The University of Arizona Medical Center – University Campus  

PGY1 Pharmacy Residency Program
ASHP Number 81100

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Program Overview

Post Graduate Year One (PGY1) Residency Program in Pharmacy with Emphasis on Pharmaceutical Care

The University of Arizona Medical Center – University Campus in cooperation with The University of Arizona, College of Pharmacy and the University of Arizona Health Sciences Center, offers a PGY1 pharmacy residency program.

The University of Arizona Medical Center – University Campus, is part of The University of Arizona Health Network and is located on the Arizona Health Sciences campus in Tucson Arizona, is a nonprofit, 550-bed, short-term general medical/surgical teaching hospital and level one trauma center providing all major inpatient and ambulatory care services. Intensive care units for medicine, surgery, cardiothoracic surgery, neurosurgery, pediatrics and neonatology are included. Specialized programs at The University of Arizona Medical Center include solid organ and bone and marrow transplantation surgeries, the Arizona Cancer Center is a national Comprehensive Cancer Center where oncology patients receive chemotherapy and radiation therapy on an outpatient basis, Diamond Children’s Medical Center with special treatment and emergency medicine units, St. Luke’s in the Desert Chest Clinic for the treatment of allergies and chronic lung ailments and the Department of Sports Medicine. University Medical Center serves as the primary teaching hospital for the adjacent Colleges of Medicine, Nursing, Pharmacy, and Public Health.

Purpose

The PGY1 pharmacy residency program is designed to train selected, highly-motivated and highly-qualified pharmacists so that they are prepared to provide pharmaceutical care as a clinical pharmacist in an acute, tertiary care facility and/or continue into an advanced residency or fellowship in an area of pharmacy practice or research. Residents also receive the fundamental experiences necessary for BCSP examination as well as training and experience in teaching so that they are prepared to precept pharmacy students and residents. Residents will learn to demonstrate professional leadership and to develop life-long learning skills that will lead to career satisfaction.

The residency program adheres to the standards described in the criteria: ASHP Statement on Accreditation of Pharmacy Residencies and ASHP Accrediting Standard for Residency Training in Pharmacy Practice.

Program Overview

The program consists of a 5 months of required training in specific aspects of acute care pharmacy practice. The program is customized to the needs of the individual resident with 7 months of elective opportunities (at least 4 of which must be selected for the list of core
elective rotations). These core and elective rotations will provide the basic foundation for quality clinical practice into a career.

The program is clinical in nature and is integrated with modern centralized unit dose, I.V. additive and computer-assisted distribution systems. The integration of the clinical programs with an excellent drug distribution system provides a solid background entering practice after completing the residency. The pharmacy resident’s clinical training includes general medicine, critical care medicine and surgery, infectious diseases, surgery, drug information and clinical pharmacokinetics. The resident may elect additional training with services such as cardiology, pediatrics, emergency medicine, ambulatory care, neurology, oncology, abdominal transplantation, toxicology and poison control services and other areas of hospital pharmacy practice. In addition, this program requires the resident to learn and use teaching and research techniques.

Additional elective rotation may include an additional rotation of any on the schedule with preceptor approval. One offsite rotation may be permitted if a similar experience is not available at UAMC-UC. Such rotations are usually limited to the Southern Arizona VA Health Care System, Tucson Medical Center or The University of Arizona Medical Center – South Campus. Other electives may be arranged at the request of the resident and the approval of the residency director. The off-site preceptor must also approve and provide a rotation description. In general, no more than one off-site rotation will be approved.

Preceptor Interaction:
When evaluating, working up and recommending monitoring or therapies for patients, the resident will discuss cases with the preceptor. As the resident becomes familiar with the environment and processes, the resident will be expected to work independently. Topic discussions with preceptor will occur during slow times and at a frequency appropriate to patient cases encountered.

Evaluation Strategy:
ResiTrak will be used for documentation of formal evaluations. For evaluations, the resident and preceptor will complete the evaluations separately. Prior to signing the evaluation, the preceptor and resident will compare and discuss the evaluations. This discussion will provide feedback for both the resident and preceptor on their performance.

Types of evaluation
Summative: Preceptor, Resident at end of learning experience
Mid-Rotation, Formative Self-evaluation:
Summative Self-evaluation: Resident at end of learning experience
Preceptor: Resident at end of learning experience
Learning Experience Evaluation: Resident at end of learning experience

Certification
Upon successful completion of the program, an appropriate certificate shall be awarded to the resident by The University of Arizona and The University of Arizona Medical Center.

**Requirements to receive a Residency Certificate:**

- Pharmacy Licensure by August 31 (unless special arrangements have been made)
- Successful completion of all required rotations and completion of additional elective rotations totaling 12 months plus full participation in on-call and pharmacy practice responsibilities.
- Meet all ASHP PGY1 Residency Requirements including making sufficient progress towards all the required goals and objectives as evidenced by either satisfactory progress or achieved being marked for 95% of all required learning objectives
- Satisfactory completion of all experiences as evidenced by all required work assigned being completed to the satisfaction of the preceptor and no more than 3 learning objectives recorded as “Needs Improvement”
- Satisfactorily completing assigned teaching requirements (journal clubs, case presentations, student case facilitation, CE presentations, participation in resident lectures, etc...)
- Completion of all assignments and projects, including an MUE or medication safety project and drug monograph, as defined by the preceptors and residency program director
- Completion of a residency project with a manuscript that is ready for publication and approved by the project preceptor and Residency Program Director
- Completion of 3 formal CE presentations including 2 ACPE accredited CE presentations, one within UA/UAMC and one at Western States Conference for Pharmacy Residents, Fellows and Preceptors
- Compliance with all institutional and departmental policies
- Participation in the residency evaluation process (self-evaluation, rotation evaluation, preceptor evaluation and preceptor’s resident evaluation)
- Complete and pass ACLS certification and The University of Arizona Sexual Harassment and FERPA Training Programs. Become CITI certified.

**General Resident Responsibilities**

- **Daily:**
  - Residents will report to assigned preceptors and be responsible for all assigned daily duties.
- **Weekly:**
  - Residents will attend the weekly clinical pharmacy conferences (see below) and make formal presentations as scheduled.
  - At least two of the presentations will be for pharmacy continuing education (accredited by ACPE).
- **Monthly:**
  - Attend pharmacy journal club and case study programs and present as scheduled.
Residents may attend Pharmacy and Therapeutics Committee meetings. Contact Dr. Jim Camamo for schedule information.

Residents will complete preceptor, rotation and self-evaluation forms at the end of each rotation using ResiTrak.

- **Quarterly:**
  - Residents will complete the ResiTrak self-evaluation based on learning objectives for the program.
  - Residents will meet individually with the residency director to discuss progress and evaluation.
  - If the residents feel it would be helpful, the residents will meet as a group with the residency director to discuss progress, concerns, etc…

- **Annually:**
  - Residents will complete a residency project approved by a residency preceptor and the residency director and will submit a written manuscript to the residency director and project preceptor at the end of the residency. The written manuscript is in the style for submission to a peer review journal.
  - Residents will prepare and present the results of their research project at the Western States Conference for Pharmacy Residents, Fellows and Preceptors.
  - See Overview of Residency Activities Section

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**Clinical Pharmacy Conference**

- Every Wednesday from 3:00-5:00 pm.
- First hour consists of resident presentations (either two case presentation or one formal presentation)
  - Faculty, CSPs, Students invited
- Second hour consists of Faculty/CSP Lectures, Teaching Scholar Sessions, Meetings with residency director, Joint Commission Topic Series, etc…
  - Primarily residents only (unless otherwise stated)
Position Summary: The Pharmacy Practice and Specialty Pharmacy Practice Residency programs are jointly offered by The University of Arizona Medical Center (UAMC) and College of Pharmacy (CoP), Arizona Health Sciences Center (AHSC), The University of Arizona. The American Society of HealthSystems Pharmacists (ASHP) is the accrediting body for pharmacy residency programs. These programs are intended to meet or exceed the standards of the ASHP, where such standards exist. ASHP defines a pharmacy residency as a postgraduate program of organized training that meets the requirements set forth and approved and published by ASHP in the appropriate accreditation standard. Pharmacy residency programs prepare pharmacists for practice in a medical specialty and sub-specialty focusing on the development of specific clinical skills and professional competencies. Training programs are structured to encourage and permit housestaff pharmacists to assume increasing levels of responsibility commensurate with their individual growth progress in experience, skill, knowledge and judgment. Each rotation must adhere to current accreditation requirements as set forth by the ASHP for all matters pertaining to the training program.

Mandatory Requirements: A housestaff pharmacist (resident) complies with UAMC, Department of Pharmacy Services and The University of Arizona, CoP policies and procedures. The housestaff pharmacist will support the values of UAMC by demonstrating personal responsibility, respect for self and others, innovation through teamwork, dedication to caring, and excellence in customer service.

A housestaff pharmacist is supervised in carrying out their patient care responsibilities by an attending pharmacist who is credentialed and/or privileged by the College of Pharmacy, Department of Pharmacy Practice and Science and by UAMC, Department of Pharmacy Services. Housestaff pharmacists must have timely and reliable access to attending pharmacists. The attending pharmacist must make regular evaluations of the housestaff pharmacist's knowledge, skills, and attitudes and feedback must be given to the housestaff pharmacist in a timely fashion.

The Pharmacy Practice Residency Programs will also adhere to the American Society of Health System Pharmacists (ASHP) common duty-hour minimum standards. The council defined duty hours as all clinical and academic activities related to the residency program, including patient care, administrative duties related to patient care, the provision for transfer of
patient care, time spent inhouse during on-call activities, and scheduled academic activities, such as conferences. Duty hours do not include reading and preparation time spent away from the work site.

- **Resident duty hours must be limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house on-call activities.**
- **Residents must have one day (24 continuous hours) of seven free from all educational, clinical, and administrative responsibilities, averaged over a four-week period, inclusive of on-call shifts.**
- **Adequate time for rest and personal activities must also be provided. This should consist of a 10-hour period between all daily duty periods and after inhouse call, defined as activities requiring the constant physical presence of the resident in the care setting.**
- **Continuous onsite duty, including in-house call, must not exceed 24 consecutive hours. After completion of an on-call shift, residents may remain on duty for up to 6 additional hours to participate in didactic activities, transfer care of patients, and conduct outpatient clinics.**
- **When residents are called into the hospital from home, the hours residents spend inhouse are counted toward the 80-hour limit.**

Other postgraduate trainees who rotate through The University of Arizona Medical Center, such as housestaff pharmacists from other programs and fellows are also subject to this job description.

**Essential Functions:** Housestaff pharmacist’s duties may be best divided into the broad headings of clinical, administrative, teaching and research. The resident will assume the following duties and responsibilities:

**Clinical:**
- Participate in safe, evidence based, compassionate and cost effective patient care. This activity is under supervision of attending pharmacists and is commensurate with the resident’s level of training as determined by their residency program and stated specifically in the residency handbook guidelines.
- Communicate effectively with their supervising attending pharmacist regarding their patient evaluation, interpretation of diagnostic tests and plan of care and/or intended therapeutic interventions.
- Provide oral and written consultations focused on improving patient outcomes and consistent with UAMC formulary, drug use matrix and cost effective therapy.

**Administrative:**
- Participate in documentation of clinical activities including progress notes, etc. as outlined by his/her respective preceptor and required by the hospital. In addition to participate in institutional committees, especially those related to patient care activities, as directed by their residency program.
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- Participate in appropriate institutional committees and councils whose actions affect their education and/or patient care including but not limited to quality improvement and quality assurance activities.
- Abide by all University and UAMC policies and procedures, including the provisions outlined in the Pharmacy Residency Manual.

Educational:
- Participate in the clinical education of pharmacy students, other residents, and other allied health professionals under the guidance of his/her attending pharmacist.
- Participate fully in the educational and scholarly activities of the program and, as required, assume responsibility for teaching and supervising other residents and students.
- Develop a personal program of learning to foster continued professional growth with guidance from the teaching faculty and staff.

Research:
- Participate in scholarly activity, in addition to teaching, as outlined by their residency program.

Reporting Relationships: Reports to the residency preceptor assigned for the current rotation and the Director, Pharmacy Residency Programs, The University of Arizona Medical Center and College of Pharmacy, Arizona Health Sciences Center. Provides immediate direction to clerkship pharmacy students.

