Required Educational Outcomes, Goals, and Objectives for Postgraduate Year Two (PGY2) Pharmacy Residencies in Medication-Use Safety

Overview of PGY2 Pharmacy Residencies in Medication-Use Safety

PGY2 pharmacy residencies in medication-use safety are designed to transition PGY1 residency graduates from generalist practice to a specialized role as an organizational leader in the achievement of medication-use safety. Graduates of the program are provided with fundamental skills required to lead multidisciplinary teams whose function is to vision a safe medication-use system for the organization, identify needed improvements in the present system, plan for and implement needed changes, and assess the change achieved.

Residents exit the program with content matter knowledge about medication-use safety that identifies them as authoritative resources on medication-use safety. That background includes knowledge of decision-support, principles of human error and human factors engineering, medication-use safety nomenclature, and the culture of safety. They are able to interpret and synthesize information from a variety of sources to formulate recommendations for improvement and have a broad perspective of organizational dynamics. They are also trained to be highly effective communicators and project managers. They are able to employ this background to effectively represent the medication-use safety perspective when the organization considers the design of its technology and automation systems.

Graduates are highly skilled in the design and delivery of education and training enabling them to design, develop, and deliver medication-use safety-related training to the full scope of concerned audiences including patients, health care professionals, and health care professionals in training. Appropriately, they possess proficiency in the assessment of competence of the staff of the organization in the delivery of patient care. They are also equipped to promote the cause of medication-use safety through the conduct of research on medication-use safety-related topics.

Explanation of the Contents of This Document:

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

The order in which the required educational outcomes are presented in this document does not suggest relative importance of the outcome, amount of time that should be devoted to teaching the outcome, or sequence for teaching.

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[1] Nimmo, CM. Developing training materials and programs: creating educational objectives and assessing their attainment. In: Nimmo CM, Guerrero R, Greene SA, Taylor JT, eds. Staff development for pharmacy practice. Bethesda, MD: ASHP; 2000.

The educational outcomes, goals, and objectives are divided into those that are required and those that are elective. The required outcomes, including all of the goals and objectives falling under them, must be included in the design of all programs. The elective outcomes are provided for those programs that wish to add to the required outcomes. Programs selecting an elective outcome are not required to include all of the goals and objectives falling under that outcome. In addition to the potential elective outcomes contained in this document, programs are free to create their own elective outcomes with associated goals and objectives. Other sources of elective outcomes may include elective educational outcomes in the list provided for PGY1 pharmacy residencies and educational outcomes for training in other PGY2 areas. Each of the goals falling under the program's selection of program outcomes (required and elective) must be evaluated at least once during the resident's year.

Educational Outcomes (*Outcome*): Educational outcomes are statements of broad categories of the residency graduates' capabilities.

Educational Goals (Goal): Educational goals listed under each educational outcome are broad sweeping statements of abilities.

Educational Objectives (OBJ): Resident achievement of educational goals is determined by assessment of the resident's ability to perform the associated educational objectives below each educational goal.

Instructional Objectives *(IO)*: Instructional objectives are the result of a learning analysis of each of the educational objectives. They are offered as a resource for preceptors encountering difficulty in helping residents achieve a particular educational objective. The instructional objectives falling below the educational objectives suggest knowledge and skills required for successful performance of the educational objective that the resident may not possess upon entering the residency year. Instructional objectives are teaching tools only. They are not required in any way nor are they meant to be evaluated.

Required Educational Outcomes, Goals, and Objectives for Postgraduate Year Two (PGY2) Pharmacy Residencies in Medication-Use Safety

Outcome R1: Function as an effective leader for medication-use safety.

Goal R1.1 Exhibit essential personal skills of a medication-use safety practice leader.

OBJ R1.1.1 (Characterization) Practice self-managed continuing professional development with the goal of improving the quality of one's own performance through self-assessment and personal change.

IO State the criteria for judging one's performance of tasks that are critical in one's own practice.

IO Explain the importance of staying current with pertinent medication-use safety-related literature when one's goal is to develop expertise in the field.

OBJ R1.1.2 (Characterization) Demonstrate commitment to enhancing the safe use of medications through active participation in local, state, and/or national medication-use safety-related professional organizations.

OBJ R1.1.3 (Characterization) Demonstrate a commitment to advocacy for medication-use safety through the assertive and persuasive presentation of safety issues to members of the organizational leadership, health care team, the patient, and/or the patient's caregivers.

