Program Outcomes, Educational Goals, and Educational Objectives
for
Postgraduate Year Two (PGY2) Residencies in an Advanced Area of Pharmacy Practice

Overview of PGY2 Pharmacy Residencies in an Advanced Area of Pharmacy Practice

A program applying for accreditation of a PGY2 pharmacy residency in an advanced area must develop and provide ASHP's Accreditation Services Division with a set of program outcomes, educational goals, and educational objectives for the advanced area at the time of application. These locally developed goals and objectives will supplement the required goals.

The residency program director must also develop and submit to ASHP, at the time of application for accreditation, an appendix of diseases and conditions to serve as a guide to establishing residents' clinical experiences.

Postgraduate year two pharmacy residencies are designed to produce specialized practitioners with an advanced degree of proficiency and expertise in working with interdisciplinary teams to deliver pharmaceutical care. A PGY2 pharmacy residency in an advanced area of practice shall be predicated on the knowledge, skills, attitudes, and abilities required for an expert level of pharmacy practice in that advanced area. The practice site offering the program shall provide an exemplary training environment; further, the scope of services at the site must be adequate to make possible the attainment of the required goals and objectives set forth below.

An accredited PGY2 pharmacy residency in an advanced area shall develop the pharmacist's competence to practice in the scope of practice settings associated with the advanced practice area. However, the following goals and objectives were written to include practice in all practice settings (e.g., acute care, ambulatory care, sub-acute care) and not all residency sites will have patients from all of these settings. Variability will also exist in the entering skills of trainees. Therefore, although all of the educational goals listed below must be included, variability among programs is expected due to the emphasis placed on these goals in order to meet the overall goals of the residency program and the needs of the institution sponsoring the residency program. The residency program director must assess and document the level of knowledge, skills, and abilities of the entering resident and develop a customized plan that assures the resident is able to demonstrate competence in all of the required educational goals and objectives by the end of the residency.

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.

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. Sometimes referred to as outcome competencies, goal statements convey the philosophical base upon which educational objectives are built.

Educational Objectives (OBJ): Educational objectives specify observable, measurable behaviors. Objectives are the basis for objectively assessing resident performance. The objectives listed under each goal specify behaviors which, in sum, assure goal mastery and, therefore, must be assessed formally when a goal has been selected for active teaching and evaluation.

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 and they are not meant to be evaluated.

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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.