Minimum Qualifications:
- Must possess a Pharm.D. from a college accredited by ACPE (or pass the foreign equivalency exam).
- Must be eligible for licensure in Arizona and successfully complete the exam.
- Must be a part of the ASHP Matching Program.
- If applying for an advanced or specialized residency (e.g. Critical Care, Cardiology, Nutritional Support), must have completed a Pharmacy Practice residency or have similar experience.

Working Conditions: Professional #1
Resident Benefits

Time Off

The resident will be entitled to all benefits provided to full-time, annually-appointed Clinical Assistant I at The University of Arizona. Each resident will be allowed to take up to 22 working days off. Residents will be allowed to use any part of the 22 days of leave for interviews for position of employment, advanced training or professional leave; however, no more than 10 days can be used for vacation. All time away from University Medical Center must be approved by the residency director and rotation preceptor in advance. Residents will not be allowed to take time off the last week of the residency year without special approval. Vacation days not taken before this time will be lost and not reimbursed.

Travel Allowance

Each resident will be provided $1750 travel allowance which may be used to attend Western States Conference, ASHP Midyear Clinical Meeting, or one other meeting of the resident’s choice. Time off to attend professional meetings listed above will be considered part of the 22 days for vacation/professional leave.

Sick Leave

University policy allows up to one day of sick leave per month of employment. If additional days are needed, they will be deducted from vacation days. There will be no compensation for unused sick leave. It is the desire of the program to assist residents to successfully complete the residency program. If an extended illness or other issue arises, it is possible for the resident to petition the program director and residency advisory committee to consider special arrangements allowing completion. Any such arrangements will not result in additional pay and will assure that all program requirements are met including practice time required.

Office

Residents have priority over students in terms of computer/desk space. Each Resident will have cubby space for personal belongings.

Photocopying

Residents can photocopy in room 5606 (across the hall from the residency office). This machine can also be used for printing.

Mail

A “Residents” mailbox is located at the College of Pharmacy (Drachman Hall, 2nd floor) and should be checked periodically.
Paging System

Each resident will be assigned a pager at the beginning of the residency program. Pagers must be returned prior to the end of the residency year. Residents are responsible for replacement of lost/damaged pagers. Pagers are to be carried and turned on at all times when at UMC and pages should be answered within 15 minutes unless it will interfere with patient care. Dialing "80" from in-house UMC phones connects to the paging system. To reach the paging system outside of UMC dial "520-694-4480."

Lab Coats

Each resident will be furnished one lab coat at the beginning of the residency year.

Library

Residents will have access to the Health Science Library and to online journal databases (www.ahsl.arizona.edu). Off campus access to the online journal databases will require a UA netID.

Parking

Residents will have access to the parking. Residents will receive UMC parking permits at the beginning of the residency year and will have to reapply during annual registration in February.

Resident Expectations

Professional Conduct

It is the responsibility of all residents of the University of Arizona, and the profession of pharmacy to uphold the highest degree of professional conduct at all times. The resident will display an attitude of professionalism in all aspects of his/her daily practice.

Professional Dress

All residents are expected to dress in an appropriate professional manner whenever they are in the institution or attending any function as a representative of The University of Arizona. Clean, pressed white lab coats of full length will be worn at all times in patient care areas (excluding Psychiatry and Pediatrics). Any specific problems with dress will be addressed by the resident's Advisor/Coordinator. A detailed policy may be found on UAMC’s Intranet

Employee Badges
UAMC Security requires all personnel to wear his/her badge at all times when they are on campus. If the badge is misplaced a temporary badge is available at the Security station on the first floor of the hospital. If the employee badge is lost, the resident must report the loss immediately to Security, and render a fee for replacement.

**Patient Confidentiality**

Patient confidentiality will be strictly maintained by all residents. Any consultations concerning patients will be held in privacy with the utmost concern for the patients’ and families’ emotional as well as physical well-being. Residents will not leave confidential documents (profiles, charts, prescriptions, etc.) in public places. Residents will excuse themselves from the cases of College of Pharmacy faculty, staff or students who may be patients. Residents are required to complete HIPAA training and comply with all HIPAA policies.

**Communication**

The resident is responsible for promoting good communication between the pharmacists, patients, physicians, and the school. Constructive criticism is a means of learning and is not meant to embarrass. Any conflicts which may arise between the resident and preceptor should first be handled by discussing it with one another. If resolution is not achieved, then discussing the situation with the program director is the next appropriate step.

**Licensure**

Residents are expected to become a licensed pharmacist as soon as possible, but no later than August 31. Not becoming licensed by this date is grounds for dismissal from the program. In the event of extenuating circumstances, the Residency Program Director may approve an extension, if deemed appropriate.

**Working Externally**

Residents’ primary professional commitment must be to the residency program. Therefore, it is expected that any commitments made outside of the residency will not interfere in any way with residency obligations. “Moonlighting” is discouraged. However, the faculty also realizes a residency stipend can be limiting for a resident. Supplementing the residency stipend is acceptable unless the resident demonstrates an inability to function at the expected level. Limits must be placed on working outside of the residency training. No more than 20 hours/month of "moonlighting" will be accepted. All "moonlighting" needs to be brought to the Residency Program Director’s attention. If a resident fails to meet deadlines, is unprepared for conferences, is using sick or annual leave excessively, or has scheduled "moonlighting" time as a priority over any residency activity the resident will be presented the options of resigning from the residency program or resigning from the secondary employment.
Absences

Residents are required to complete a “College of Pharmacy Absence Record” form (blue sheet) prior to any time off for vacation or professional meetings. Blue sheets are available from the Clinical Pharmacy Office. Forms should be completed as soon as possible after absences due to illness. Forms must be initialed by the rotation preceptor and submitted to the residency director for final approval. The original, signed form should be taken to Lee Becker at the UMC Inpatient Pharmacy Administration – Room 0611 or Cas Sprout at the College of Pharmacy. The signed form will be filed with the College of Pharmacy (a copy will be kept in UMC Inpatient Pharmacy Administration). Residents failing to complete the blue sheet will be considered absent without leave (i.e., not paid for days absent). Failure to comply with the above procedures will result in disciplinary action possibly including suspension without pay or termination. All circumstances are different and will be considered individually by the RPD and possibly the Residency Advisory Committee.

Evaluations

The evaluation process of the residency involves evaluations at the completion of each rotation, quarterly evaluations and a final evaluation of the residency. At the end of each rotation, the responsible preceptor will complete a ResiTrak evaluation form and discuss it with the resident. On a quarterly basis, each resident will complete a ResiTrak self-evaluation of his/her progress to date based on customized and program objectives. The quarterly evaluation should also contain suggestions for improvement and reasons why some objectives may have not been met. Each resident will meet with the program director to discuss the evaluations.

Disciplinary Action and Dismissal

Disciplinary action or dismissal from the program are actions that are considered with residents not meeting program or rotation expectations. Additionally, residents may receive disciplinary actions for violating professional standards. One area that is critical and can lead to immediate dismissal is violating patient privacy. Accessing records for patients who are not assigned to your service is one example of such a violation. Residents are informed of program requirements, expectations and deadlines. The preceptor at the beginning and during each rotation communicates rotation expectations.

If problems arise, residents will be counseled by the preceptor(s). If the issues are not resolved, the ongoing concern will be documented and referred to the program director. The program director will discuss the issues with the resident and others as appropriate.

When disciplinary action is indicated, the program director (or rotation preceptor in conjunction with the program director) will take the appropriate action based on the situation and circumstances. When dismissal from the program may be indicated, the program director and/or the director of pharmacy services will meet with the preceptors of required rotations to make the final decision.
Under unusual circumstances, it may be necessary to terminate a resident from the program. The resident should understand that, in addition to general University of Arizona personnel guidelines, any of the following criteria are grounds for dismissal from the program:

- Failure to become licensed as a pharmacist in Arizona by August 31 of the residency year.
- Failure to have at least satisfactory progress with two or more objectives in two or more rotations.
- Involvement with or participation in the use of illicit drugs.

**Disciplinary actions**

It is not expected that any disciplinary actions will be needed during the residency. However, criteria have been established to avoid making an unpleasant situation more difficult. Each resident is expected to perform in an exemplary manner. If a resident fails to meet the requirements of the program, disciplinary action will be taken. Examples of inadequate or poor performance include dishonesty, repetitive failure to complete assignments, being late for clinical assignments, abuse of annual and/or sick leave, violating University or UMC policies and procedures, patient abuse, and violating ethics or laws of pharmacy practice. The following sequence of discipline are outlined:

1. Minor or initial failure to adhere to requirements will result in a verbal counseling by the primary preceptor or the Residency Program Director. A note stating a verbal counseling has occurred will be sent to the Residency Advisory Committee.

2. For repeated or more severe incidents, the Residency Program Director or Residency Advisory board will give residents a formal written warning of failure to meet the requirements of the residency program. A list of actions and/or additional assignments required to continue in the program will be determined by the Residency Advisory Board and must be signed by the resident. The board will follow the resident’s compliance with the required actions. Failure with compliance may lead to the dismissal of the resident from the program.

3. Failure to comply with the required actions set forth by the Residency Advisory Board will be documented in writing by the preceptor, Residency Advisory Board, or Residency Director. The Residency Advisory Committee, Chief of Pharmacy, and Residency Program Director will decide whether dismissal is necessary after reviewing the situation with the resident and preceptor. If dismissal is necessary the proper process will be initiated.

**Attendance:**

The residency is a full-time temporary appointment of 1 year in duration. The resident is expected to be onsite to perform activities related to the residency as necessary to meet the goals and objectives of the program. Additional time is expected to complete assignments.
and projects in a timely manner. When the resident will not be onsite, the program director and preceptor must approve the time off or away and procedures for leave must be followed.

Just as attendance is critical, so is adequate time away from the facility. To assure adequate time off, the residency program complies with the ASHP standards and the ACGME duty hours regulations. (See Resident Job Description). The Residency Program Director and the preceptors do not intend to violate these regulations.
PGY1 Pharmacy Residency Goal Statements

The University Medical Center / University of Arizona PGY1 Pharmacy Practice Residency adheres to providing the resident with all of the required learning objective proscribed by ASHP and allowing for additional elective learning experiences based on the resident’s needs and interests. The ASHP Objectives are listed below:

Required By PGY1 Pharmacy Residency Accreditation Standard

**Outcome R1: Manage and improve the medication-use process.**

Goal R1.1: Identify opportunities for improvement of the organization’s medication-use system.

OBJ R1.1.1 (Comprehension) Explain the organization’s medication-use system and its vulnerabilities to adverse drug events (ADEs).

IO Explain the central concepts of systems theory.

IO Explain the concept of system error.

IO Explain the definitions of the various terms associated with adverse drug events (e.g., medication misadventure, medication error, adverse drug reaction, error, accident, systems error, individual error, latent error).

IO State sources of information on the design, implementation, and maintenance of safe medication-use systems.

IO From both the pharmacy department perspective and the organization perspective explain the potential for contribution to the occurrence of adverse drug events by the use of automation and information technology.

IO From both the pharmacy department perspective and the organization perspective explain the role that automation and information technology play in preventing adverse drug events.

IO Explain the meaning of the term “culture of safety.”

OBJ R1.1.2 (Analysis) Analyze the structure and process and measure outcomes of the medication-use system.

IO Explain methods for analyzing a medication-use system’s structure.

IO Explain how inputs to the medication-use system such as patients, staff, and environment make up its structure.

IO Explain methods for analyzing processes within a medication-use system (e.g., root cause analysis, failure mode and effect analysis).

IO Explain how the interactions between clinicians and patients constitute processes in the medication-use system.

IO Exercise skill in process-mapping, a type of flowchart depicting the steps in a process, with identification of responsibility for each step and the key measures

IO Exercise skill in cause-and-effect diagramming.

IO Explain the organization’s policies and procedures for handling a drug recall.
IO Explain the role of medication-use evaluation (MUE) in measuring medication-use processes.

IO Explain methods for measuring outcomes of the medication-use system.

IO Generate examples of the outcomes of a medication-use process which are changes in patients' health status (e.g. length of stay; acuity).

IO Explain the characteristics of a clinically significant ADE.