OBJ R1.1.4 (Application) Use effective negotiation skills to resolve conflicts.

OBJ R1.1.5 (Comprehension) Explain the nature of mentoring in pharmacy, its potential connection with achievement, and the importance of willingness to serve as mentor to appropriate individuals.

OBJ R1.1.6 (Application) Use group participation skills when leading or working as a member of an interdisciplinary committee or informal work group.

IO Explain the roles and responsibilities of the leader of a meeting.

IO Explain effective strategies for leading meetings.

OBJ R1.1.7 (Comprehension) Explain the general processes of establishing and maintaining a medication-use safety residency program.

OBJ R1.1.8 (Comprehension) Explain the importance of contributing to the medication-use safety literature.

OBJ R1.1.9 (Organization) Demonstrate sensitivity to the perspective of the patient, caregiver, or health care colleague in all communications.

IO Explain the importance of adjusting one's communications according to the level of health literacy of the patient.

IO Explain common situations in the work of a medication-use safety officer which can produce a difficult communications encounter.

IO Explain effective communications strategies that could be used in a difficult encounter, including the use of active listening.

IO Explain the importance of adjusting one's communications to adjust for cultural differences.

IO Explain communication strategies that are appropriate for patients who are non-English speakers or who are impaired.

OBJ R1.1.10 (Analysis) Use an understanding of effectiveness, efficiency, customary practice and the recipient's preferences to determine the appropriate type of, and medium and organization for, communication.

- *IO Accurately identify the primary theme or purpose of one's written or oral communication.*
- *IO Accurately determine what information will provide credible background to support or justify the primary theme of one's written or oral communication.*
- *IO Properly sequence ideas in written and oral communication.*
- *IO Accurately determine the depth of communication appropriate to one's audience.*
- *IO Accurately determine words and terms that are appropriate to one's audience.*
- *IO Accurately determine one's audience's needs.*
- *IO Accurately identify the length of communication that is appropriate to the situation.*
- *IO Explain the importance of assessing the listener's understanding of the message conveyed.*
- *IO Explain how to assess the level of health literacy of a patient.*
- *IO State sources of patient information that are adjusted for various levels of health literacy.*
- *IO Explain techniques for persuasive communications.*
- *IO Explain guidelines for the preparation of statements to be distributed to the media.*

OBJ R1.1.11 (Application) Use listening skills effectively in performing job functions.

- *IO Explain the use of body language in listening to others.*
- *IO Explain verbal techniques that can be used to enhance listening to others.*

Outcome R2: Serve as an authoritative resource on medication-use safety for the organization.

Goal R2.1 Establish oneself as an organizational expert on medication-use safety.

OBJ R2.1.1 (Application) Demonstrate facility with terms and concepts utilized in the practice of medication-use safety.

- *IO Explain nomenclature utilized in the practice of medication-use safety.*
- *IO Explain sources of information (e.g., literature, safety organizations, regulatory agencies, standards-setting organizations, professional associations) for the practice of medication-use safety.*
- *IO Explain human factors engineering as it relates to medication-use safety.*
- *IO Explain sources of information on cognitive research that have applicability to medication-use safety.*

OBJ R2.1.2 (Synthesis) Develop a strategy for earning credibility within the organization to be an authoritative resource on medication-use safety.

- *IO Explain various strategies that can be employed to build credibility (offering to teach, participation on committees).*
- *IO Explain how to identify key stakeholders and decision-makers in the organization.*

IO *Explain the importance of being prepared to support a point of view or concept with reliable, valid metrics.*

Goal R2.2 Serve as an organizational resource for regulatory compliance related to medication-use safety.

OBJ R2.2.1 (Evaluation) Assess the organization's medication-use process for compliance with regulatory standards.

IO *Explain the intent of those regulatory standards that have applicability to the safety of the medication-use process.*

OBJ R2.2.2 (Synthesis) Make recommendations for change to the medication-use process as needed to comply with regulatory standards.

Goal R2.3 Contribute to the organization's evaluation of and response to a medication-related event.

OBJ R2.3.1 (Evaluation) Collaborate with risk managers, quality managers, and other appropriate individuals to determine the appropriate response for a medication-related event.

OBJ R2.3.2 (Evaluation) Conduct a failure mode and effects analysis (FMEA) for a proposed medication-use issue.

