



Training Manual

Introduction:

The Advanced Pharmacy Practice Experience (APPE) manual (Pharm.D manual) has been compiled by the Department of Clinical Pharmacy, to guide the students for achievement of their objectives during the APPE program. The student, will integrate their knowledge of **physical assessment, pharmacology, pathophysiology, pharmaceuticals, pharmacokinetics, and pharmacodynamics** in assessing therapeutic plans and in evaluating the selected drugs for patients.

The APPE consists of six "*six-week*" rotations, 6 credit hour each: **two** mandatory direct rotations and **four** elective rotations, which may be direct or non-direct patient care. All rotations include 6 weeks and involve three stages:

- an orientation (not to exceed 2 days),
- instructed professional practice stage with formative assessment during the 1st 5 weeks (with midpoint evaluation at the end of the 2nd week)
- summative assessment in the last week.

General rules of conduct:

1. Student must exhibit a professional appearance in both manner and dress.
2. Student is obligated to respect all professional policies and personnel.
3. The student must keep in mind that learning is not passive process but requires active participation & communication.
4. The student should encourage communication with all health care provider team and required to perform interprofessional experience activities (IPE) during the rotation.
5. The student must keep in mind that all criticism from preceptors should be viewed as a means of learning.
6. The student should NOT make professional decisions that affect patient care without checking with the preceptor.
7. The student should take the initiative in communicating with physicians, patients, students and other people encountered during the rotation.
8. The student is responsible for adhering to the rotation schedule.
9. The student should be punctual in meeting the schedule. The student is obligated to notify the preceptor as soon as possible if he/she will be absent or late. Attendance is mandatory.
10. The student should never be hesitant to admit that he/she does not know something, and should seek help whenever needed.
11. The student is expected to demonstrate maturity.

12. **Student log book is important to follow up the attendance of the student, the tasks that they performed and their competency. The log book should be fulfilled and submitted after each rotation and at the end of the last rotation**
13. **There is a paper work that MUST be completed and submitted by each student periodically each rotation.**

Appointment of the Regional Coordinator

Each year the college of pharmacy will assign one of the colleagues of pharmacy faculty to act as a direct supervisor and coordinator for APPE rotations in specific training sites or region - so called Regional coordinator. A Student must know the regional coordinator name, contact number and office hours to discuss and resolve any matter related to APPE rot

Appointment of the Preceptor

Each training site will have at least one preceptor identified at the time the site begins participation in the APPE rotations. Additional preceptors may be added at any time upon the recommendation of both the pharmacist in-charge and the recommendation of the Regional Coordinator.

Responsibilities of the Preceptor

1. To instill principles of professional ethics by deeds as well as word.
2. Explain, in detail, what is expected of student, in way of performance, appearance, attitude, and method of practice.
3. Communication with the student at all time and be willing to discuss any aspect of practice that does not violate responsibility to his patients, the employer, or professional ethics.
4. Be aware, at all times, that his/her role is that of a teacher.
5. Afford the student the mutual respect and patience needed for the optimal learning experience.
6. Not assume a student's competency but determine it by reviewing his/her work profile through discussion and experience.
7. Criticism should be constructive, empathetic, and conveyed to the student either privately, or in an appropriate manner.
8. Stimulate the student's interest in all aspects of the practice.
9. Be respectful, at all times, of fellow practitioners and members of the allied health professions.
10. Familiarize him/herself with the material contained in the Manual for the APPE Experience rotations.
11. Review the student's progress periodically and inform students of weaknesses as early as possible.
12. To assess the students, Preceptor must use the rotation assessment form specified for each rotation including midpoint evaluation, so assessment forms must be used twice during each rotation. Some competencies/tasks require specific evaluation documents (forms) that must be completed in order to fill the rotation assessment forms

Educational outcomes and competencies:

Upon completion of all rotations, all the following Educational outcomes and competencies should be achieved:

1. **Care provider:** Pharmacy graduates use their knowledge, skills and professional judgement to provide pharmaceutical care and to facilitate management of patient's medication and overall health needs.

2. **Communicator:** Pharmacy graduates communicate with diverse audiences, using a variety of strategies that take into account the situation, intended outcomes of the communication and the target audience.
3. **Collaborator:** Pharmacy graduates work collaboratively with teams to provide effective, quality health care and to fulfill their professional obligations to the community and society at large.
4. **Manager:** Pharmacy graduates use management skills in their daily practice to optimize the care of patients, to ensure the safe and effective distribution of medications, and to make efficient use of health resources.
5. **Advocate:** Pharmacy graduates use their expertise and influence to advance the health and wellbeing of individual patients, communities, and populations, and to support pharmacist's professional roles.
6. **Scholar:** Pharmacy graduates have and can apply the core knowledge and skills required to be a medication therapy expert, and are able to master, generate, interpret and disseminate pharmaceutical and pharmacy practice knowledge.
7. **Professional:** Pharmacy graduates honor their roles as self-regulated professionals through both individual patient care and fulfillment of their professional obligations to the profession, the community and society at large.