IO Explain various methods, including decision trees, for determining the significance of adverse drug events.

IO Explain how to categorize medication errors using the ASHP Guidelines on Preventing Medication Errors in Hospitals.

IO Explain how to categorize medication errors using the National Coordinating Council for Medication Error Reporting and Prevention's medication error index for categorizing errors.

IO Explain how to categorize medication errors using one's own institution's categorization methodology.

IO When a clinically significant ADE is identified, report the event following the organization's policies and procedures.

IO Explain the role of the MUE in measuring outcomes of the medication-use process.

OBJ R1.1.3 (Evaluation) Identify opportunities for improvement in the organization’s medication-use system by comparing the medication-use system to relevant best practices.

IO When a clinically significant ADE is identified, participate in determining the presence of any similar potential ADEs.

IO Participate in the pharmacy department’s ongoing process for tracking and trending ADEs.

IO Explain how basic safety design principles such as standardization, simplification, and the employment of human factors training can minimize the incidence of error in the medication-use process.

IO Explain safe practices for selecting and securing alternative medications when shortages occur and for adjusting the formulary and notifying prescribers.

IO Explain safe practices for the storage, dispensing, administration, and security of pharmaceuticals.

IO Use the results of an MUE to identify opportunities for improvement in the medication-use process.

IO Explain how to use information on how to design, implement, and maintain safe medication-use systems from external sources to identify opportunities for improvement in the organization’s medication-use system.

Goal R1.2: Design and implement quality improvement changes to the organization’s medication-use system.
OBJ R1.2.1 (Comprehension) Explain the process for developing, implementing, and maintaining a formulary system.

IO Identify the components of a formulary system.

IO Explain the approval process for establishing a formulary.

IO Explain the role of committees in addressing formulary issues.

IO Explain how formularies are revised and maintained.

IO Explain procedures regarding exceptions to the formulary.

IO Explain the process of making additions and deletions to the formulary including those resulting from drug shortages.

IO Explain how to customize an existing drug monograph for use at your site (e.g., the FIX).

IO Explain effective methods of communicating changes to the formulary including those resulting from drug shortages.

OBJ R1.2.2 (Evaluation) Make a medication-use policy recommendation based on a comparative review (e.g., drug class review, drug monograph).

IO State the elements of a comparative review.

IO State sources to consult in the preparation of a comparative review.

IO Explain the importance of including consideration of medication-use safety in the preparation of a comparative review.

OBJ R1.2.3 (Synthesis) Participate in the identification of need for, development of, implementation of, and evaluation of an evidence-based treatment guideline/protocol related to individual and population-based patient care.

IO Define treatment guidelines and protocols.

IO Explain the indications/rationale for using guidelines and protocols.

IO Explain guidelines/protocols as they relate to: patient care activities; provider networks; provider incentives; cost and reimbursement controls; utilization management; quality measurement; consumer incentives; accreditation; and benefit analysis (if applicable).

IO Explain the use of evidence-based medicine in the development of treatment guidelines/protocols.

IO Explain the process by which criteria for treatment guidelines/protocols are developed.

IO Explain effective strategies for gaining necessary commitment and approval for use of a treatment guideline/protocol.

IO Explain the importance of providing outcome information to the prescriber/provider as support for evaluative decisions on program continuance or revision.

IO Explain methods for assessing the effectiveness/impact of guidelines and protocols.

IO Explain the importance of assessing the clinical, economic and humanistic outcomes of treatment guidelines/protocols related to patient care.

OBJ R1.2.4 (Synthesis) Design and implement pilot interventions to change problematic or potentially problematic aspects of the medication-use system with the objective of improving quality.
IO Explain the importance of continually reassessing medication-use policies.

IO Exercise skill in the revision of a policy or procedure when necessitated by the implementation of a change in a medication-use process.

Goal R1.3: Prepare and dispense medications following existing standards of practice and the organization's policies and procedures.

OBJ R1.3.1 (Evaluation) Interpret the appropriateness of a medication order before preparing or permitting the distribution of the first dose.

IO State the elements of a complete medication order and the essentials of legibility and accuracy.

IO Use effective prescriber education techniques to secure agreement on modifications to medication orders.

IO Document modifications to medication orders according to the organization's policies and procedures.

OBJ R1.3.2 (Application) Follow the organization's policies and procedures to maintain the accuracy of the patient’s medication profile.

OBJ R1.3.3 (Application) Prepare medication using appropriate techniques and following the organization's policies and procedures.

IO Explain standards of practice for the preparation of medications.

IO Explain the organization's quality assurance standards for the preparation of medications.

IO Prepare intravenous admixtures using aseptic technique.

IO Prepare chemotherapeutic agents observing rules for safe handling of cytotoxic and hazardous medications.

IO Appraise admixture solutions for appropriate concentrations, rate, compatibilities, stability, clarity, coring, and storage.

IO Formulate strategies for preparing extemporaneously compounded medications to produce the desired end products.

IO Label medication products following the organization’s policies and procedures.

OBJ R1.3.4 (Application) Dispense medication products following the organization's policies and procedures.

IO Compare and contrast the procedures used to dispense medications across the continuum of care settings.

IO Follow a systematic procedure for checking the accuracy of medications dispensed, including correct patient identification, correct medication, correct dosage form, correct dose, correct number of doses, expiration dates, and properly repackaged and relabeled medications.

IO Follow departmental procedures and standards of practice to insure the integrity of medication dispensed throughout the organization.

IO Follow appropriate policies and procedures to document patients’ medication refill histories.

Goal R1.4: Demonstrate ownership of and responsibility for the welfare of the patient by performing all necessary aspects of the medication-use system.
OBJ R1.4.1 (Characterization) Display initiative in preventing, identifying, and resolving pharmacy-related patient-care problems.

IO Explain the role of the pharmacist in preventing, identifying, and resolving pharmacy-related patient-care problems.

IO Explain the importance of contacting the appropriate parties when a problem is identified.

IO Explain the role of assertiveness in presenting pharmacy concerns, solutions, and interests.

IO Explain the pharmacist’s obligation for absolute attention to detail in the preparation/distribution process.

IO Explain the interdependent relationship between operational tasks and clinical activities.

IO Explain the importance of follow-through of medication-use system activities.

Goal R1.5: Provide concise, applicable, comprehensive, and timely responses to requests for drug information from patients and health care providers.

OBJ R1.5.1 (Analysis) Discriminate between the requesters’ statement of need and the actual drug information need by asking for appropriate additional information.

IO Explain the characteristics of a clearly stated clinical question.

OBJ R1.5.2 (Synthesis) Formulate a systematic, efficient, and thorough procedure for retrieving drug information.

IO Explain the strengths and weaknesses of manual and electronic methods of retrieving biomedical literature.

IO State sources of evidence-based metaanalysis reviews.

IO Compare the characteristics of each of the available resources for biomedical literature.

OBJ R1.5.3 (Analysis) Determine from all retrieved biomedical literature the appropriate information to evaluate.

OBJ R1.5.4 (Evaluation) Evaluate the usefulness of biomedical literature gathered.

IO Assess the potential for bias of the author or preparer of all forms of drug information.

IO Determine whether a study’s methodology is adequate to support its conclusions.

IO Determine whether the endpoint established for a study is appropriate.

IO Explain methods used to test study end point (e.g., pulmonary function studies).

IO Explain the effects on study outcomes of various methods of patient selection (e.g., volunteers, patients, or patients with different disease severity).

IO Explain the effects of various methods of blinding (e.g., double-blind, single-blind, open-research designs) on study outcomes.
IO Explain the effects on study outcomes of various methods of drug assay and quality assurance procedures (e.g., high performance liquid chromatography, assay coefficient of variations).

IO Explain the types of pharmacotherapy studies (e.g., kinetic, economic, dynamic) and the kind(s) of data analysis appropriate for each.

IO Explain how the choice of statistical methods used for data analysis (e.g., t test, analysis of variance) affects the interpretation of study results and conclusions.

IO Determine if a study’s findings are clinically significant.

IO Explain the strengths and limitations of different study designs.

IO Determine whether a study’s conclusions are supported by the study results.

IO Explain how data from a study can be applied to expanded patient populations.

OBJ R1.5.5 (Synthesis) Formulate responses to drug information requests based on analysis of the literature.

OBJ R1.5.6 (Synthesis) Provide appropriate responses to drug information questions that require the pharmacist to draw upon his or her knowledge base.

OBJ R1.5.7 (Evaluation) Assess the effectiveness of drug information recommendations.

IO Explain all factors that must be assessed to determine the effectiveness of a response.

Outcome R2: Provide evidence-based, patient-centered medication therapy management with interdisciplinary teams.
(When provided as part of the practice of direct patient care, this outcome always involves a series of integrated, interrelated steps.)

Establish collaborative professional relationships with health care team members

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Place priority on delivery of patient-centered care to patient

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Establish collaborative professional pharmacist-patient relationship

↓

Collect and analyze patient information

↓

When necessary make and follow up on patient referrals

↓

Design evidence-based therapeutic regimen
Goal R2.1: As appropriate, establish collaborative professional relationships with members of the health care team.

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

IO Demonstrate knowledge of other team members’ expertise, background, knowledge, and values in all interdisciplinary team interactions.

IO Explain the training and expected areas of expertise of the members of the interdisciplinary 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.

IO Exercise skill in the use of individual roles and processes required to work collaboratively on interdisciplinary teams.

IO Define a collaborative professional working relationship.

IO Explain the structures and content of collaborative working relationships that are possible between the pharmacist and the physician and between the pharmacist and other health care professionals.

IO Explain the limits that are imposed on possible collaborative relationships by the presence or absence of guidelines, legal and regulatory requirements, and organizational policies and procedures.

IO Exercise skill in the use of group techniques to include communication, negotiation, delegation, time management, assessment of group dynamics, and consensus building.

IO Explain the principles and applications of negotiation as they apply to interdisciplinary team work.

IO Explain the principles and applications of delegation as they apply to interdisciplinary team work.
IO Explain the principles and applications of time management as they apply to interdisciplinary team work.

IO Explain the principles of group dynamics and how they apply to interdisciplinary team work.

IO Explain the principles of conflict management and how they apply to interdisciplinary team work.

IO Explain a systematic approach to building consensus.

IO Explain how interdisciplinary team members develop unique communication patterns (shared language).

IO Explain the importance of adhering to use of an interdisciplinary team’s shared language.

IO Exercise skill in the coordination and integration of pharmacist’s care with the contributions of other members of the interdisciplinary team.

Goal R2.2: Place practice priority on the delivery of patient-centered care to patients.

OBJ R2.2.1 (Organization) Choose and manage daily activities so that they reflect a priority on the delivery of appropriate patient-centered care to each patient.

IO Explain the meaning of patient-centered care and the rationale for its use.

IO Explain methods for prioritizing the delivery of care to patients when time or resources prohibit the delivery of full direct patient care services to all patients.

Goal R2.3: As appropriate, establish collaborative professional pharmacist-patient relationships.

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

IO Explain the meaning of the term “patient-centered” and the rationale for its use.

IO Explain the appropriate sharing of power and responsibility between the pharmacist, patient and caregivers in a patient-centered, pharmacist-patient relationship.

IO Explain why it is important that the pharmacist communicate with the patient in a shared and fully open manner in a patient-centered, pharmacist-patient relationship.

IO Explain the role of demonstrating respect for the patient’s individuality, emotional needs, values, and life issues in a patient-centered, pharmacist-patient relationship.

Goal R2.4: Collect and analyze patient information.

OBJ R2.4.1 (Analysis) Collect and organize all patient-specific information needed by the pharmacist to prevent, detect, and resolve medication-related problems and to make appropriate evidence-based, patient-centered medication therapy recommendations as part of the interdisciplinary team.

IO Identify the types of patient-specific information the pharmacist requires to prevent, detect, and resolve medication-related problems and to make appropriate evidence-based, patient-centered medication therapy recommendations as part of the interdisciplinary team.
IO Explain the role of collecting information regarding the patient’s culture, emotional needs, preferences, values, and life issues in formulating evidence-based, patient-centered care decisions.

IO Explain patient or disease specifics that would require the pharmacist to collect pharmacogenomic and/or pharmacogenetic information.

IO Explain issues surrounding confidentiality of patient information and the impact of HIPAA regulations on the collection and safeguarding of patient-specific information.