IO *Explain the process for conducting a FMEA.*

IO *Explain the difference between FMEA and a root cause analysis.*

OBJ R2.3.3 (Analysis) Conduct a root cause analysis (RCA).

IO *Explain the process for conducting a RCA.*

OBJ R2.3.4 (Application) Participate in the process of making any necessary required internal or external notifications.

IO *Explain the difference between asking, "Who made the error?" and, "Why was this error made?"*

OBJ R2.3.5 (Comprehension) Explain expectations of pharmacists in the management of a medication-related event.

IO *Explain the organization's error disclosure policy.*

IO *Explain common expectations of pharmacists in mitigating harm resulting from an error.*

IO *Explain ethical standards governing information that should and should not be disclosed external to a working group or the organization as a whole.*

IO *Explain legal guidelines for protecting the confidentiality of patient and of organizational information, including discoverability.*

Goal R2.4 Provide effective medication-use safety-related education and/or training to patients, caregivers, health care professionals, and health care professionals in training.

OBJ R2.4.1 (Synthesis) Use effective educational techniques in the design of all educational activities.

IO *Identify emerging issues in medication-use safety that would be suitable for organizational educational sessions.*

IO *Explain the role of the medication-use safety pharmacist in providing the organization's staff education and training for competence in safe medication-use practices.*

IO *Explain techniques for teaching health care practitioners how to assertively convey their safety concerns.*

IO *Explain the differences in effective educational strategies when teaching colleagues versus residents versus students versus health professionals in other disciplines.*

IO *Explain the importance of educating patients concerning their responsibilities in assuring the safe use of medications.*

IO *Explain the importance of the pharmacist observing issues of confidentiality when utilizing stories and cases for instruction.*

IO *Explain the role of shadowing as a technique for teaching medication-use safety.*

OBJ R2.4.2 (Synthesis) Design an assessment strategy that appropriately measures the specified objectives for education or training and fits the learning situation.

IO *Explain sources of assessment materials related to medication-use safety competencies.*

OBJ R2.4.3 (Synthesis) Use skill in case-based teaching.

OBJ R2.4.4 (Synthesis) Use public speaking skills to speak effectively in large and small group situations.

IO *Explain techniques that can be used to enhance audience interest.*

IO *Explain techniques that can be used to enhance audience understanding of one's topic.*

IO *Explain speaker habits that distract the audience.*

Outcome R.3: Develop a vision of an ideal safe medication-use system for the organization.

Goal R3.1 Understand the components of a safe medication-use system.

OBJ R3.1.1 (Comprehension) Explain each of the components of a safe medication-use system.

IO *Explain the process of selection and procurement of medications and its influence on the safety of the medication-use system.*

IO *Explain the process of storage of medications and its influence on the safety of the medication-use system.*

IO *Explain the process used to develop a therapeutic plan and its influence on the safety of the medication-use system.*

IO *Explain the process of prescribing medications and its influence on the safety of the medication-use system.*

IO *Explain the different means of transmitting medication orders and their varying influence on the safety of the medication-use system.*

IO *Explain the process of preparation, packaging, labeling and distribution of medications and its influence on the safety of the medication-use system.*

IO *Explain the process of dispensing and its influence on the safety of the medication-use system.*

IO *Explain the process of administering medications and its influence on the safety of the medication-use system.*

IO *Explain the process of monitoring patients who have received medication and its influence on the safety of the medication-use system.*

IO *Explain the difference between quality improvement and safety, and the corresponding organizational structure necessary to support each.*

OBJ R3.1.2 (Comprehension) Explain the pros and cons of using technology and automation in the medication-use process.

OBJ R3.1.3 (Comprehension) Explain the relationship of systems theory to medication-use safety.

OBJ R3.1.4 (Comprehension) Explain the function of each of the categories of health care personnel who participate in the medication-use system.

OBJ R3.1.5 (Comprehension) Explain the role of organizational culture in the safety of the medication-use system.

Goal R3.2 Develop an effective interdisciplinary committee structure to address medication-use safety issues.

OBJ R3.2.1 (Comprehension) Explain the necessity of interdisciplinary collaboration at all levels for successfully addressing medication-use safety issues.

OBJ R3.2.2 (Synthesis) Design a structure of an interdisciplinary working group on medication-use safety that fits within a given organization's current hierarchy and political realities.

IO Explain the importance of interdisciplinary representation on any group that will make medication-use safety decisions.