Outcome R1: Demonstrate leadership and practice management skills.
Goal R1.1   Exhibit the ongoing development of essential personal skills of a 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 change.
         IO   *State criteria for judging one's performance of tasks that are critical in one's own practice.*
         IO   *Explain the role of participation in pharmacy professional organization meetings in the ongoing development of expertise in the specialized area of pharmacy practice.*
         IO   *Explain the importance of staying current with pertinent literature.*
     OBJ R1.1.2   (Characterization) Demonstrate commitment to the professional practice of pharmacy through active participation in the activities of local, state, and/or national pharmacy professional organizations.
         IO   *Assess the relevance of membership or participation in various professional organizations associated with pharmacy practice.*
         IO   *Explain the importance of contributing to the work of pharmacy professional organizations in advancing the visibility of the pharmacist's role in the pharmaceutical care of patients.*
     OBJ R1.1.3   (Synthesis) Devise an effective plan for balancing professional and personal life.
         IO   *Explain the importance of balancing professional and personal life.*
         IO   *Explain potential negative consequences of failure to achieve balance in professional and personal life.*
         IO   *Explain various approaches advocated for achieving balance in one's life.*
     OBJ R1.1.4   (Characterization) Display integrity in professional relationships and actions.
         IO   *Explain ethical dilemmas that may confront the pharmacy specialist.*
         IO   *Explain the system of ethical reasoning employed in arriving at a particular ethical decision.*
         IO   *Explain ethical principles embodied in the American Pharmacists Association Code of Ethics for Pharmacists.*
         IO   *Explain the implications of the Belmont Report[2] for ethical decision-making in pharmacy.*
     OBJ R1.1.5   (Application) Adhere to the requirements of the organization's policy in all interactions with the pharmaceutical industry.
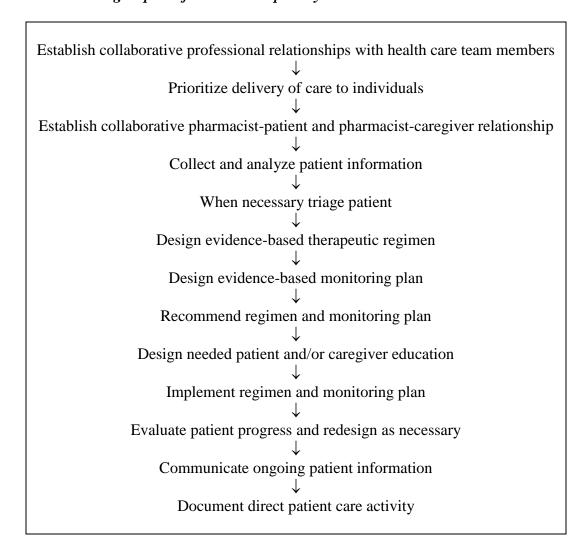
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[2] The Belmont Report.: Ethical Principles for the Protection of Human Subjects of Research. Report from the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (resource on the World Wide Web). URL: http.//ohsr.od.nih.gov/guidelines/guidelines.html. Office of Human Subjects Research, National Institutes of Health. 1979 April 18, Available from Internet. Accessed 2007April 2.

> *IO Explain the potential conflicts inherent in the objectives of one's health care organization and the objectives of a pharmaceutical industry representative.*

OBJ R1.1.6 (Synthesis) Initiate and maintain a systematic approach to documenting professional activities and accomplishments.

OBJ R1.1.7 (Evaluation) Appraise each job responsibility for its relative importance to all job responsibilities and prioritize appropriately.

Goal R1.2 Establish oneself as an expert for medication-related information and resources within an organization.

OBJ R1.2.1 (Synthesis) Implement a successful strategy for earning credibility within the organization to be an authoritative expert on the medication-related care of patients.

> *IO Identify opportunities for the pharmacy specialist to earn credibility with members of an interdisciplinary team.*
>
> *IO Identify opportunities for the pharmacy specialist to earn credibility within the organization.*

Goal R1.3 Contribute the pharmacy specialist's perspective to an organization's technology and automation systems decisions.

OBJ R1.3.1 (Synthesis) When appropriate, participate in the organization's design of its technology and automation systems used in patient care.

> *IO Explain the pharmacy specialist's role in contributing to the design of technology systems (e.g., CPOE, PDAs, software, smart pumps) for the organization.*
>
> *IO Explain the pharmacy specialist's role in contributing to decisions regarding automation systems.*

OBJ R1.3.2 (Synthesis) When appropriate, participate in the organization's implementation of its technology and automation systems.

> *IO Explain factors to consider when implementing technology and automation systems that affect the care of patients.*

OBJ R1.3.3 (Synthesis) When appropriate, participate in the organization's quality improvement of its technology and automation systems.

> *IO Explain the importance of ongoing evaluation of the organization's technology and automation systems.*
>
> *IO Explain the pharmacy specialist's role in contributing to the quality improvement of technology systems for the organization.*
>
> *IO Explain the pharmacy specialist's role in contributing to the-quality improvement of the organization's automation systems.*

Goal R1.4 Contribute to the leadership and management activities within the practice area.

OBJ R1.4.1 (Application) Use effective negotiation skills to resolve conflicts.

OBJ R1.4.2 (Synthesis) Use group participation skills when leading or working as a member of a formal or informal work group.