IO Explain signs and symptoms, epidemiology, risk factors, pathogenesis, natural history of disease, pathophysiology, clinical course, etiology, and treatment of diseases commonly encountered.

IO Explain the mechanism of action, pharmacokinetics, pharmacodynamics, pharmacoeconomics, usual regimen (dose, schedule, form, route, and method of administration), indications, contraindications, interactions, adverse reactions, and therapeutics of medications in the treatment of diseases commonly encountered.

IO Explain current trends and issues in nontraditional therapy.

IO Use standard patient medical charts, records and/or internal electronic information databases to collect information that may be pertinent to prevent, detect, and resolve medication-related problems and to make informed evidence-based, patient-centered medication therapy recommendations to an interdisciplinary team.

IO Integrate effective communication techniques in interviews with patients, caregivers, health care professionals, or others so that the patient-specific information needed by the pharmacist for evidence-based, patient-centered care is collected.

IO When presented with a limited time frame (e.g., ambulatory care office visit) use an interview strategy that elicits maximum pertinent information

IO Explain effective phone techniques to be used to obtain information for the patient database.

IO Explain the impact of having discontinuous or fragmented patient-care information when developing an interview strategy for patients (e.g., patient seeing multiple caregivers, last visit 6 months ago).

IO Distinguish the meaning of non-verbal cues in patient encounters (e.g., broken sentences in an asthmatic patient, difficult ambulation in an arthritic patient).

IO When appropriate, measure patient vital signs and use appropriate physical assessment skills.

IO Determine the most reputable and credible source of required patient-specific information.

IO Record required patient-specific information in a manner that facilitates detecting and resolving medication-related problems and making
appropriate evidence-based, patient-centered medication therapy recommendations to an interdisciplinary team.

IO  In a setting where none exists, create an effective organizational system for recording patient-specific data.

OBJ R2.4.2  (Analysis) Determine the presence of any of the following medication therapy problems in a patient's current medication therapy:

1. Medication used with no medical indication
2. Patient has medical conditions for which there is no medication prescribed
3. Medication prescribed inappropriately for a particular medical condition
4. Immunization regimen is incomplete
5. Current medication therapy regimen contains something inappropriate (dose, dosage form, duration, schedule, route of administration, method of administration)
6. There is therapeutic duplication
7. Medication to which the patient is allergic has been prescribed
8. There are adverse drug or device-related events or potential for such events
9. There are clinically significant drug-drug, drug-disease, drug-nutrient, or drug-laboratory test interactions or potential for such interactions
10. Medical therapy has been interfered with by social, recreational, nonprescription, or nontraditional drug use by the patient or others
11. Patient not receiving full benefit of prescribed medication therapy
12. There are problems arising from the financial impact of medication therapy on the patient
13. Patient lacks understanding of medication therapy
14. Patient not adhering to medication regimen

IO  Explain psychological, cultural, and economic factors that influence patient compliance with prescribed medications.

IO  Explain factors to consider when comparing the benefits and risks of an alternative medication therapy.

IO  Explain factors to consider when trying to determine the likelihood that a reaction is occurring because of a medication.

IO  Assess criteria for assessing the severity of an adverse drug reaction.

IO  Explain acceptable approaches to the therapeutic management of an adverse drug reaction.

IO) Explain mechanisms of determining therapeutic consequence resulting from defective medications or drug products (e.g., exacerbation of asthma due to a defective inhaler).

IO  Use a functional format to list patients' pharmacotherapy problems.

IO  Prioritize patients' pharmacotherapy problems.

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

Goal R2.5:  When necessary, make and follow up on patient referrals.
OBJ R2.5.1  (Evaluation) When presented with a patient with health care needs that cannot be met by the pharmacist, make a referral to the appropriate health care provider based on the patient’s acuity and the presenting problem.

IO  Explain the organization’s process for making a patient referral.

IO  Explain the information needed to make an appropriate referral.

IO  Explain a systematic process for assessing the acuity of a patient’s illness.

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

IO  Explain the importance of following up on patients who are referred to other health care providers.

IO  Explain the importance of integrating follow-up information into the long-term management plan.

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  Explain the use of evidence-based consensus statements and guidelines in the setting of patient-specific therapeutic goals.

IO  Explain how culture influences patients’ perceptions of desirable outcomes.

IO  Explain the importance of the patient’s perception of desirable outcomes when setting therapeutic goals for a patient with functional limitations.

IO  Explain the impact of quality-of-life issues on making decisions about therapeutic goals.

IO  Explain ethical issues that may need consideration when setting therapeutic goals.

IO  Compare and contrast the realistic limits of treatment outcomes among the various care settings.

IO  Explain how a patient’s age or mental status might affect the setting of therapeutic goals.

IO  Explain how goals of others on the interdisciplinary team influence the specification and prioritization of therapeutic goals.

IO  Explain unique aspects of the patient’s role in the ambulatory care setting in determining his/her therapeutic goals.

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

IO  Explain the use of evidence-based consensus statements and guidelines in the design of patient-specific therapeutic regimens.

IO  Accurately interpret best evidence for use in the design of a patient-centered regimen for a specific patient.

IO  Explain where and how to find the best possible sources of evidence for a specific patient case.
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IO Explain how to conduct a search for relevant answers to a specific clinical question, including searches of resources that evaluate or appraise the evidence for its validity and usefulness with respect to a particular patient or population.

IO Explain how to integrate seemingly applicable findings of best evidence with clinical judgment to arrive at an optimal evidence-based regimen for a specific patient.

IO Explain how culture influences patients’ perception of disease and how this affects responses to various symptoms, diseases, and treatments.

IO Explain how patient-specific pharmacogenomics and pharmacogenetics may influence the design of patients’ medication regimens.

IO Explain additional concerns with compliance, cost, and route of administration when making decisions on medication regimens.

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 patient-specific goals.

IO Explain the use of evidence-based consensus statements and guidelines in the design of patient-specific monitoring plans.

IO Explain cultural and social issues that should be considered when designing a monitoring plan.

IO Explain the importance of considering what is feasible and useful when designing a monitoring plan.

IO Compare and contrast various methods for monitoring patient adherence (e.g., refill rates, questioning, return demonstration).

IO Determine monitoring parameters that will measure achievement of goals for a therapeutic regimen.

IO State customary drug-specific monitoring parameters for medical regimens commonly prescribed.

IO Explain the relationship between what are normal value ranges for parameters and the influence on those ranges by a given disease state.

IO Identify the most reliable sources of data for measuring the selected parameters.

IO Define a desirable value range for each selected parameter, taking into account patient-specific information.

IO Explain factors that should influence the frequency and timing of parameter measurements in monitoring plans.

IO Explain effective approaches to assuring patient return for follow-up visits in the ambulatory setting.

IO Identify the most appropriate person to collect monitoring data (e.g., family member, nurse, patient).

Goal R2.8: Recommend or communicate regimens and monitoring plans.

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

**IO Explain the right of patients to refuse a treatment.**

**IO Explain the importance of explicitly citing the use of best evidence when recommending or communicating a patient’s regimen and monitoring plan.**

**IO Explain what would be a pharmacist’s responsible professional behavior in the circumstance that a patient refuses a proposed treatment.**

**IO Differentiate between circumstances where documenting in the chart is sufficient and when communication to team members requires immediacy.**

**Goal R2.9: Implement regimens and monitoring plans.**

**OBJ R2.9.1 (Application) When appropriate, initiate the patient-centered, evidence-based therapeutic regimen and monitoring plan for a patient according to the organization’s policies and procedures.**

**IO Explain the requirements for a situation in which it is appropriate for the pharmacist to initiate a medication-therapy regimen.**

**IO Explain the organization’s policies and procedures for ordering tests.**

**OBJ R2.9.2 (Application) Use effective patient education techniques to provide counseling to patients and caregivers, including information on medication therapy, adverse effects, compliance, appropriate use, handling, and medication administration.**

**Goal R2.10: Evaluate patients’ progress and redesign regimens and monitoring plans.**

**OBJ R2.10.1 (Evaluation) Accurately assess the patient’s progress toward the therapeutic goal(s).**

**IO Gather data as specified in a monitoring plan.**

**IO Explain factors that may contribute to the unreliability of monitoring results (e.g., patient-specific factors, timing of monitoring tests, equipment errors, and outpatient versus inpatient monitoring.)**

**IO Determine reasons for a patient’s progress or lack of progress toward the stated health care goal.**

**IO Explain the importance of the analysis of trends over time in monitoring parameter measurements.**

**IO Accurately assess the effectiveness of a patient-specific education program.**

**IO Explain methods for assessing the effects of patient-specific education.**

**OBJ R2.10.2 (Synthesis) Redesign a patient-centered, evidence-based therapeutic plan as necessary based on evaluation of monitoring data and therapeutic outcomes.**

**Goal R2.11: Communicate ongoing patient information.**
OBJ R2.11.1 (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.

OBJ R2.11.2 (Application) Ensure that accurate and timely medication-specific information regarding a specific patient reaches those who need it at the appropriate time.

IO Explain the importance of effective communication of modifications of the therapeutic plan to the patient and members of the interdisciplinary team.

IO Determine instances in which there is urgency in communicating the results of monitoring to the interdisciplinary team.

Goal R2.12: Document direct patient care activities appropriately.

OBJ R2.12.1 (Analysis) Appropriately select direct patient-care activities for documentation.

OBJ R2.12.2 (Application) Use effective communication practices when documenting a direct patient-care activity.

OBJ R2.12.3 (Comprehension) Explain the characteristics of exemplary documentation systems that may be used in the organization’s environment.

Outcome R3: Exercise leadership and practice management skills.

Goal R3.1: Exhibit essential personal skills of a practice leader.

OBJ R.3.1.1 (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 Explain the systematic process by which professionals pursue expertise.

IO Formulate and adhere to an integrated system for staying current with, arranging, and storing pertinent practice-related literature.

IO State the literature pertinent to one’s area of practice.

IO State sources of information outside of pharmacy that contain ideas and/or information that may be effectively applied to one’s practice.

IO Explain the importance of storing practice-related information in an organized manner.

IO Explain the components of an effective self-assessment system.

OBJ R3.1.2 (Characterization) Demonstrate pride in and commitment to the profession through appearance, personal conduct, and association membership.

IO Explain guidelines for professional dress and its importance.

IO Explain strategies for maintaining personal self-control and professional decorum.

IO Explain the local, state, and national organizations and the activities of each that are essential to the developing pharmacy professional.

IO Explain why it is important to publish in the professional literature.

IO Explain why it is important to become actively involved in the leadership of professional associations.

OBJ R3.1.3 (Characterization) Act ethically in the conduct of all job-related activities.
IO Explain ethical/conflict of interest issues in business relationships.

IO Explain the system of ethical reasoning (consequentialist or nonconsequentialist) employed in arriving at a particular ethical decision.

IO Explain systems of ethical reasoning.

IO Explain ethical principles embodied in the American Pharmacists Association’s Code of Ethics for Pharmacists.

IO Explain rules for attribution of sources of published work when preparing written documents or presentations.

Goal R3.2: Contribute to departmental leadership and management activities.

OBJ R3.2.1 (Synthesis) Participate in the pharmacy department’s planning processes.

IO Explain the principles and application of various approaches to pharmacy department planning, including the development of a departmental strategic plan.

IO Explain the necessary relationship between the organization’s and the department’s vision, mission, and plans.

OBJ R3.2.2 (Comprehension) Explain the effect of accreditation, legal, regulatory, and safety requirements on practice.

IO State current regulatory and safety requirements.

IO Explain the importance of these regulations and safety requirements.

IO Explain how the regulations and safety requirements affect practice.

IO State the process by which the regulations and safety requirements are implemented.

IO State the agencies responsible for regulating accreditation, legal, regulatory, and safety requirements.

OBJ R3.2.3 (Comprehension) Explain the principles of financial management of a pharmacy department.

IO Explain the purposes of and how to access multiple sources of reimbursement.

IO Explain the data elements of a productivity matrix (e.g., clinical activities, budgets, FTE justification).

IO Explain the implications for pharmacy reimbursement of the current health care environment (regulatory issues, manpower shortages, Medicare Modernization Act, quality mandates).

IO Explain sources of revenue for the pharmacy and health system.