OBJ R3.2.3 (Synthesis) Design a strategy that would result in the successful adoption by administration of the proposed committee structure.

Goal R3.3 Contribute to an analysis of the organization's current medication-use system.

OBJ R3.3.1 (Analysis) Contribute the medication-use safety pharmacist's perspective to an analysis of the organization's present medication-use system.

IO Explain regulatory requirements for medication-use safety.

IO Explain best practices for medication-use safety.

IO Explain the contribution of flow diagramming to an understanding of an organization's medication-use system.

IO Explain the characteristics of a safe medication-use environment.

Outcome R4: Represent the medication-use safety perspective to the organization's design of its technology and automation systems.

Goal R4.1 Assure that all patient-specific and medication-specific information required to support effective medication-related patient-care decisions is readily available in a useful form to physicians, nurses, pharmacists, and other pertinent health care providers.

OBJ R4.1.1 (Synthesis) Effectively present the safety benefits of an integrated patient and medication information system.

IO Explain the differences between information systems that are integrated, interfaced, and stand-alone.

IO Explain why the Institute of Medicine and other major patient safety advocates endorse the use of advanced clinical information systems.

IO Explain medication-use safety risk points that are introduced by computerization of information sources.

OBJ R4.1.2 (Synthesis) In collaboration with information technology professionals, physicians, nurses, pharmacists, and other pertinent health-care providers, define patient and medication information system requirements to support effective medication-related patient-care decisions by physicians, nurses, pharmacists, and other pertinent health care providers.

IO Explain the principles of decision support as they apply to health care providers making direct patient-care decisions and their effect on medication-use safety.

IO Compare and contrast the benefits and risks of currently available computerized patient and medication information systems.

OBJ R4.1.3 (Synthesis) For those aspects of the organization's patient and medication information collection, storage, and retrieval system that are not automated, create a systematic process that assures that all required information is readily available in a useful form to physicians, nurses, pharmacists, and other pertinent health care providers.

IO Explain effective strategies for non-automated collection, storage, and retrieval of patient-specific and medication-specific information that can be used to assure safe and effective medication use.

OBJ R4.1.4 (Synthesis) Formulate or make improvements to a plan that assures the organization's patient and medication information system remains current.

IO Explain the importance of loading updates of medication information from vendors at least quarterly and conducting quality assurance checks on the updates.

IO Explain the importance of assuring that formulary additions are promptly entered into the existing information system.

IO Explain the importance of routine tests of the computer system to assure that maximum and minimum dose alerts are present for all medications.

Goal R4.2 Assure that methods for the communication of medication orders minimize the risk of errors.

OBJ R4.2.1 (Synthesis) Collaborate with physicians, nurses, pharmacists, and other pertinent health care providers to standardize the organization's processes for the communication of medication orders so that the risk of errors is minimized.

IO Explain the benefits of a computerized prescriber order entry system (CPOE).

IO Explain the value of preprinted order forms for improving medication-use safety in the absence of CPOE.

Goal R4.3 Assure the appropriate use of automation in the preparation, storage and dispensing of medications.

OBJ R4.3.1 (Evaluation) When presented with a particular medication preparation task, identify a safe, efficient, effective, and practical method for doing the task.

IO Explain automation currently available that supports the preparation of medications.

IO Compare and contrast the risks and benefits of various devices that automate the preparation of medications.

IO Compare and contrast the safety risks of automated versus manual preparation of medications.

IO Explain the importance of creating a plan to manage machine malfunctions and downtime.

OBJ R4.3.2 (Evaluation) When presented with a specific medication requiring storage, identify a method for storage that will avoid incorrect product selection.

IO Explain the pros and cons of storing products with look-alike medication names and packaging separately and not alphabetically.

IO Explain the value of using auxiliary warnings or other label enhancements on packages and storage bins of medications with problematic names, packages, and labels.

IO Explain the importance of assuring that medications stocked in patient-care areas are carefully selected for each area considering the needs of each patient-care area, staff expertise and familiarity with specific medications, the risk of error with each medication, and the age and diagnoses of typical patients being treated in the areas.

IO Explain appropriate storage of high risk medications.

OBJ R4.3.3 (Evaluation) When presented with the need to dispense a specific medication or group of medications, identify a safe, efficient, effective, and practical method for the dispensing process.

IO Explain how the human-machine conceptual model applies to a variety of medication-use system tools and devices.