> *IO Explain methods for achieving consensus.*
>
> *IO Explain how to create an agenda for a meeting.*
>
> *IO Explain methods for assuring participation by all members of a group.*
>
> *IO Explain methods for effective group leadership.*

OBJ R1.4.3   (Comprehension) Explain the components of a proposal for a new pharmacy service that would meet a perceived need of the organization and its patients.

IO   Explain methods for measuring the outcomes of an existing pharmacy service.

IO   Explain approaches, including pharmacoeconomic analysis, to justifying a clinical service.

Goal R1.5   Exercise practice leadership.

OBJ R1.5.1   (Characterization) Demonstrate a commitment to advocacy for the optimal care of patients through the assertive and persuasive presentation of patient care issues to members of the health care team, the patient, and/or the patient's representative(s).

OBJ R1.5.2   (Characterization) Display initiative in preventing, identifying, and resolving pharmacy-related patient care problems.

OBJ R1.5.3   (Comprehension) Explain the nature of mentoring in pharmacy, its potential connection with achievement, and the importance of being willing to serve as a mentor to appropriate individuals.

OBJ R1.5.4   (Comprehension) Explain the general processes of establishing and maintaining a PGY2 pharmacy residency program.

Goal R1.6   Critically evaluate core biomedical literature resources appropriate for the specialized area of pharmacy practice.

OBJ R1.6.1   (Application) Use knowledge of standard resources to apply core primary, secondary, and tertiary biomedical literature resources appropriate for the specialized area of pharmacy practice.

Outcome R2: Optimize the outcomes of patients in the specialized area of pharmacy practice through the expert provision of evidence-based[3], patient-centered medication therapy as an integral part of an interdisciplinary team.

Establish collaborative professional relationships with health care team members
↓
Prioritize delivery of care to individuals
↓
Establish collaborative pharmacist-patient and pharmacist-caregiver relationship
↓
Collect and analyze patient information
↓
When necessary triage patient
↓
Design evidence-based therapeutic regimen
↓
Design evidence-based monitoring plan
↓
Recommend regimen and monitoring plan
↓
Design needed patient and/or caregiver education
↓
Implement regimen and monitoring plan
↓
Evaluate patient progress and redesign as necessary
↓
Communicate ongoing patient information
↓
Document direct patient care activity

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[3] Evidence-based medicine -- the integration of best research evidence, clinical expertise, and patient values in making decisions about the care of individual patients (Institute of medicine, 2001; Straus and Sackett, 1998). *Best research evidence* includes evidence that can be quantified, such as that from randomized controlled trials, laboratory experiments, clinical trials, epidemiological research, and outcomes research and evidence derived from the practice knowledge of experts, including inductive reasoning (Guyatt et al., Higgs et al., 2001). *Clinical expertise* is derived from the knowledge and experience developed over time from practice, including inductive reasoning. *Patient values and circumstances* are the unique preferences, concerns, expectations, financial resources, and social supports that are brought by each patient to a clinical encounter. (Institute of Medicine. Health professions education: a bridge to quality. Washington, DC: The National Academies Press; 2001.)

Goal R2.1   Develop collaborative professional relationships with members of the health care team.

OBJ R2.1.1   (Synthesis) Implement a strategy that effectively develops cooperative, collaborative, and communicative working relationships with members of the interdisciplinary health care team.

IO   Explain the training and expected areas of expertise of the members of the interdisciplinary team with which one works.

IO   For each of the professions with which one interacts on an interdisciplinary team, explain the profession's view of its role and responsibilities in collaborations on patient-centered care and their expectations of the pharmacist's role in collaborations on patient-centered care.

IO   Explain the professional dynamics of the different services comprising the health care team.

IO   Identify the interpersonal dynamics of each member of the interdisciplinary health care team with which one works.

Goal R2.2   For a caseload of patients, prioritize the delivery of pharmaceutical care.

OBJ R2.2.1   (Evaluation) Appropriately prioritize the care of patients if given limited time and multiple patient care responsibilities.