OBJ R3.2.4 (Synthesis) Prioritize the work load, organize the work flow, and check the accuracy of the work of pharmacy technical and clerical personnel or others.

IO Explain the principles of work delegation.

IO Explain systematic approaches to organizing and keeping track of the work of multiple participants in a given work activity.

IO Explain the importance of routine checks on accuracy of the work of pharmacy technical and clerical personnel or others under one’s supervision.

Goal R3.3: Exercise practice leadership.
OBJ R3.3.1 (Synthesis) Use knowledge of an organization’s political and decision-making structure to influence accomplishing a practice area goal.

IO Explain the importance of networking in achieving practice area and other professional goals.

OBJ R3.3.2 (Comprehension) Explain various leadership philosophies that effectively support direct patient care and pharmacy practice excellence.

OBJ R3.3.3 (Application) Use group participation skills when leading or working as a member of a committee or informal work group.

IO Explain effective strategies for leading a meeting.

IO Explain the role of delegation for task accomplishment in effective leadership.

OBJ R3.3.4 (Application) Use knowledge of the principles of change management to achieve organizational, departmental, and/or team goals.

IO Explain the principles of change management.

Outcome R4: Demonstrate project management skills.

Goal R4.1: Conduct a practice-related project using effective project management skills.

OBJ R4.1.1: (Synthesis) Identify a topic for a practice-related project of significance for pharmacy practice.

IO Explain the types of resident projects 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.

OBJ R4.1.2: (Synthesis) Formulate a feasible design for a practice-related project.

IO Explain the elements of a project proposal.

IO When given a particular approved residency project, explain how to identify those individuals who will be affected by the conduct of the project and strategies for gaining their cooperation.

IO When given a particular approved residency project, explain how to determine a timeline with suitable milestones that will result in project completion by an agreed upon date.

OBJ R4.1.3: (Synthesis) Secure any necessary approvals, including IRB and funding, for one’s design of a practice-related project.

IO When given a particular proposed residency project, explain how to identify those key stakeholders who must approve that project.

IO Explain the components that make up a budget for a practice-related project.

IO Explain the role of the organization’s IRB in the approval process of investigations involving human subjects.

OBJ R4.1.4: (Synthesis) Implement a practice-related project as specified in its design.

IO Explain strategies for keeping one’s work on a project at a pace that matches with the timeline plan.
IO When given a particular approved residency project, explain methods for organizing and maintaining project materials and documentation of the project’s ongoing implementation.

OBJ R4.1.5: (Synthesis) Effectively present the results of a practice-related project.
OBJ R4.1.6: (Synthesis) Successfully employ accepted manuscript style to prepare a final report of a practice-related 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 R4.1.7: (Evaluation) Accurately assess the impact, including sustainability if applicable, of the residency project.

Outcome R5: Provide medication and practice-related education/ training.

Goal R5.1 Provide effective medication and practice-related education, training, or counseling to patients, caregivers, health care professionals, and the public.

OBJ R5.1.1 (Application) Use effective educational techniques in the design of all educational activities.

IO Design instruction that meets the individual learner’s needs.

IO When given a particular patient data base, therapeutic regimen, and monitoring plan, explain the educational needs of the patient for successful implementation of the therapeutic regimen and monitoring plan.

IO Explain the concept of learning styles and its influence on the design of instruction.

IO Explain the importance of considering the learner’s reading level when designing patient education.

IO Write appropriately worded educational objectives.

IO Design instruction to reflect the specified objectives for education or training.

IO Explain the match between instructional delivery systems (e.g., demonstration, written materials, videotapes) and specific types of learning commonly required of patients.

IO Design instruction that employs strategies, methods, and techniques congruent with the objectives for education or training.

IO Explain effective teaching approaches for the various types of learning required of patients (e.g., imparting information, teaching psychomotor skills, inculcation of new attitudes).

OBJ R5.1.2 (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 pharmacist-provided educational or training programs.

OBJ R5.1.3 (Application) Use skill in the four preceptor roles employed in practice-based teaching (direct instruction, modeling, coaching, and facilitation).
IO Explain the stages of learning that are associated with each of the preceptor roles.

OBJ R5.1.4 (Application) Use skill in case-based teaching.
OBJ R5.1.5 (Application) 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.

OBJ R5.1.6 (Application) Use knowledge of audio-visual aids and handouts to enhance the effectiveness of communications.

IO Use a systematic and educationally sound method for determining when it is appropriate to use handouts or visual aids and for selecting the appropriate aid.

IO Explain accepted conventions for the design of visual aids and handouts.

IO Exercise skill in the operation of audio-visual equipment.

**Outcome R6: Utilize medical informatics.**

Goal R6.1: Use information technology to make decisions and reduce error.

OBJ R6.1.1 (Comprehension) Explain security and patient protections such as access control, data security, data encryption, HIPAA privacy regulations, as well as ethical and legal issues related to the use of information technology in pharmacy practice.

OBJ R6.1.2 (Application) Exercise skill in basic use of databases and data analysis software.

IO Explain the principles and uses of databases in the management of large volumes of data

IO Perform statistical analysis of data for the purposes of evaluating the significance of data

OBJ R6.1.3 (Evaluation) Successfully make decisions using electronic data and information from internal information databases, external online databases, and the Internet.

IO Explain the type of data collected, transmitted and stored by information systems.

IO Explain the impact on the quality of decision-making facilitated by information systems by the validity, reliability, and consistency of data put into the system.

IO Explain the use and risks of decision support tools.

IO Explain the sources, the benefits and potential risks of patient’s drug and medical information on the Internet
Potential Electives for PGY1 Pharmacy Residency Programs

**Outcome E1:** Conduct pharmacy practice research.

**Goal E1.1:** Design, execute, and report results of investigations of pharmacy practice-related issues.

- **OBJ E1.1.1** (Analysis) Identify potential practice-related issues that need to be studied.
- **OBJ E1.1.2** (Application) Use a systematic procedure for performing a comprehensive literature search.
- **OBJ E1.1.3** (Analysis) Draw appropriate conclusions based on a summary of a comprehensive literature search.
- **OBJ E1.1.4** (Synthesis) Generate a research question(s) to be answered by an investigation.
- **OBJ E1.1.5** (Synthesis) Develop specific aims and design study methods that will answer the question(s) identified.

**IO** Explain the ethics of research on human subjects and the role of the IRB.

- **OBJ E1.1.6** (Application) Use a systematic procedure to collect and analyze data.
- **OBJ E1.1.7** (Evaluation) Draw valid conclusions through evaluation of the data.
- **OBJ E1.1.8** (Synthesis) Use effective communication skills to report orally and in writing the results and recommendations of an investigation into a pharmacy practice-related issue.

**Outcome E5:** Participate in the management of medical emergencies.

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

- **OBJ E5.1.1** (Evaluation) Exercise skill as a team member in the management of medical emergencies according to the organization’s policies and procedures.

**IO** Explain the organization’s policies and procedures for medical emergencies.

**IO** Explain appropriate medication therapy in medical emergency situations.

**IO** Explain unique considerations when preparing and dispensing medications and calculating doses during a medical emergency.

**IO** Explain the importance of anticipating needs during a medical emergency.

**Outcome E6:** Provide drug information to health care professionals and/or the public.

**Goal E6.1** Identify a core library, including electronic media, appropriate for a specific practice setting.

- **OBJ E6.1.1** (Application) Use knowledge of standard resources to select a core library of primary, secondary, and tertiary references appropriate for a specific practice setting.
IO Explain the contributions and limitations that use of internet accessible resources (e.g., the World Wide Web) can make to the acquisition and dissemination of drug information.

IO Explain the importance of evaluating the reliability and validity of information accessed through the World Wide Web.

Approved by the Commission on Credentialing of the American Society of Health-System Pharmacists March 11, 2007. Endorsed by the ASHP Board of Directors April 18, 2007. This document is a revision of a set of educational outcomes, goals and objectives approved by the Commission on Credentialing of the American Society of Health-System Pharmacists August 20, 2005 and endorsed by the ASHP Board of Directors September 23, 2005. This earlier version developed by an ASHP working group comprised residency program directors, preceptors, and ASHP staff: Frank E. Briggs, Pharm.D., Assistant Director of Pharmacy, West Virginia University Hospitals; Mary M. Hess, Pharm.D., Clinical Coordinator, Greenville Hospital System; Carolyn G. Kowalchik, R.Ph., M.S., Director, Pharmacy Practice Residency Program, University of Utah Hospitals and Clinics; Bruce A. Nelson, R.Ph., M.S., Operations Director, Accreditation Services Division, ASHP; and Christine M. Nimmo, Ph.D., Standards Development and Training Director, Accreditation Services Division, ASHP.

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2nd Edition: The effective date for implementing these changes will be concurrent with the class of residents entering programs in July 2008.
# UAMC-UC
## PGY1 ROTATIONS

### Required Rotations
- **Internal Medicine***: 2 mo.
- **Surgery/Critical Care**
  - **OR, Medical ICU (PICT)**: 1 mo.
- **Drug Information**: 1 mo.
- **Clinical Staff Pharmacist (CSP)**: 1 mo.

### Required Electives (Select 4 from * rotations)
- **Infectious Disease***: 1 mo.
- **Pediatrics***: 1 mo.
- **Cardiology***: 1 mo.
- **Nutrition Support***: 1 mo.
- **Oncology/BMT***: 1 mo.
- **Surgery/Critical Care***
  - **OR, Medical ICU (PICT)**: 1 mo.
- **Trauma/Surgery***: 1 mo.
- **Emergency Medicine***: 1 mo.
- **Solid Organ Transplantation (SOT)**: 1 mo.
- **Administration***: 1 mo.
- **Research**: 1 mo.
- **Home Infusion Therapy**: 1 mo.
- **Psychiatry (off site)**: 1 mo.
- **Neonatal ICU**: 1 mo.
- **Poison Center**: 1 mo.
- **Additional month(s) of Required Rotations**: 1 mo.
- **Other off site rotations**: 1 mo.

### Others
Any of the above plus those below are eligible  
(note that primary instructor may be a non-pharmacist, but a pharmacy preceptor will always be assigned for guidance.)
- **Ambulatory Care Concentrated Rotation**: 1 mo.
- **Nephrology**: 1 mo.
- **Neurology**: 1 mo.
- **Pain Service**: 1 mo.
- **Others – per resident interest and UMC ability**: 1 mo.
- **Ambulatory Care Longitudinal Experience**: N/A

### Total Rotations
12 mo.

*Internal Medicine incorporates kinetic dosing, monitoring anticoagulation patients, counseling warfarin patients at discharge and providing drug information on services not covered by other residents or CSPs. There is always at least one PGY1 assigned to the medicine service.*
On-Call Responsibilities
TPNs, Kinetics and Anticoagulation Lists

Overview:

PGY1 residents will gain experience with both the nutrition pager and drug information pager and will be expected to be on-call every third week (on average). They are also responsible for taking call during one minor and one major holiday per year. On call responsibilities include returning pages and providing clinical coverage on Saturday and Sunday of call weeks.

Weekday Responsibilities

1. Kinetics List
   - Process:
     - Lists should generate automatically at 0700 and 1300, if list does not print, check printer for malfunction, if functioning normally contact lab computer assistance.
     - NOTE: UMC is a teaching facility; levels should be done cooperatively by CSPs and residents for the benefit of learning and improving patient care.
     - In the absence of the Internal Medicine resident, the on-call residents are responsible for maintaining the list and delegating/evaluating levels.

Overview of Levels
- CSP is the primary point person for levels on the floors they cover.
- Resident is responsible for levels on patients being followed by their team and should be in communication with CSP covering the floor that patient is on.
- Internal Medicine resident is primarily responsible for levels on floors not covered by CSPs and secondarily responsible for assistance with other levels as an educational opportunity.
- Levels on NHC, FP, KIN, 2OP, 3OP, 5OP, 6OP (these are outpatient clinics), DISC (discharged) do NOT need to be evaluated.
  - Patients from the outpatient clinics can be admitted. Levels should then be evaluated based on the criteria listed in this protocol.
- NICU levels will be evaluated by the CSP on that floor. In the absence of a CSP, nurse practitioners will evaluate levels.
- Pediatric levels will be evaluated by the pediatric CSPs in conjunction with the resident on pediatrics when that applies.
  - Levels on adult patients admitted to a pediatric unit will be evaluated by the CPP/DI resident
- If patient is listed as CDU or EDS, check the medical record number to verify the patient’s location/physician
Sometimes patients will be on the am list in the EDS---watch these patients may be admitted later and the level should be evaluated based on the above criteria. If patients have been in CDU longer than 24 hours, a note should be written.