Goal R4.4 Assure that all processes and devices used for medication administration include critical consideration of medication-use safety, including the appropriate level of human factors evaluation.

OBJ R4.4.1 (Evaluation) When presented with a particular medication administration task, identify a safe, efficient, effective, and practical method for administering the medication.

IO Explain how to perform a risk or hazard assessment on a device under consideration for use in medication administration.

OBJ R4.4.2 (Comprehension) Explain an effective strategy to assure active involvement by all relevant health care decision makers (e.g., physicians, biomedical engineering staff, risk management staff, pharmacists, and nurses) in all medication delivery device purchasing decisions.

OBJ R4.4.3 (Comprehension) Explain effective safety features available for devices and technology that can help to prevent or reduce harm resulting from errors in administration of medications (e.g., soft alerts, hard alerts, point-of-care bar-coding, electronic medication administration records).

Goal R4.5 Understand the potential contributions of technology systems to optimize the effectiveness of patient monitoring.

OBJ R4.5.1 (Comprehension) Explain emerging technology for monitoring patients to detect a potential adverse drug event.

OBJ R4.5.2 (Comprehension) Explain various clinical rules that could be used in the design of a patient monitoring system.

Outcome R5: Conduct planning for pursuit of the organization's vision of a safe medication-use system.

Goal R5.1 Lead strategic planning for medication-use safety.

OBJ R5.1.1 (Comprehension) Explain the concept of strategic planning.

OBJ R5.1.2 (Evaluation) Participate on an organizational group identifying goals for improvement in the organization's current medication-use system.

IO Identify those groups in the organization charged with identifying improvements in the organization's current medication-use system and the specific functions of each group.

Goal R5.2 Lead planning activities for the achievement of short-term medication-use safety goals.

OBJ R5.2.1 (Comprehension) Compare and contrast the principles and objectives of short-term versus long-term strategic planning.

OBJ R5.2.2 (Synthesis) Contribute to the development of a plan for the implementation of a specific medication-use safety initiative.

OBJ R5.2.3 (Evaluation) Contribute to the identification of outcome measures for the implementation and desired effects of a specific medication-use safety plan.

Outcome R6: Collect medication-use data and use appropriate data analysis techniques to identify needed improvements in the medication-use system.

Goal R6.1 Identify the appropriate data to collect for identification of needed change.

OBJ R6.1.1 (Comprehension) Explain the types of data and information that can be useful for the analysis of each component of the organization's medication-use process.

IO Explain sources of assessment tools for conducting an analysis of an organization's medication-use process (e.g., ISMP, ASHP).

IO Compare and contrast the potential contributions to an analysis of each of the readily available tools.

IO Explain the potential contribution of an internal organizational assessment of risk points.

OBJ R6.1.2 (Comprehension) Explain likely sources of data and information about the organization's medication-use process.

OBJ R6.1.3 (Analysis) For a given purpose, determine the specific data and information to collect or obtain.

IO Explain the often indirect nature of data that must be used to address medication-use safety questions.

IO Explain the use of anecdotal information in researching medication-use safety questions.

Goal R6.2 Design a data and information collection scheme.

OBJ R6.2.1 (Synthesis) When given what data and information is required by a specific analysis, design an overall approach for obtaining the data and information.

IO Explain the use of the organization's information system in retrieving data.

IO Explain the role of direct observation as an information-gathering strategy.

OBJ R6.2.2 (Synthesis) When the data and information collection scheme requires the use of data collection instruments, design appropriate data collection instruments.

IO Explain principles for the construction of data and information-gathering instruments.

Goal R6.3 Collect data and information according to an identified data/information collection scheme.

OBJ R6.3.1 (Application) Collect desired data and information according to a specified design.

Goal R6.4 Analyze data using appropriate data analysis techniques.

OBJ R6.4.1 (Comprehension) Explain data analysis techniques commonly employed in the analysis of data pertinent to medication-use safety.

OBJ R6.4.2 (Analysis) When given a set of data and the purpose for which the data was collected, select the appropriate data analysis method.

IO Explain specific techniques (e.g., Pareto Analysis, histograms, scatter charts, graphs) commonly used in the analysis of medication-use safety data.

IO Explain how cognitive biases influence data analysis.

OBJ R6.4.3 (Analysis) Analyze a set of data according to the principles of the selected analytical method.

Goal R6.5 Draw appropriate conclusions from a set of analyzed data and information.