IO   Explain factors to consider when determining priority for pharmaceutical care.

IO   Explain how the complexity or severity of patient problems may mandate urgency of care and reordering of current priorities for care.

Goal R2.3   Establish collaborative pharmacist-patient and pharmacist-caregiver relationships.

OBJ R2.3.1   (Synthesis) Implement a strategy that effectively establishes a patient-centered pharmacist-patient and pharmacist-caregiver relationship.

IO   Explain the importance of describing to the patient the pharmacy specialist's role in his/her care.

IO   Explain potential barriers to relationship development with individual patients (age, mental status, educational level, health literacy).

IO   Explain the views of diverse cultures and religions on the conceptualization of illness, treatment, and of death and dying.

Goal R2.4   Collect and analyze patient information.

OBJ R2.4.1   (Analysis) Collect and organize all patient-specific information needed by the pharmacy specialist to anticipate, prevent, detect, and/or resolve medication-related problems and to make appropriate evidence-based, patient-centered medication therapy recommendations as part of the interdisciplinary team. (See appendix for required and elective content regarding disease states, medications, and non-medication treatments.)

IO   For a given patient population, disease state, and degree of acuity, identify the additional depth and breadth of information the pharmacy specialist requires in the patient information base versus the information base of a generalist.

IO   When appropriate, measure patient vital signs and use appropriate physical assessment skills to build the patient information base.

OBJ R2.4.2   (Analysis) Determine the presence of or potential for all clinically significant problems in the patient's current medication therapy.

OBJ R2.4.3   (Analysis) Using an organized collection of patient-specific information, summarize the patient's health care needs.

Goal R2.5   Appropriately triage patients.

OBJ R2.5.1   (Evaluation) When presented with a patient with health care needs that cannot be met by the pharmacy specialist, request a consult by the appropriate health care provider based on the patient's acuity and the presenting problem.

OBJ R2.5.2   (Synthesis) Devise a plan for follow-up on a consult for a patient.

Goal R2.6   Design evidence-based therapeutic regimens.

OBJ R2.6.1   (Synthesis) Specify therapeutic goals for a patient incorporating the principles of evidence-based medicine that integrate patient-specific data, disease and medication-specific information, ethics, and quality-of-life considerations.

    IO   Identify the sources of disease management and drug-use guidelines.

    IO   Explain the pharmacy specialist's focus on the optimization of the patient's therapeutic outcomes by the selection of ambitious therapeutic goals and optimal regimen design.

OBJ R2.6.2   (Synthesis) Design a patient-centered regimen that meets the evidence-based therapeutic goals established for the patient; integrates patient-specific information, disease and drug information, ethical issues and quality-of-life issues; and considers pharmacogenomic and pharmacoeconomic principles.

Goal R2.7   Design evidence-based monitoring plans.

OBJ R2.7.1   (Synthesis) Design a patient-centered, evidenced-based monitoring plan for a therapeutic regimen that effectively evaluates achievement of the specified therapeutic goals.

    IO   State customary screening tools and monitoring parameters for diseases and conditions listed in the appendix.

    IO   State customary monitoring parameters for medications commonly prescribed for diseases and conditions listed in the appendix.

Goal R2.8   Recommend regimens and monitoring plans.

OBJ R2.8.1   (Application) Recommend a patient-centered, evidence-based therapeutic regimen and corresponding monitoring plan to other members of the interdisciplinary team in a way that is systematic, logical, accurate, timely, and secures consensus from the team.

OBJ R2.8.2   (Application) Discuss the proposed patient-centered, evidence-based therapeutic regimen and corresponding monitoring plan with the patient and/or caregiver in a way that is systematic, logical, accurate, timely, sensitive, and secures consensus from the patient and/or caregiver.

Goal R2.9   Design education for a patient's regimen and monitoring plan.