2. Answer drug information questions that come through the drug information pager.
   - This only applies to the resident carrying the drug information pager.

3. Anticoagulation Monitoring
   - On the weekdays, anticoagulation monitoring is largely managed by CSPs, pharmacy students, the resident on the Internal Medicine rotation. However, the residents on-call may be asked to evaluate individuals who are not covered by a CSP or resident (i.e. GynOnc, Ortho…). Please coordinate with the other on-call resident to split the daily responsibilities.

4. TPN Rounds – Friday only
   - TPN rounds occur at 11:00 in room 4120.
   - On the weekends, there is only time for each resident to follow half the TPN patients. Thus, the two residents on-call should decide before rounds how they will split the patients. Ask Carol Rollins about the distribution of patients on the service. It is most natural for residents to split TPNs by primary teams. However, if the distribution of patients is skewed, they can be split in other ways.

   - Sometimes MDs or RNs will call in the evening to start or restart a TPN patient. When this occurs let the caller know that the TPN will be started the following day. As an alternative to TPN, they can run D10W – 0.45%NaCl until we are able to evaluate the patient for TPN. Also let them know that the inpatient pharmacy is not staffed in the evening to make TPN. Occasionally the inpatient pharmacy will page you with a question about a TPN order. This must be handled in a case-by-case basis. Remember you can always call your backup or Dr. Rollins. During normal business hours all new TPN starts should be referred to Dr. Rollins or the resident on Nutrition Services.

**Weekend Responsibilities**

1. TPNs
   - This is your first and foremost responsibility. The on-call residents are responsible for following up on all TPN patients, making appropriate modifications to the TPNs (in discussion with the primary team), writing the new TPN orders (where appropriate) and communicating all TPN information to the inpatient pharmacy (before 2 PM).
   - Process:
     - Check labs on all TPN patients
Review the charts on all TPN patients, looking for changes in clinical status, medication changes, recent electrolyte replacements, and continuing need for TPN therapy.

Using above information, suggest modifications in TPN therapy to the primary team.

If changes will be made to the TPN, write new orders. Sign them as verbal orders from the primary team and tube the yellow copy down to inpatient pharmacy (Station #43). The white copy goes in the chart.

If there are no changes to a TPN, call inpatient pharmacy and let them know (Extension 4-6581). No new orders need to be written.

Document all the above in a “TPN Team” note in SCM.

2. Kinetics List
   - On the weekends, the residents will be responsible for all the drug levels except pediatrics, NICU, and any other exceptions noted above.

3. Anticoagulation Monitoring
   - On the weekends, this job should be done once the TPN ordering and follow up is finished.
   - Check all INRs for warfarin patients. If there isn’t an INR, make certain that one is ordered. Call the primary team if necessary—unless patient being discharged or there is some other valid reason for not having an INR.
   - Check medications for all new anticoagulation patients to monitor for potential interactions.
   - Counsel any patient that is going to be discharged before Monday afternoon who has not otherwise been counseled—indication, monitoring, interactions (drug, food, herb, alcohol), signs of bleeding/clotting, what to do with a missed dose, etc)

4. Answer drug information questions that come through the drug information pager (as on weekdays).
Goal
To provide a formal training program for pharmacy residents to gain knowledge and to
demonstrate effectiveness in the areas of teaching, leadership and scholarship. This
program has been developed to introduce pharmacy residents to contemporary pharmacy/
health professionals’ education. The program deals with topics relevant to an academic
career. Residents will gain experience with an assortment of instructional techniques and
exposure to learning theory. Various aspects of research, publishing and career
development will be explored.

Intended audience
The program is designed for current PGY-1 and PGY-2 residents in training programs
throughout the greater Tucson area. This program is offered as an elective to residents and
is in addition to the normal teaching requirements that are part of the learning objectives for
the program. Other healthcare professionals who are interested in the program are welcome
to attend all sessions.

Seminars
Each seminar is 50 minutes in length. Residents are encouraged to attend all the seminars.
However, residents must attend at least 12 of the 14 seminars to complete the program and
to receive a certificate. See Teaching Scholar Certificate Program Schedule in “Calendars
and Schedules” section of manual.

Certificate Requirements
Teaching experience requirements:

- PhPr 875b: Pharmacotherapeutics (Fall)
- PhPr 822: Case Discussions in Medicinal Chemistry/Pharmacology (Fall)
- PhPr 875a: Pharmacotherapeutics (Spring)
- PhPr 875c: Pharmacotherapeutics (Spring)
- Clinical Skills Assessments (Fall)/ Patient Simulations (Spring)
- Optional didactic teaching at the College of Pharmacy
- Presentation of three (3) formal lectures (two (2) of which for CE credit) to pharmacy
  faculty and students (see included ACPE presentation instructions)
- Precepting students on clinical rotations
- Evaluation of student end-of-rotation presentations
Teaching portfolio requirements:

- Examples of resident’s teaching (e.g. handouts, examination questions, cases)
- Evaluations of resident’s teaching completed by students, preceptors and co-residents

Participants will earn a certificate of completion by documenting attendance at the seminars, participating in formal teaching experiences (lectures, group facilitation and clinical teaching) and by developing a teaching portfolio. All participants who successfully complete the program will receive a certificate of completion from The University of Arizona, College of Pharmacy.
University Campus
PGY1 Pharmacy Residency 2015

Residency Activity Overview

• Medication Use Evaluation
  o Each resident will complete one medication use evaluation during the residency year. These are assigned during the drug information rotation. Findings are to be summarized in a written document following standard medical manuscript format (background, methods, results, etc.). The discussion section should include specific recommendations of the most appropriate course of action based on the findings. A Medication Safety Project may be substituted for the MUE if approved by the Medication Information and Policy Development preceptor.

• Drug Monograph
  o Each resident will complete one drug monograph during the residency year. This will be assigned during the drug information rotation. Drug monographs require review and presentation of primary literature. A written document will be prepared that focuses on the drug’s place in therapy, with a literature supported comparison and analysis of efficacy, safety and cost of the drug and its competitors. An opinion should be outlined with recommendation for formulary status. This monograph may be presented to the P&T Committee.

• Recruitment
  o Residents will assist in the resident recruitment and candidate selection process. This includes attending the COP Residency Display in October and the residency showcase at the ASHP Midyear occurring the first or second week of December. They will also be involved in the interview process by giving tours and eating lunch with the prospective candidates in February.

• Academic Responsibilities
  o Residents will assist with case discussions associated with the therapeutics courses at the College of Pharmacy.
  o Residents will assist in precepting pharmacy students during clerkship rotations.
  o Residents will participate in clinical faculty research as opportunities become available.
  o See the Teaching Certificate Program description for more details on teaching opportunities.

• Residency Notebook
  o Residents will be required to maintain a printed or electronic notebook for submission by the end of the residency year. See Guidelines for Residency Notebook for the requirements for this notebook.

• Research Project
Residents will complete a research project during the course of a pharmacy practice residency. A final research manuscript is to be submitted to your Project Preceptor by the end of the residency year.

- **BLS and ACLS Certification**
  - Each resident is expected to successfully complete the BLS and ACLS curriculum within the first month of the residency. The goal is to ensure the resident is familiar with and capable of providing BLS and ACLS, in the event of an emergency.
Presentation Overview

- **Journal Club Presentations:**
  - Journal Clubs are held once or twice a month on Wednesday afternoons.
  - PGY1 Residents will formally present two current pharmacotherapy related studies during the residency year. The primary goal of journal club is to exercise skills in critical thinking and literature evaluation.

- **Case Presentations:**
  - PGY1 Residents will sign up to formally present two case presentations during the residency year. The cases presented should revolve around pharmacotherapy topics and include primary literature and be a case in which the resident was directly involved. A handout is required. Patient presentations should be about 20-25 minutes.

- **Three formal presentations by each resident will be conducted during the residency year:**
  - The first presentation should be a pharmacotherapy topic that includes some controversy and/or is a hot topic in pharmacotherapy. This is a 45-50 minute PowerPoint presentation.
  - The second formal presentation is a required ACPE Continuing Education presentation (see included ACPE presentation instructions). This is a 50 minute PowerPoint presentation with a 10 minutes question/answer session and should not just be a review of a disease state. Primary literature is to be used as a guiding force to put this presentation together. This will include a self-evaluation and a formal evaluation.
  - The third formal presentation will be a 10-15 minute Continuing Education presentation of the resident’s residency project. This includes several practice sessions then the formal presentation with feedback/evaluation from preceptors and residents during practice and attendees at Western States. These presentations will be presented to the pharmacy department and other guests.
ACPE Continuing Education
UAMC Resident Presentation Requirements 2014-2015

• Provide Continuing Education (CE) Office with names, addresses, email, and cell phone for all residents along with a complete list of dates and presenter (include topic if possible) (will only be needed once for this group of residents).

• A minimum of six (6) weeks (preferably 8 weeks) prior to each CE program, the following items must be submitted to Lynne Mascarella at the College of Pharmacy (Drachman Hall, Room #B307K or Continuing Education mail basket near Dean’s Office), phone 626-3106. The preferred method of submitting this information is via email (continuinged@pharmacy.arizona.edu).
  
  o Program title
  o Date, time and location
  o Speaker’s name and title
  o Speaker’s CV
  o At least three (3) specific and measurable objectives for the program
  o Disclosure statement completed, signed and returned to CE Office.
  o Descriptive needs assessment for determination of topic selected (i.e., literature search, perceived gaps in knowledge, hospital/patient data, etc.)
  o Description of methods planned to disseminate the information (lecture plus cases, audience response, worksheet, other active learning strategies)
  o Assessment is required by ACPE in order to receive CE credit (pre and/or post test, testing via audience response system, patient case-study exercises, other problem solving exercises). Assessment is linked to the objectives. Describe the method that will be used and how the participants will be provided feedback.
  o Length of presentation (30 minutes, 45 minutes, 60 minutes)

• CE staff will use this information for submission to ACPE and to produce an announcement.

• At least one (1) week prior (preferably 2 weeks) to the presentation, the following should be submitted:
  
  o Copies of PowerPoint slides and any other handout materials (Note: presentation must be a minimum of 50 minutes which can include discussion and questions). Slides should have been reviewed and approved by faculty mentor prior to submission.
  o Slides must include an acknowledgement of disclosure (e.g., Dr. X has no financial interest, arrangement, or affiliation that would constitute a conflict of interest; Dr. Y is a consultant for First Data Bank and Pfizer)
Assessment is required by ACPE and will most likely be accomplished through a post test (although other methods may be used). A minimum of 5 questions (multiple choice, T/F, or open ended questions) covering the specified objectives and other important points that participants are expected to master. Correct responses including descriptive rationale are to be provided to participants after the fact as a handout. An audience response system is available for use through the CE Office.

The CE Office will review the presentation materials for presence of required ACPE elements. Once approved, copies of the slide handouts and the assessment documents are to be copied presenter and provided to the audience.

- The post test (or other assessment document), standardized evaluation form and a sign-in list will be prepared by CE Office and should be obtained by presenter prior to the presentation. **The presenter is then responsible for returning the completed post tests, evaluation forms and attendance records to the CE office. CE CREDIT CAN ONLY BE GIVEN TO THOSE SUBMITTING A POST TEST.**

- You are required to give one (1) formal ACPE CE presentation during your residency. Of the three (3) required presentations for the year, the 2nd should be prepared as the CE presentation. Residents that are participating in the Teaching Certificate Program are required to complete two (2) ACPE CE presentations. For this group of residents, the last two (2) required presentations should be prepared as the CE presentations.