OBJ R6.5.1 (Evaluation) When given a set of analyzed data and information, interpret results that can be supported by the data and information.

IO Explain the challenges to drawing hard conclusions from the results of data analysis pertinent to a medication-use safety issue.

Outcome R7: ***Manage changes in the medication-use system***.

Goal R7.1 Facilitate changes in the organization's medication-use policies and procedures.

OBJ R7.1.1 (Synthesis) Write a new or revise an existing medication-use policy or procedure that is in need of change.

IO Explain the differences between a policy and a procedure.

IO Explain the elements of a policy.

IO Explain the style used in the writing of a policy to assure that it conveys the expectations of the organization without ambiguity.

OBJ R7.1.2 (Synthesis) Design a strategy that will result in consensus among stakeholders on the proposed new or changed policy or procedure.

IO Explain techniques for achieving consensus among stakeholders.

OBJ R7.1.3 (Synthesis) Formulate an overall plan for the implementation of a new or changed policy or procedure.

OBJ R7.1.4 (Synthesis) Formulate a plan for any needed education, training, and/or assessment associated with implementation of a new or changed policy or procedure.

IO Explain the importance of designing value and attitude change into any training or education effort whose purpose is to change practice.

OBJ R7.1.5 (Synthesis) Collaborate with others to develop educational materials involved in the implementation of a changed policy or procedure, as necessary.

OBJ R7.1.6 (Synthesis) Collaborate with others to deliver education/training associated with the implementation of a new or changed policy or procedure, as appropriate.

OBJ R7.1.7 (Evaluation) Accurately assess the degree of implementation of a new or changed medication-use policy or procedure.

IO Explain the importance to accreditation and regulatory agencies of compliance with the organization's written policies and procedures.

Goal R7.2 Facilitate the continued development of a culture of safety among the organization's staff.

OBJ R7.2.1 (Analysis) Contribute to an assessment of the organization's culture of safety to identify possible need for improvement.

IO Explain the meaning of the term "culture of safety."

IO Explain requirements for assessment of an organization's culture of safety (e.g., The Joint Commission).

IO Explain sources of instruments for measuring organizational culture.

OBJ R7.2.2 (Synthesis) Contribute to the design of a plan for achieving needed improvements in an aspect of the organization's culture of safety.

IO Explain the critical role of attitude and value change in achieving the development of a culture of safety in an organization.

OBJ R7.2.3 (Synthesis) Contribute to the implementation of a plan for achieving needed improvements in an aspect of the organization's culture of safety.

OBJ R7.2.4 (Evaluation) When appropriate, accurately assess the effects of changes in an aspect of the organization's culture of safety.

Goal R7.3 Facilitate safety-improvement changes in the medication-use physical environment.

OBJ R7.3.1 (Synthesis) Contribute to the design of a needed safety improvement to the organization's medication-use environment.

OBJ R7.3.2 (Synthesis) Formulate a strategy that will gain approval of a needed change in the organization's medication-use environment.

OBJ R7.3.3 (Synthesis) Design a plan for the implementation of a needed change in the organization's medication-use environment.

OBJ R7.3.4 (Synthesis) Implement a plan to change an aspect of the organization's medication-use environment.

Outcome R8: Conduct medication-use safety research.

Goal R8.1 Conduct a medication-use safety research project using effective project management skills.

OBJ R8.1.1 (Synthesis) Identify a topic of significance for a medication-use safety research project.

IO Explain the types of resident projects (e.g., prospective, retrospective, clinical trials) that will meet residency program project requirements and timeframe.

IO Explain how one determines if a potential project topic is of significance in one's particular practice setting.

IO Explain how to conduct an efficient and effective literature search for a project.

IO Explain how to generate a research question(s) to be answered by an investigation.

OBJ R8.1.2 (Synthesis) Formulate a feasible design for a medication-use safety research project.

IO Explain the elements of a project proposal.

IO Explain how to identify those individuals who will be affected by the conduct of the project and strategies for gaining their cooperation.

- *IO Explain how to determine a timeline with suitable milestones that will result in project completion by an agreed upon date.*
- *IO Explain the ethics of research on human subjects and the role of the IRB.*
- *IO Explain various methods for constructing data collection tools.*

OBJ R8.1.3 (Synthesis) Secure any necessary approvals, including IRB and funding, for one's design of a project.