OBJ R2.9.1   (Analysis) Accurately identify what education will be essential to the patient's or caregiver's understanding of the therapeutic regimen and monitoring plan; how to adhere to it; and the importance of adherence.

OBJ R2.9.2   (Synthesis) Design an effective and efficient plan for meeting the educational needs of the patient, including information on medication therapy, adverse effects, adherence, appropriate use, handling, and medication administration.

Goal R2.10   Implement regimens and monitoring plans.
    OBJ R2.10.1   (Application) When appropriate, initiate the patient-centered, evidence-based therapeutic regimen and monitoring plan for the patient according to the organization's policies and procedures.
        IO   Explain the organization's policies and procedures for ordering inpatient and outpatient medications.
        IO   Explain the organization's policies and procedures for ordering tests.
    OBJ R2.10.2   (Complex Overt Response) When appropriate, exercise skill in the administration or supervision of the administration of a patient's therapeutic regimen.
    OBJ R2.10.3   (Application) When necessary, contribute to the work of the team that secures access for drugs used in a patient's regimen.
        IO   Explain patient assistance programs available for medications.
        IO   Explain the pharmacy specialist's role (versus other interdisciplinary team members) in securing payer coverage or patient assistance.
        IO   Explain circumstances in which it may be appropriate to redesign a patient's medication regimen in order to ensure that a patient will have financially viable access to the prescribed medications.
        IO   Explain various approaches used to adjust medication regimens in order to facilitate patient access to medications.
        IO   Explain organizational policies and procedures for securing compassionate use medications needed for an individual patient.
    OBJ R2.10.4   (Application) Use effective patient education techniques to provide counseling to patients and caregivers, including information on the disease state, medication therapy, adverse effects, compliance, appropriate use, handling, storage, medication administration, and any other therapeutic interventions.
    OBJ R2.10.5   (Application) Use a working knowledge of the organization's referral process to make any necessary patient referrals.
    OBJ R2.10.6   (Application) Make follow-up appointments as specified in the monitoring plan.
Goal R2.11   Evaluate patient progress and redesign regimens and monitoring plans.
    OBJ R2.11.1   (Evaluation) Accurately assess the patient's progress toward the therapeutic goal(s).
    OBJ R2.11.2   (Synthesis) Redesign the patient's regimen and monitoring plan as necessary, based on evaluation of monitoring data and therapeutic outcomes.
Goal R2.12   Communicate pertinent patient information to facilitate continuity of care.
    OBJ R2.12.1   (Application) Ensure that accurate and timely patient-specific information reaches those who need it at the appropriate time.
    OBJ R2.12.2   (Synthesis) Formulate a strategy for continuity of pharmaceutical care across all applicable treatment settings.
        IO   Explain potential problems that may place patients at risk in various treatment settings (e.g., hospital, clinic, home) or upon change in level of care.
        IO   Explain accrediting organizations' requirements for medication reconciliation across the continuum of care.

          IO   *Explain methods for coordinating information between multiple pharmacy and other health care workers serving the needs of patients that will facilitate the provision of pharmaceutical care.*

     OBJ R2.12.3 (Application) When given a patient who is transitioning from one health care setting to another, communicate pertinent pharmacotherapeutic information to the receiving health care professionals.

Goal R2.13   Document direct patient-care activities appropriately.

     OBJ R2.13.1 (Analysis) Appropriately select direct patient-care activities for documentation.

          IO   *Explain the organization's policies and procedures for identifying activities that must be documented.*

     OBJ R2.13.2 (Application) Write timely and authoritative consults and notes according to the organization's policies and procedures.

          IO   *Explain the organization's policies and procedures for documenting direct patient-care activities.*

          IO   *Explain the content and format of progress notes.*

Outcome R3: Serve as an authoritative resource on the optimal use of medications.

Goal R3.1   Employ advanced literature analysis skills in preparing drug information.

     OBJ R3.1.1   (Synthesis) Create an efficient and effective advanced search strategy to prepare a drug information response.

