported outcomes to improve patient treatment and quality of life.
- Analyzes and interprets operational and financial data to determine operational and financial outcomes to evaluate the pharmacoeconomic impact of service offerings.

A revision of the PGY2 Oncology Appendix was approved by the ASHP Commission on Credentialing August 15, 2017 and endorsed by the ASHP Board of Directors on September 29, 2017.

This document replaces the PGY2 Oncology Appendix to the PGY2 Oncology Pharmacy Residencies competency areas, goals and objectives approved by the ASHP Board of Directors on September 23, 2016.

PGY2 Oncology Appendix

The resident will demonstrate an understanding of signs and symptoms, epidemiology, risk factors, prevention and screening strategies, pathogenesis, natural history of disease, pathophysiology, clinical course, etiology, and treatment of diseases and conditions listed below. The resident will also have experience managing patients with these diseases and conditions.

The resident will demonstrate an understanding of the mechanism of action, pharmacokinetics, pharmacodynamics, pharmacogenomics, pharmacoeconomics, usual regimen (dose, schedule, form, route, and method of administration), indications, contraindications, interactions, adverse reactions, and therapeutics of medications and non-traditional therapies, where relevant, that are applicable to the diseases and conditions listed below.

The resident will demonstrate an understanding of various forms of non-medication therapy, including life-style modification and the use of devices for disease prevention and treatment, for diseases and conditions listed below.

Oncology pharmacy residencies may be conducted in organizations that treat a full age-range of patients, in organizations that treat only adults, or in organizations that treat only pediatric patients. Programs must decide to focus on either adult patients or pediatric patients.

Adult Oncology Pharmacy-focused Programs

Hematologic Malignancies
> Required
>> Acute lymphoblastic leukemia (ALL)
>> Acute myelogenous leukemia (AML)
>> Chronic lymphocytic leukemia (CLL)
>> Chronic myelogenous leukemia (CML)
>> Hodgkin lymphoma
>> Multiple myeloma
>> Non-Hodgkin lymphoma
> Elective
>> Amyloidosis
>> Myelodysplastic syndromes
>> Myeloproliferative disorders
>> Primary CNS lymphoma

Waldenströms macroglobulinemia

Hematological Disorders
Elective
Aplastic anemia
Hemophilia A
Hemophilia B
Hemolytic anemias
Immune thrombocytopenic purpura (ITP)
Iron deficiency anemia
Paroxysmal nocturnal hemoglobinuria
Porphyria
Sickle cell anemia
Thrombotic thrombocytopenic purpura (TTP)/Hemolytic uremic syndrome (HUS)
Von Willebrand's disease

Pediatric Malignancies
Required (*These required areas may be accomplished through didactic discussion, reading assignments, case presentations, written assignments, and/or direct patient care experiences.*)
Acute lymphoblastic leukemia
CNS Tumors
Neuroblastoma
Non-Hodgkin lymphoma
Wilms tumor
Elective
Ewing sarcoma
Osteosarcoma
Retinoblastoma
Rhabdomyosarcoma

Supportive Care/Symptom Management
Required
Anemia
Constipation
Diarrhea
Extravasation
Fatigue
Hypercalcemia of malignancy
Hypersensitivity reactions
Infection prophylaxis and management
Mucositis
Myelosuppression
Nausea and vomiting
Neutropenic fever
Organ-systems toxicity (i.e. - cardiotoxicity, dermatologic, hepatotoxicity, nephrotoxicity, neurotoxicity, pulmonary)
Pain management
Malignant effusions

Radiation complications
Spinal cord compression syndrome
Superior vena cava syndrome
Thrombosis
Tumor lysis syndrome

Elective
Infertility
Survivorship
Secondary malignancies

Transplantation
Required
Autologous hematopoietic stem cell therapy
Infection prophylaxis
Mobilization
Preparative regimens
Vaccinations
Allogeneic hematopoietic stem cell therapy *(This required area may be accomplished through didactic discussion, reading assignments, case presentations, written assignments, and/or direct patient care experiences.)*
Graft-versus-host disease (prophylaxis, management of acute and chronic)
Immunosuppression
Infection prophylaxis
Preparative regimens
Sinusoidal obstruction syndrome
Vaccinations