**NOTE IMPORTANT CHANGE WITH REGARD TO CE CREDIT:**

If you have not registered with NABP for this national service yet, please do so. This is a requirement for all pharmacy CE providers to have implemented no later than January 2013. We will be using the CPE Monitor system for all of our programs beginning this fall. Beginning with the fall 2012 resident CE programs, we will be collecting ID numbers and birth month and date in order to upload the attendance data to the CPE Monitor site. [Click here](#) for more information.
Journal Club Guidelines

Residents have the opportunity to pick an article to present for journal club. Articles should be relatively recent or be a landmark trial. If you want to present a landmark trial, ask a preceptor to approve your article of choice. One week prior to your journal club, make copies of your article and make them available to CSPs, faculty, staff and residents (or you can e-mail a link to a full text article). The following questions are points you may want to address in your journal club time (20-25 minutes):

Journal, Title, Authors, Funding, Abstract

1. What is the journal’s reputation? Is it peer-reviewed?
2. Is the title appropriate? Is it unbiased? Does it describe the trial sufficiently?
3. Are the researchers qualified to do the trial? What are their degrees? What institutions/companies are they affiliated with? Are they well published in the area (you may do a literature search if you are not familiar with the topic)? Was a statistician involved?
4. Who funded the trial? How does that affect your conclusions?
5. Is the abstract appropriate? Is it structured or unstructured? Is all of the pertinent patient information included?

Introduction

6. Is the introduction appropriate? Did the authors describe all pertinent previous research (you may do a literature search if you are not familiar with the topic)? Did they state why the trial was done?
7. Was the objective or hypothesis clearly stated and appropriate? Does it reflect the methodology?

Methods

Subjects

8. How many subjects were studied?
9. How many centers were involved?
10. Were the inclusion criteria clearly stated and appropriate? Was the disease defined clearly and appropriately?
11. Were the inclusion and exclusion criteria clearly stated and appropriate? Can you identify why each exclusion criteria was made?
12. How were the subjects recruited? How does that affect the results?
13. Was the protocol approved by an investigational review board?
14. Did the subjects give informed consent?
Treatment
15. Were the subjects randomly assigned to groups? Was the randomization truly random?
16. Were the controls appropriate? Did the authors use a placebo control, an active control, or a historical control?
17. Were the doses of the drugs appropriate?
18. Was the design parallel or cross-over? Was a placebo run-in used? If cross-over, was an appropriate wash-out period used?
19. Was the study blinded or open label? If blinded, who was blinded?

Measurements
20. Were the measurements appropriate?
21. Who took the measurements? If multi-center, were steps taken to ensure that the measurements were done similarly? Were those who took the measurements blinded?
22. Was the duration of the trial sufficient?
23. Was compliance assessed?
24. Were the endpoints appropriate? Were surrogate endpoints used?

Statistics
25. Was a power analysis done? What p-value was considered statistically significant? What power was used? Did the authors anticipate drop-outs? How many patients were needed for statistical conclusions to be made?
26. Were the statistical test appropriate? How many groups were assigned? Were the data for each endpoint nominal, ordinal, or continuous? Were the data normally distributed or not normally distributed (this is usually not stated)? Refer to a table of statistical tests.
27. Were the statistical tests one-tailed or two-tailed? What does that mean?
28. Was an intention-to-treat or per-protocol analysis done? What does that mean? How does that affect your interpretation of the results?

Results
29. Were the groups equally matched after randomization? If not, was one group more likely to do better or worse? Refer to the table of baseline characteristics to assess the success of randomization.
30. Were the results presented clearly and accurately? Were there any table distortions, graph distortions, or statistical distortions?
31. Were all the results presented?
32. Were all drop-outs accounted for?
33. Was this an interim analysis? If so, how does that affect your conclusions?
34. Were subgroup analyses done? Were there enough patients in each subgroup for statistical conclusions to be made? Did the authors state that they were going to do subgroup analyses in the methodology?
35. Were differences statistically significant and/or clinically important?
Discussion, Conclusions, References

36. Did the authors compare the results of the trial to the results of similar previous trials? Did they explain any differences that were found?

37. Did the authors discuss the limitations of the trial? Did they explain how the limitations might have affected the results?

38. Were valid conclusions drawn? Were they based on the objective, methods and results?

39. Was the trial referenced with appropriate literature? Did the authors include all pertinent previous trials? Are the references up-to-date? Did the authors cite themselves excessively?

40. Who should the results be applied to? If the trial has internal validity, the inclusion and exclusion criteria will determine its external validity or generalizability (i.e., who the results should be applied to.)
ASHP Residency Accreditation Standards require the completion of a research project during the course of a pharmacy practice residency. The following is a suggested timeline for the completion of the research project. Of course, it always better to get as much done as early as possible.

- **Selecting and Outlining a Research Topic**
  - In **July** various pharmacy preceptors will meet with the residency class to present possible research topics. You have the option of selecting one of these research ideas or to approach an appropriate preceptor regarding an idea that you may already have in mind. You should have a project selected by **mid-August** and have completed a background literature search and a research methodology outlined by **mid-September**.
  - A meeting will be scheduled in **September** where you will have the opportunity to discuss your planned preliminary research projects with your fellow residents. You may use this opportunity to request input and advice.

- **Submitting a Research Proposal to the IRB**
  - Prior to submitting an IRB proposal, you must complete the Collaborative Institutional Training Initiative regarding research that involves human subjects (available at [www.citiprogram.org](http://www.citiprogram.org)) by **the end of August**. Contact your preceptor for additional information about how to complete this examination. Note that your preceptor must also complete the Rochester Test.
  - The Human Subjects Committee has a specific format to be completed for research proposals (website: [www.irb.arizona.edu](http://www.irb.arizona.edu)).
  - Prior to submission to the IRB, your proposal must be signed by either Dr. Nix or Dr. Mayersohn (both of the College of Pharmacy). Dr. Nix is a member of the IRB. It is recommended that you ask Dr. Nix to review and sign your proposal in advance of submitting it to the IRB by **October 15**. Dr. Nix will provide useful suggestions for improvement to increase the chances of having your submission approved by the IRB.
  - Your research proposal will need to be approved by the University of Arizona Human Subjects Committee (otherwise known as an Institutional Review Board, IRB). The IRB at UA tends to be fairly strict and particular. Accordingly, this step in the research process has proven to be very difficult for some past residents. It is strongly recommended that you submit your IRB proposal by **December 1**.

- **Data Collection**
  - Following IRB proposal approval, you may start collecting data. It is recommended that you attempt to complete your data collection in **December through March** (where possible).
If you are conducting a retrospective chart review, please be aware that obtaining charts from Medical Records can be challenging and time-consuming. Go to Medical Records in advance (ideally before submitting your IRB proposal) to identify what steps you will to complete in order to access patient charts. Submit your chart requests ASAP after obtaining IRB proposal. There will be a delay (sometimes quite substantial) in obtaining some charts.

- **Data Analysis**
  - In **February**, Dr. Erstad and Dr. Nix will be available to generally discuss data analysis and project statistics. It is strongly recommended that you attend this meeting with specific questions regarding the appropriate method of data analysis for your particular project.
  - You should conduct your data analysis in **March – April**.

- **Western States Conference Presentation**
  - You will be expected to give a 15 minute presentation (plus 5 minutes for questions) of your research project at the Western States Conference.
  - You will be expected to submit your project abstract in **February (Date TBD)**.
  - The first opportunity to practice your presentation will occur in early **May**. This is a chance to receive some outstanding feedback regarding your presentation from fellow residents and the faculty. A follow-up practice session will occur the following week.
  - Prepare and turn in slide presentation by the WSC deadline in **mid-May**.
  - Western States Conference is generally scheduled for late **May**.

- **Final Manuscript**
  - To complete the research requirement for the University of Arizona residency program, you are required to write a final research manuscript (complete with background literature, research objectives, methodology, results and discussion). The written manuscript is to include identification of an appropriate journal for potential submission and the follow the instruction to authors for that journal. This document, with approval by your project preceptor and the residency director, is due by **June 15**.
UHC Template for Residency Project Proposal

Residency Project Proposal

I. Cover Page
   a. [Title]
   b. [Year]
   c. [Resident Name and Credentials]
   d. [Project Advisor Name and Title]
   e. [Project Co-Advisor Name and Title]
   f. [Project Co-Advisor and/or Residency Coordinator Name and Title]
   g. [Residency Director Name and Title]

II. INTRODUCTION

III. BACKGROUND
   a. Include background and/or supporting literature on your topic and an introduction into why you are doing this research
   b. Include information from institution that is available to support project, for example, why is this a good project or data set to look into.
   c. Describe current state versus future state

IV. OBJECTIVE
   a. PURPOSE
   b. GOALS

V. METHODS [MODIFY BASED ON TYPE OF RESEARCH YOU ARE DOING]
   a. Study Design
      i. Including type of study, patient inclusion/exclusion, etc.
   b. Data Collection
      i. Including the information you plan to collect, such as what would be on your data collection form, include data collection form as an attachment if available.
   c. Outcome Measures
      i. Primary and secondary outcomes, or at least what you plan to conclude from your research.
   d. STATISTICAL ANALYSIS [IF APPLICABLE, OTHERWISE FOR FINAL WRITE-UP]

VI. BENEFITS [IF APPLICABLE]

VII. RESULTS [FOR FINAL WRITE-UP]

VIII. DISCUSSION [FOR FINAL WRITE-UP]

IX. CONCLUSION [FOR FINAL WRITE-UP]
   a. FUTURE DIRECTIONS

X. REFERENCES
   a. Include references in numerical order of which they appear in the text.

XI. APPENDIX
   a. Include data collection form (if applicable)
   b. Include other information in final write up as applicable, such as tables, charts, etc.
### C. STUDY DESIGN

<table>
<thead>
<tr>
<th>STUDY DESIGN</th>
<th>DATA COLLECTION</th>
<th>OUTCOME MEASURES</th>
<th>STATISTICAL ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Failure Modes and Effects Analysis (FMEA)</strong></td>
<td>FMEA is a tool used to identify and analyze potential failure modes and their causes.</td>
<td>FMEA prioritizes potential failures according to risk and identifies actions to eliminate or reduce the occurrence. All possible failures and their potential effects are listed and ranked according to severity of impact and probability of occurrence so that prevention efforts can be focused on the most critical issues.</td>
<td>Risk assessment</td>
</tr>
<tr>
<td><strong>Quality Improvement</strong></td>
<td>Quality improvement project must collect elements describing the inputs, outputs, suppliers, customers, resources, and controls that affect the target of the process to be improved. Each step of the PDSA methodology requires the use of several other quality improvement tools, including SWHY’s, Flowcharts, Pareto Charts, Control Charts, Scatter Diagrams, Fishbone Diagrams, etc.</td>
<td>Varies</td>
<td>Descriptive analysis</td>
</tr>
<tr>
<td><strong>Cost-Benefit Analysis</strong></td>
<td>Criteria for inclusion and exclusion for the positive and negative factors need to be identified. Define variables to be evaluated Define where data will be obtained from</td>
<td>Assessment of financial decisions</td>
<td>Descriptive</td>
</tr>
<tr>
<td><strong>Decision Model Analysis</strong></td>
<td>The intent of decision model analysis is assist in the identification of data to assist in objective decision making.</td>
<td>Decision tree Sensitivity analysis</td>
<td></td>
</tr>
<tr>
<td><strong>Descriptive Study</strong></td>
<td>Retrospective in nature. May involve analysis of large databases or registries Define subjects to be evaluated Define where subjects population will be obtained (Electronic medical records, paper records, shadow charts) Define how patients will be identified (prescriptions written, ICD-9 codes, service specific)</td>
<td>These evaluations can help characterize populations or determine trends in the condition being studied (determine the prevalence or natural history of a disease state). These studies are used to generate hypothesis for which future research may be formulated.</td>
<td>Descriptive analysis</td>
</tr>
<tr>
<td><strong>Medication Use Evaluation</strong></td>
<td>MUEs may assess either the use of a pharmacological class of agents or drugs used to treat medical conditions. In most cases, MUEs are retrospective in nature to assess the appropriate use of the medication.</td>
<td>In most cases will utilize basic descriptive analysis. Means and standard deviations to represent the average and typical spread of values of variables. Inferential statistical tests may also be used.</td>
<td></td>
</tr>
<tr>
<td>and cost.</td>
<td>inappropriate use of medications. These evaluations often compare the institutions current prescribing habits to evidence-based guidelines, consensus recommendations, accreditation standards or regulations. Define how patients will be identified (prescriptions written, ICD-9 codes, service specific)</td>
<td>variables. Inferential statistical tests may also be used.</td>
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<tr>
<td>Retrospective Study</td>
<td>Patient inclusion: patients with a specific disease state or on a specific medication that is being studied. Patient exclusion: specific patient populations that have other disease states or are on other medications that may alter the outcomes, specific age groups, genders or ethnic groups.</td>
<td>Define subjects to be evaluated. Define where subjects population will be obtained (Electronic medical records, paper records, shadow charts) Define how patients will be identified (prescriptions written, ICD-9 codes, service specific)</td>
<td></td>
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<td></td>
<td>In most cases will utilize basic descriptive analysis, along with means and standard deviations to discuss the variable and inferential statistics (student t-test, etc.) may be used to describe the statistics of the study.</td>
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<tr>
<td>Survey</td>
<td>Surveys tend to assess a study population at a given point in time and attempts to evaluate for a presence or lack of presence of an outcome. In addition, surveys may explore the compounding factors that affect outcome; however, it does not identify cause and effect, generally it only explores the relationship.</td>
<td>In most cases will utilize basic descriptive analysis, along with means and standard deviations to discuss the variable and inferential statistics (student t-test, etc.) may be used to describe the statistics of the study.</td>
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<tr>
<td>Case Report</td>
<td>Describe patient, hospital course, relevant lab values, medications, etc. Evaluate literature pertinent to the case.</td>
<td>Description of an unusual or novel occurrence.</td>
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<tr>
<td></td>
<td>Not applicable</td>
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Residency Program’s Three-Part Assessment Strategy
at The University of Arizona Medical Center