          IO   *Explain the full range of drug information resources that are currently available.*

          IO   *Explain content and applicability of specialized sources of drug information.*

          IO   *Explain the principles for use of search engines when the search needs to be at an advanced level.*

     OBJ R3.1.2   (Analysis) Accurately identify the study design employed for a piece of biomedical literature.

          IO   *Explain the key features of epidemiologic and experimental designs and the strengths and weaknesses of each.*

     OBJ R3.1.3   (Evaluation) Determine if the study design and methodology are appropriate to accomplish the objectives of a piece of biomedical literature.

     OBJ R3.1.4   (Evaluation) Accurately interpret statistical information presented in a piece of biomedical literature.

          IO   *Explain the application and interpretation of advanced statistical methods.*

          IO   *Determine instances in which a study conclusion is erroneously supported by data display.*

     OBJ R3.1.5   (Analysis) Identify potential sources of bias in a piece of biomedical literature.

     OBJ R3.1.6   (Evaluation) Determine the internal and external validity of a piece of biomedical literature.

     OBJ R3.1.7   (Evaluation) Determine if a study's results have applicability for hypothesizing future research or for directing patient care decisions.

OBJ R3.1.8   (Evaluation) When presented with conflicting biomedical literature, determine the validity and applicability for a specific drug information need.

IO   Compare and contrast the reputations and peer-review procedures of biomedical journals.

IO   Explain how to appraise drug information for the expertise and reputation of the author(s).

OBJ R3.1.9   (Evaluation) When presented with limited evidence-based biomedical literature, synthesize a reasonable response for the specific drug information need.

OBJ R3.1.10   (Evaluation) Appraise information provided by a pharmaceutical manufacturer.

OBJ R3.1.11   (Synthesis) Prepare an expert response to a complex drug information need.

IO   Explain standards of care applicable to a specific drug information need.

IO   Explain a standardized process for documenting, storing, and retrieving drug information responses.

Goal R3.2   Provide pharmacy expertise to the organization in the review of existing, development of new, and implementation of the organization's policies and procedures affecting the care of patients.

OBJ R3.2.1   (Evaluation) Make recommendations for drug class decisions based on comparative reviews.

OBJ R3.2.2   (Synthesis) Formulate effective strategies for communicating formulary restrictions to providers.

IO   Explain routes of communication of formulary information.

IO   Identify instances when formulary changes should be communicated immediately.

OBJ R3.2.3   (Evaluation) When presented with a drug shortage, identify appropriate alternative medications.

IO   State resources for identifying medications in short supply.

IO   Explain the organization's system for communicating information regarding drug shortages.

IO   Explain a strategy for making optimal choices for alternative medications.

OBJ R3.2.4   (Evaluation) When the needs of a particular patient warrant, determine if a non-formulary medication should be considered for therapy.

IO   Identify the appropriate literature that supports the use of a non-formulary medication in a clinical situation.

IO   Explain the organization's system for approving, obtaining, and handling non-formulary medication used by patients.

OBJ R3.2.5   (Synthesis) Contribute to the work of an organizational committee or work group concerned with the improvement of medication-use policies and procedures.

Goal R3.3   Identify opportunities for improving the safety of aspects of the organization's medication-use system.

OBJ R3.3.1   (Application) Participate in the organization's system for reporting medication errors and adverse drug reactions (ADEs).

OBJ R3.3.2   (Comprehension) Explain those aspects of the organization's medication-use system affecting patients served by the specialized area of pharmacy practice and its vulnerabilities to adverse drug events (ADEs).

OBJ R3.3.3   (Evaluation) Identify opportunities for improvement in aspects of the organization's medication-use system affecting patients served by the specialized area of pharmacy practice by comparing the medication-use system to relevant best practices.