- *IO Explain how to identify those key stakeholders who must approve a particular project.*
- *IO Explain the components that make up a budget for a project.*
- *IO Explain the role of the organization's IRB in the approval process.*

OBJ R8.1.4 (Synthesis) Implement a medication-use safety research project as specified in its design.

- *IO Explain strategies for keeping one's work on a project at a pace that matches with the projected timeline.*
- *IO When given a particular approved residency project, explain methods for organizing and maintaining project materials and documentation of the project's ongoing implementation.*
- *IO Explain methods for research data analysis.*

OBJ R8.1.5 (Synthesis) Effectively present the results of a medication-use safety research project.

OBJ R8.1.6 (Synthesis) Successfully employ an accepted manuscript style to prepare a final report of a medication-use safety research project.

- *IO When given a particular residency project ready for presentation, explain the type of manuscript style appropriate to the project and criteria to be met when using that style.*

OBJ R8.1.7 (Evaluation) Accurately assess the impact, including sustainability if applicable, of the residency project.

Elective Educational Outcomes, Goals, and Objectives for Postgraduate Year Two (PGY2) Pharmacy Residencies in Medication-Use Safety

Outcome E1: Contribute to the literature on medication-use safety.

Goal E1.1 Write articles that provide pertinent medication-use information on medication-use safety-related topics for health care professionals and/or the public.

OBJ E1.1.1 (Synthesis) Use knowledge of the purpose of a particular publication to write articles that provide pertinent medication-use safety-related information for health care professionals and/or the public.

IO (Analysis) Identify medication-use safety-related topics that would be suitable for a particular audience.

OBJ E1.1.2 (Application) Submit a suitably formatted article on a medication-use safety-related topic for peer-reviewed publication.

Outcome E2: Demonstrate skills required to function in an academic setting.

Goal E2.1 Understand faculty roles and responsibilities.

OBJ E2.1.1 (Comprehension) Explain variations in the expectations of different colleges/schools of pharmacy for teaching, practice, research, and service.

IO Discuss how the different missions of public versus private colleges/schools of pharmacy can impact the role of faculty members.

IO Discuss maintaining a balance between teaching, practice, research and service.

IO Discuss the relationships between scholarly activity and teaching, practice, research and service.

OBJ E2.1.2 (Analysis) Explain the role and influence of faculty in the academic environment.

IO Explain the responsibilities of faculty in governance structure (e.g. the faculty senate, committee service).

IO *Describe the responsibilities of faculty (e.g. curriculum development and committee service) related to teaching, practice, research, and service roles.*

OBJ E2.1.3 (Comprehension) Describe the academic environment.

IO Describe how the decisions by university and college administration impact the faculty.

IO Discuss outside forces (e.g. change in the profession, funding source, accreditation requirements) that impact administrator and faculty roles.

OBJ E2.1.4 (Comprehension) Describe the types and ranks of faculty appointments.

IO Explain the various types of appointments (e.g. non-tenure, tenure-track, and tenured faculty).

IO Differentiate among the various ranks of faculty (e.g. instructor, assistant professor, associate professor, full professor).

IO Discuss the role and implications of part-time and adjunct faculty as schools continue to expand and faculty shortages occur.

OBJ E2.1.5 (Comprehension) Discuss the promotion and tenure process for each type of appointment.

IO *Identify the types of activities that are considered in the promotion process.*

IO *Identify the types of activities that are considered for tenure.*

OBJ E2.1.6 (Application) Identify resources available to help develop academic skills.

IO *Explain the role of academic-related professional organizations (e.g. AACP) in faculty professional development.*

IO *Identify resources to help develop teaching skills and a teaching philosophy.*

OBJ E2.1.7 (Comprehension) Explain the characteristics of a typical affiliation agreement between a college of pharmacy and a practice site (e.g., health system, hospital, clinic, retail pharmacy).

IO *Explain how the political environments of either a college or a practice site may affect the other.*

Goal E2.2 Exercise teaching skills essential to pharmacy faculty.

OBJ E2.2.1 (Synthesis) Develop an instructional design for a class session, module, or course.

IO *Construct a student-centered syllabus.*

IO *Construct educational objectives for a class session, module, or course that is appropriate to the audience.*

IO *Identify appropriate instructional strategies for the class session, module, or course to achieve the objectives.*

IO *Consider assessment tools that measure student achievement of the educational objectives.*

OBJ E2.2.2 (Synthesis) Prepare and deliver didactic instruction on a topic relevant to the specialized area of pharmacy residency training.