The following material was taken verbatim (hence the quotes) from the Preceptor's Guide to the RLS, 2008, American Society of Health-System Pharmacists. Since we use ResiTrak and the associated forms, our three-part assessment process is virtually identical to that provided in the Preceptor's Guide and is applicable to the PGY2 as well as our PGY1 residents. The information following the quotes is a more detailed version of the process used for the PGY1 Residency.

“The third component of the RLS is assessment. The RLS tools support assessment in three areas:
- Preceptor evaluation of residents' attainment of educational goals and objectives
- Residents' self-evaluation of their attainment of educational goals and objectives
- Residents' evaluation of the preceptor and learning experience

Preceptor Evaluation of Residents' Attainment of Educational Goals and Objectives
In a systems-based approach to training, the preceptors' assessment of resident performance must directly link to the residents' educational goals and objectives. A program is not using a systematic approach to the design and delivery of training if this direct link to the goals and objectives is not there. Preceptors determine resident success or failure by examining residents' ability to satisfactorily perform the assigned educational goals. Since goals are not measurable, preceptors base judgments of success on the goal on resident achievement of the educational objectives associated with each goal. When using the RLS, preceptors record their evaluations at the end of each learning experience (or quarterly for longitudinal experiences), using a form for summative evaluation. A blank summative evaluation form is Appendix F. Read the instructions at the top of this form. Notice that they direct preceptors to focus on judging goal attainment, but to do so by looking at performance on the associated educational objectives. On the form, these educational objectives are listed directly below the goal so the preceptor can keep them clearly in mind during the evaluation process. Note that there are blocks in which to check an overall rating for the goal and for rating performance on each of the educational objectives listed below it. The interpretation of the ratings follows:
- Achieved. The resident has fully accomplished the ability to perform the educational goal or the objective. No further instruction or evaluation is required.
- Satisfactory Progress. This applies to an educational goal or objective whose achievement requires skill development during more than one learning experience. In the current learning experience the resident has progressed at the required rate to attain full ability to perform the goal by the end of the program.
- Needs Improvement. The resident's level of skill on the goal or objective does not meet the preceptor's standards of either "Achieved" or "Satisfactory Progress," whichever applies.

Spaces for writing specific comments accompany the educational goals and objectives. Providing narrative commentary is even more important than the check rating. The narrative should provide specific information on meeting criteria that apply to the objectives under each
goal as a way to help the resident to improve his or her future performance. Primarily these activities involve direct observation of the resident’s carrying out of the task itself or review of the products resulting from doing the task. Each of these situations is an exact match with the performance the objective specifies. Use of these criteria and assessment situations when evaluating resident performance assures that assessment is criteria-based and a measure of the objective as it is written. You may once again want to take some time to read through these lists. A complete listing of PGY1 assessment criteria can be found on the ASHP website, www.ashp.org.

How do preceptors make use of these criteria in their evaluations? First, they use them on a daily basis to judge what the resident is doing and to provide feedback to the resident. Chapter 4 of this guide described in detail the process of providing criteria-based feedback. Some preceptors remember the details of what the resident does and do not need to keep a record to refer to when they complete the summative evaluation. Others find using written criteria-based checklists (snapshots) to rate specific instances of an objective performance of help for providing feedback to the resident during the learning experience, and also for recalling details when rating performance at the end of the learning experience. We call completed checklist evaluations "snapshots" because they provide a picture of what the resident does during one performance of a specified task. Among the RLS tools are several of the most used snapshots. See the ASHP website, www.ashp.org for a sample list of snapshots for PGY1 educational objectives.

Residents' Self-Evaluation of Their Attainment of Educational Goals and Objectives
A major expectation of residency program graduates is that they will be capable of evaluating the quality of their own work and, thus, equipped to engage in reflective practice that can lead to expertise in the profession. To learn self-evaluation, residents must be trained to examine each of their job performances and accurately rate them against objective criteria.

Residents' Evaluation of the Preceptor and Learning Experience
Principle 4 also requires that residents assess preceptor performance and program quality. The RLS offers a standardized tool for residents to use (see the ASHP website, www.ashp.org for an example). The form is generic and does not need to be modified for individual programs. A form for each of the resident’s current learning experiences must be completed by the resident at the end of the learning experience (or at least quarterly for longitudinal learning experiences). Residents are encouraged to discuss the evaluation with the preceptor and must provide their evaluations to the residency program director. From time to time sensitive issues may be raised by the resident via the completion of this form. These may include inadequacies in the performance of a preceptor. For that reason the PGY1 and PGY2 standards allow some flexibility in determining if the form should be transmitted directly to the program director and not via the preceptor. It would then be up to the program director to evaluate the resident’s comments – both positive and negative – and to determine how to make good use of them in shaping preceptor skills and shaping the program.”

UMC Pharmacy Residency - Detailed Version of Evaluation
Customized Residency Plan

- A customized individual plan will be developed for each resident at the beginning of the program
- Based on a pre-residency questionnaire completed by the resident and the resident’s knowledge, skills and attitudes upon entering the residency program
- Completed by the Program Director/Coordinator
- Outlines projects, meetings and scheduled rotations and longitudinal learning experiences
- Reviewed and cosigned by the resident during orientation
- Customized plan is reviewed at least quarterly
- Documents resident’s quarterly progress toward attainment of the program’s outcomes
- Outlines changes to be implemented to the resident’s schedule of learning experiences and/or projects and any necessary remedial action(s)
- Updates are reviewed and cosigned by the resident quarterly
- Utilized ResiTrak for tracking of progress toward achievement of programs outcomes, goals and objectives and discussion quarterly
- Customized plan and modifications are shared with all program preceptors during the residency steering committee meetings

Quarterly Evaluation

- Evaluation of the resident’s progress by the Program Director/Coordinator.
- Reviewed and cosigned by the resident
- Reviewed and cosigned by the Program Director

Learning Experiences (Rotations/Extended/Concentrated)

- Summative Evaluation
  - Documents preceptor's evaluation of resident’s attainment of goals and objectives
  - Completed by the preceptor and reviewed with resident within 1 week of the end of the learning experience
  - Cosigned by the resident
  - Reviewed and cosigned by the Program Director
- Resident’s Summative Self Evaluation
  - Summative self-evaluation of the goals and objectives assigned to the learning experience
  - Submitted to Preceptor for review, discussion, and co signature within 1 week of the end of the learning experience
  - Reviewed and cosigned by the Program Director
- Preceptor / Learning Experience Evaluation
  - Completed by the resident
  - Reviewed and cosigned by the preceptor
  - Reviewed and cosigned by the Program Director
The Program Director / Residency Coordinator will observe resident confidentiality and will utilize such evaluations to provide appropriate guidance for improvement of preceptor performance.

**Learning Experience (Longitudinal)**

- **Summative Evaluation**
  - Documents preceptor's evaluation of resident's attainment of goals and objectives
  - Completed at least quarterly throughout the year
  - Completed by the preceptor and reviewed with the resident
  - Cosigned by the resident
  - Reviewed and cosigned by the Program Director

- **Resident's Summative Self Evaluation**
  - Completed at least quarterly throughout the year (dates corresponding to preceptor's evaluation)
  - Submitted to preceptor for review, discussion and co signature
  - Reviewed and cosigned by the Program Director

- **Preceptor / Learning Experience Evaluation**
  - Completed at least quarterly throughout the year (dates corresponding to preceptor's evaluation)
  - Completed by the resident at the end of the residency year
  - Reviewed and cosigned by the preceptor
  - Reviewed and cosigned by the Program Director
  - The Program Director / Residency Coordinator will utilize such evaluations to provide appropriate guidance for improvement of preceptor performance.

**End of Year Evaluation**

- **Resident's Summative Self Evaluation**
  - Evaluation of all required PGY2 goals and objectives
  - Reviewed and cosigned by Program Director at end of the residency year

- **Summative Evaluation**
  - Evaluation of resident's attainment of all required PGY2 goals and objectives
  - Completed by the Program Director/Coordinator
  - Reviewed and Cosigned by resident
  - Completed at end of residency year

- **Preceptor / Learning Experience Evaluation**
  - Completed by the resident at the end of the residency year
  - Evaluated Residency Program and preceptors
  - Allow feedback for improvements of residency program structure
  - Reviewed and cosigned by the Program Director

**Resident Attainment of Program Goals**

Part of preceptors’ ongoing participation in the residency program is to ensure that all aspects of the program assessment plan are complete. Preceptors indicating that the resident “needs
“improvement” for any goal or objective must document why the resident was given this rating. The preceptor will provide recommendations for specific activities and/or additional objectives that will be required for the resident to show progress towards achieving the goal or objective on future or follow-up rotations. The residency program director and/or coordinator will document a plan of action, considering the preceptors recommendations, and will provide appropriate guidance for improvement of the resident towards achievement for specified goals or objectives. The plan of action will be communicated to the resident during a meeting with the program director and coordinator and will also be communicated to residency preceptors during the residency steering committee meeting.

A resident must demonstrate that he/she is able to consistently show competence in achievement of residency program goals/objectives for “achievement for residency.” The preceptor is required to discuss the appropriateness of rating a resident as achieving a goal for the residency with the program director prior to rating the resident as such. Program Directors/Preceptors will review those goals that are achieved for the residency for individual residents at Residency Advisory Committee meetings.
SUMMARY OF REQUIREMENTS FOR SUCCESSFUL COMPLETION OF THE RESIDENCY

- Pharmacy Licensure by August 31 (unless special arrangements have been made)
- Successful completion of all required rotations and completion of additional elective rotations totaling 12 months plus full participation in on-call and pharmacy practice responsibilities.
- Meet all ASHP PGY1 Residency Requirements including making sufficient progress towards all the required goals and objectives as evidenced by either satisfactory progress or achieved being marked for 95% of all required learning objectives.
- Satisfactory completion of all experiences as evidenced by all required work assigned being completed to the satisfaction of the preceptor and no more than 3 learning objectives recorded as “Needs Improvement”
- Satisfactorily completing assigned teaching requirements (journal clubs, case presentations, student case facilitation, CE presentations, participation in resident lectures, etc…)
- Completion of all assignments and projects, including an MUE or medication safety project and drug monograph, as defined by the preceptors and residency program director.
- Completion of a residency project with a manuscript that is ready for publication and approved by the project preceptor and Residency Program Director.
- Completion of 3 formal CE presentations including 2 ACPE accredited CE presentations, one within UA/UAMC and one at Western States Conference for Pharmacy Residents, Fellows and Preceptors.
- Compliance with all institutional and departmental policies.
- Participation in the residency evaluation process (self-evaluation, rotation evaluation, preceptor evaluation and preceptor’s resident evaluation).
- Complete and pass ACLS certification and The University of Arizona Sexual Harassment and FERPA Training Programs. Become CITI certified.