Goal R3.4   Assist the organization in achieving compliance with accreditation, legal, regulatory, and safety requirements related to the use of medications (e.g., Joint Commission requirements; ASHP standards, statements, and guidelines; state and federal laws regulating pharmacy practice; OSHA regulations).

OBJ R3.4.1   (Evaluation) Determine appropriate activities and documentation needed to meet accreditation, legal, regulatory, and safety requirements for pharmacy.

IO   Explain the influence of accreditation, legal, regulatory, and safety requirements on clinical practice.

Goal R3.5   Lead the review of existing, and development and implementation of new, medication-related guidelines/protocols for the care of patients served by the specialized area of pharmacy practice.

OBJ R3.5.1   (Analysis) Identify the need for a medication-related guideline/protocol for the care of patients served by the specialized area of pharmacy practice by comparing the applicability of existing guidelines/protocols to the needs of the organization.

IO   Explain the influence of the abundance of guidelines/protocols presently in use on decisions to develop a guideline/protocol specific to one's organization.

OBJ R3.5.2   (Synthesis) Develop a medication-related guideline/protocol for the care of patients served by the specialized area of pharmacy practice based on best evidence and the characteristics of the local environment and patients.

OBJ R3.5.3   (Synthesis) Formulate a strategy that will successfully implement a medication-related guideline/protocol for the care of patients served by the specialized area of pharmacy practice.

IO   Explain the importance of including pharmacy, nursing, and medical services in the design of an implementation strategy.

OBJ R3.5.4   (Evaluation) Assess the results of implementing a medication-related guideline/protocol for the care of patients served by the specialized area of pharmacy practice.

Outcome R4: Demonstrate excellence in the provision of training and educational activities for health care professionals, health care professionals in training, and the public.

Goal R4.1   Provide effective education and training to health care professionals and health care professionals in training.

OBJ R4.1.1   (Synthesis) Use effective educational techniques in the design of an educational/training activity.

IO   Identify emerging issues in pharmacotherapy suitable for interdisciplinary educational sessions.

> *IO   Explain the differences in effective educational strategies and appropriate content when teaching colleagues, residents, students, and health professionals in other disciplines.*
> *IO   Explain the concept of learning styles and its influence on the design of instruction.*
> *IO   Write appropriately worded educational objectives.*
> *IO   Explain how different instructional delivery systems (e.g., demonstration, written materials, video) foster different types of learning.*
> *IO   Explain effective teaching approaches for the various types of learning (e.g., imparting information, teaching psychomotor skills, inculcation of new attitudes).*

OBJ R4.1.2   (Synthesis) Design an assessment strategy that appropriately measures the specified objectives for education or training and fits the learning situation.
> *IO   Explain appropriate assessment techniques for assessing the learning outcomes of educational or training programs.*

OBJ R4.1.3   (Application) Use skill in the four preceptor roles employed in practice-based teaching (direct instruction, modeling, coaching, and facilitation).[4]
> *IO   Explain the stages of learning that are associated with each of the preceptor roles.*

OBJ R4.1.4   (Application) Use skill in case-based teaching.
> *IO   Explain how to select or create a case that is suitable for teaching the goal concepts and decision-making skills.*
> *IO   Explain the importance of identifying the key teaching points for a case before attempting to construct it.*
> *IO   Explain factors to consider when deciding the patient data to present in a case.*

OBJ R4.1.5   (Application) Use public speaking skills to speak effectively to a large group.
> *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.*

OBJ R4.1.6   (Application) Use public speaking skills to speak effectively in a small group.

Goal R4.2   Design and deliver education programs to the public that center on health improvement, wellness, and disease prevention.

OBJ R4.2.1   (Synthesis) Contribute to the design of an educational program for the public that centers on health improvement, wellness, or disease prevention.
> *IO   Explain appropriate medication-related educational topics for health care support groups.*
> *IO   Explain appropriate medication-related educational topics for the general public.*

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[4] 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.