IO *Identify educational technology that could be used for a class session, module, or course (e.g., streaming media, course management software, audience response systems).*

IO *Create instructional materials appropriate for the topic and audience.*

IO *Identify strategies to deal with difficult learners.*

IO *Given feedback from teaching evaluations (e.g. student and or peer), devise a plan to incorporate improvements in future instruction.*

OBJ E2.2.3 (Application) Develop and deliver cases for workshops and exercises for laboratory experiences.

IO *Identify the appropriate level of case-based teachings for small group instruction.*

IO *Identify appropriate exercises for laboratory experiences.*

IO *Provide appropriate and timely feedback to improve performance.*

OBJ E2.2.4 (Application) Serve as a preceptor or co-preceptor utilizing the four roles employed in practice-based teaching (direct instruction, modeling, coaching and facilitation).

IO *Assess the learner's skill level to determine the appropriate preceptor strategy for providing practice-based teaching.*

IO *Given performance-based criteria, identify ways to provide constructive feedback to learners.*

IO *Develop strategies to promote professional behavior.*

- *IO Identify strategies to deal with difficult learners in the practice setting.*
- *IO Given a diverse learner population, identify strategies to interact with all groups with equity and respect.*

OBJ E2.2.5 (Analysis) Develop a teaching experience for a practice setting (e.g., introductory or advanced pharmacy experience).

- *IO Create educational goals and objectives to be achieved.*
- *IO Develop activities that will allow achievement of identified educational goals and objectives.*
- *IO Identify how and when feedback should be provided.*
- *IO Identify other preceptors for the experience, if appropriate.*
- *IO Determine training that might be needed for the preceptors to deliver student education.*
- *IO Identify potential challenges of precepting and providing patient care services simultaneously.*

OBJ E2.2.6 (Synthesis) Design an assessment strategy that appropriately measures the specified educational objectives for the class session, module, course, or rotation.

- *IO Identify appropriate techniques for assessing learning outcomes in various educational settings [e.g., written examinations, oral examinations, practical examinations, Objective Structured Clinical Examination (OSCE)].*
- *IO Develop examination questions to assess the knowledge, skills, attitudes and behaviors that are appropriate to the learner's level and topic.*
- *IO Discuss the various methods for administering examination questions (e.g., computerized testing, paper testing).*

OBJ E2.2.7 (Evaluation) Create a teaching portfolio.

- *IO Define the concept of a teaching portfolio and describe its primary purpose*
- *IO Outline the steps in building a teaching portfolio.*
- *IO Develop a personal teaching philosophy to guide one's teaching efforts and facilitate student learning.*

OBJ E2.2.8 (Evaluation) Compare and contrast methods to prevent and respond to academic and profession dishonesty.

- *IO Evaluate physical and attitudinal methods to prevent academic dishonesty.*
- *IO Discuss methods of responding to incidents of academic dishonesty.*
- *IO Discuss the role of academic honor committees in cases of academic dishonesty.*
- *IO Identify examples and methods to address unprofessional behavior in learners.*

OBJ E2.2.9 (Comprehension) Explain the relevance of copyright laws to developing teaching materials.

- *IO Discuss copyright regulations as related to reproducing materials for teaching purposes.*
- *IO Discuss copyright regulations as related to linking and citing on-line materials.*

Outcome E3: Contribute the medication-use safety perspective to internal and external emergency preparedness planning.

Goal E3.1 Contribute to the planning and implementation of plans for the management of internal and external emergencies.

OBJ E3.1.1 (Comprehension) Explain the medication-use safety officer's role in the development of plans for the management of internal and external emergencies at the organizational, local, state and national levels.

OBJ E3.1.2 (Synthesis) Contribute to the development or revision of the medication-use safety-related aspects of organizational plans for the management of internal and external emergencies.

IO: Explain the essential medication-use safety-related components of an organization's plan for the management of internal and external emergencies.

IO Explain who should be involved in the development of an organization's plan for the management of internal and external emergencies.

OBJ E3.1.3 (Synthesis) Exercise skill in the delivery of staff training as specified in the organization's emergency preparedness plans.

OBJ E3.1.4 (Synthesis) If needed, provide services and programs as specified in the organization's emergency preparedness plan.

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The effective date for implementation of these educational outcomes, goals, and objectives is July 1, 2007.