Solid Malignancies
Residents must have direct patient experience with a minimum of 15 different types of common solid malignancies.
Required
Breast cancer
Colon cancer
Melanoma
Non-small cell lung cancer
Ovarian cancer
Pancreatic cancer
Prostate cancer
Rectal cancer
Small cell lung cancer
Elective
Anal cancer
Adult sarcomas
Bladder cancer
Carcinoid cancer
Carcinoma of unknown primary
Cervical cancer
CNS malignancies

Endocrine tumors
Endometrial cancer
Esophageal cancer
Gastric cancer
Germ cell tumors
Head and neck cancer
Hepatobiliary cancers
Mesothelioma
Non-melanoma skin cancers
Renal cell cancer
Thyroid cancer

Pediatric Oncology Pharmacy-focused Programs

Hematologic Malignancies
Required
Acute lymphoblastic leukemia (ALL)
Acute myelogenous leukemia (AML)
Chronic myelogenous leukemia (CML)
Hodgkin lymphoma
Non-Hodgkin lymphoma
Elective
Amyloidosis
Chronic lymphocytic leukemia (CLL)
Multiple myeloma
Myelodysplastic syndromes
Myeloproliferative disorders
Primary CNS lymphoma
Waldenströms Macroglobulinemia

Hematological Disorders
Elective
Aplastic anemia
Hemophilia A
Hemophilia B
Hemolytic anemias
Immune thrombocytopenic purpura (ITP)
Iron deficiency anemia
Paroxysmal nocturnal hemoglobinuria
Porphyria
Sickle cell anemia
Thrombotic thrombocytopenic purpura (TTP)/Hemolytic Uremic Syndrome (HUS)
Von Willebrand's Disease

Pediatric Malignancies
Required

Acute lymphoblastic leukemia
CNS Tumors
Ewing sarcoma
Hodgkin lymphoma
Neuroblastoma
Non-Hodgkin lymphoma
Osteosarcoma
Wilms tumor

Elective
Retinoblastoma
Rhabdomyosarcoma

Supportive Care/Symptom Management
Required
Anemia
Constipation
Diarrhea
Extravasation
Fatigue
Hypercalcemia of malignancy
Hypersensitivity reactions
Infection prophylaxis and management
Malignant effusions
Mucositis
Myelosuppression
Nausea and vomiting
Neutropenic fever
Organ-systems toxicity (i.e. - cardiotoxicity, dermatologic, hepatotoxicity, nephrotoxicity, neurotoxicity, pulmonary)
Pain management
Radiation complications
Spinal cord compression syndrome
Superior vena cava syndrome
Thrombosis
Tumor lysis syndrome
Elective
Infertility
Secondary malignancies
Survivorship

Transplantation
Required
Autologous hematopoietic stem cell therapy
Infection prophylaxis
Mobilization
Preparative regimens
Vaccinations

Allogeneic hematopoietic stem cell therapy *(This required area may be accomplished through didactic discussion, reading assignments, case presentations, written assignments, and/or direct patient care experiences.)*

        Graft-versus-host disease (prophylaxis, management of acute and chronic)
        Immunosuppression
        Infection prophylaxis
        Preparative regimens
        Sinusoidal obstruction syndrome
        Vaccinations

Solid Malignancies
(These experiences may be accomplished through didactic discussion, reading assignments, case presentations, written assignments, and/or direct patient care experiences.)

Required
        Breast cancer
        Colon cancer
        Melanoma
        Non-small cell lung cancer
        Ovarian cancer
        Prostate cancer
        Small cell lung cancer

Elective
        Anal cancer
        Adult sarcomas
        Bladder cancer
        Carcinoid cancer
        Carcinoma of unknown primary
        Cervical cancer
        CNS malignancies
        Endocrine tumors
        Endometrial cancer
        Esophageal cancer
        Gastric cancer
        Germ cell tumors
        Head and Neck cancer
        Hepatobiliary cancers
        Mesothelioma
        Non-melanoma skin cancers
        Pancreatic
        Rectal
        Renal cell cancer
        Thyroid cancer