OBJ R4.2.2   (Synthesis) Use appropriate educational techniques to deliver an educational program to the public that centers on health improvement, wellness, or disease prevention.

Outcome R5: Contribute to the body of pharmacotherapy knowledge.
Goal R5.1   Conduct a pharmacy-related research project using effective research and project management skills.

OBJ R5.1.1   (Synthesis) Identify a topic of significance for a pharmacy-related research project that requires institutional review board (IRB) review.
- *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 the background analysis.*
- *IO   Explain how to generate a research question(s) to be answered by an investigation.*

OBJ R5.1.2   (Synthesis) Formulate a feasible design for a pharmacy-related research project.
- *IO   Explain the elements of a project proposal.*
- *IO   Explain how to identify health care personnel 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 various methods for constructing data collection tools.*

OBJ R5.1.3   (Synthesis) Secure any necessary approvals, including IRB, for a pharmacy-related research project.
- *IO   Explain how to identify stakeholders who must approve a particular project.*
- *IO   Explain the components that make up a budget for a project.*
- *IO   Explain strategies for seeking funding for a research project.*
- *IO   Explain the role of the IRB in the approval process.*

OBJ R5.1.4   (Synthesis) Implement a pharmacy-related research project as specified in its design.
- *IO   Explain strategies for keeping one's work on a project at a pace that matches the projected timeline.*
- *IO   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 of data analysis.*
- *IO   Explain issues surrounding confidentiality of patient information accessed for a research study.*

OBJ R5.1.5   (Synthesis) Effectively present the results of a pharmacy-related research project.

OBJ R5.1.6   (Synthesis) Use correct grammar, punctuation, spelling, style, and formatting conventions to prepare a written summary of a pharmacy-related research project.

OBJ R5.1.7   (Synthesis) Successfully employ accepted manuscript style to prepare a final report of a pharmacy-related 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.

Goal R5.2   Engage in the publication process.

OBJ R5.2.1   (Comprehension) Explain the benefits, to the practitioner and the profession, of contributing to the pharmacy literature.

OBJ R5.2.2   (Synthesis) Write a research article, review, or case report that is suitable for publication.
   IO   Use a standard style for biomedical journals in the preparation of research articles, reviews, or case reports submitted for publication.
   IO   Given a specific article, identify appropriate journals to which that article might be submitted for publication.
   IO   Given an identified topic related to pharmacy practice, appraise the potential to publish an article on that topic.
   IO   Explain the rules governing who may declare authorship of a given work.

OBJ R5.2.3   (Application) Follow the submission requirements of an appropriate peer-reviewed publication to submit a manuscript for publication.

OBJ R5.2.4   (Evaluation) Participate in the peer review of a pharmacy professional's article submitted for publication or presentation.
   IO   Explain sources of information on the components of a peer review.
   IO   Explain the characteristics of an effective peer review.

Elective Program Outcomes, Educational Goals, and Educational Objectives
for
Postgraduate Year Two (PGY2) Residencies in an Advanced Area of Pharmacy Practice

Outcome E1: Demonstrate skills required to function in an academic setting.
Goal E1.1   Understand faculty roles and responsibilities.
     OBJ E1.1.1   (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 E1.1.2   (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 E1.1.3   (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 E1.1.4   (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 E1.1.5   (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 E1.1.6   (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 E1.1.7   (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 E1.2   Exercise teaching skills essential to pharmacy faculty.

OBJ E1.2.1   (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 E1.2.2   (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 E1.2.3   (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 E1.2.4   (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 E1.2.5   (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 E1.2.6   (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 E1.2.7   (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 E1.2.8   (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 E1.2.9   (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.*

This document replaces the *ASHP Educational Goals and Learning Objectives for Postgraduate Year Two (PGY2) Pharmacy Residency Training in an Advanced Area of Practice* dated 1999.

Appendix

The resident will explain signs and symptoms, epidemiology, risk factors, 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 explain 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 explain 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.