Policies Regarding Absence during Rotations

- Attendance is required for all rotations. The student may miss up to three (3) days per rotation for medical or personal reasons only if the preceptor and the regional coordinator is notified in a timely manner.
- If the student is ill or has a personal emergency, the preceptor and the regional coordinator must be contacted as early as possible on the day in question.
- Any absences in excess of 3 days must be made up. Permission to makeup absences in excess of 3 days must be obtained from the Director of the APPE rotations.
- Failure to complete required makeup days, unapproved absences, or sick days in excess of 3 days will result in an F grade or incomplete grade.

<h2>Experiential rotations</h2>
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Mandatory Rotations

CP 1913 Ambulatory Care (6 weeks - 5 days/week)

CP 1914 Hospital Pharmacy Practice (6 weeks - 5 days/week)

All mandatory rotations are focused on direct patient care (DPC) activities which include interviewing patients, taking medication history, review of laboratory data and diagnostic tests, patient assessment, therapeutic planning, drug monitoring, patient counselling and medication reconciliation.

Electives Rotations

CP 1915 Drug information (6 weeks - 5 days/week)

CP 1916 Patient care for chronic disease (6 weeks - 5 days/week)

CP 1917 Nephrology (Internal Medicine) (6 weeks - 5 days/week)

CP 1918 Cardiology (Internal Medicine) (6 weeks - 5 days/week)

CP 1919 Infectious disease (Internal Medicine) (6 weeks - 5 days/week)

Student are asked to choose 4 rotations from the previous 6 elective rotations.

Clinical Rotations

General Requirements

Each student must complete the following required activities for the medicine rotation. (A detailed explanation of each point is below)

1. Attend rounds with assigned medical team.
2. Present at least one case study. See how to organize the case study presentation. (See p. 13).
3. Present at least one Journal club article (See p. 15)
4. Monitor patient drug therapy, using Therapeutic Drug monitoring form. (See p. 22).
5. Complete at least one Drug Information Report.
6. Attend weekly meetings for pharmacy group discussion.

Specific Detail

- i. At the beginning of this rotation, your preceptor will assign you to a specific medical team (which is usually composed of medical consultant, resident, interns and medical students) for 4 weeks. You should attend all *rounds* with your team.
 - **Rounding** is a process in which patients are presented according to the typical medical model and some aspects of the disease or its treatment are discussed. The two major types of medical rounds are work rounds, attending rounds and grand rounds.
 - a. **Work rounds:** may include residents, interns, pharmacists, nurses, etc. and other personnel immediately involved in the care of the patient. This team reviews the status of a patient at the bedside, with brief discussions of diagnostic procedures, evaluative procedures, therapy, and prognosis. Minimal time is spent discussing the patient.
 - b. **Attending rounds:** are more formalized organization in which the staff physician is presented with a case, in the ward conference room. The attending may give a lecture about some aspect of the case, may ask questions of the group (including pharmacy students) or review several difficult cases. Topics are broad and the academic aspects of the cases are stressed.
 - c. **Pharmacy Grand Round Presentation:** are usually held in the hospital auditorium or any assigned pharmacy class at the hospital. A selected student from each rotation will make a presentation for the medical team involved in his/her area of specialization and for all the students in that hospital.

What is my role as a student?

Students will participate and take responsibility for, direct patient care activities including: patient assessment to identify **drug related problems (DRPs)**, development of care plans, patient monitoring including physical and laboratory assessment, follow-up evaluation and appropriate documentation. Students will communicate with patients and health care providers and work collaboratively with them to monitor patient parameters and provide education.

Effectiveness in rotations is also dependent upon several other factors, which are included in the assessment forms

What is the best approach to rounds?

- Preparation is vital to being effective: A) Know the patient prior to rounds. B) Come in before round to update notes on patient status. C) Have all lab results available and be able to interpret the result on rounds. D) Learn to anticipate questions about drugs by

reviewing the pharmacology, biopharmaceutics, and pharmacokinetics.

- If questions arise or need for additional information concerning drug therapy occurs, provide the information either immediately or as soon as possible. Be sure to answer all questions and provide "follow-up" information at appropriate intervals.
- Carry the medication kardex (if available) on round for an up-to-date record of drugs ordered and administered.
- Monitoring patients' drug therapy is a primary goal of this rotation. You should use a monitoring form to be up to date. The monitoring form will be given to you at the beginning of the rotation. Medication histories should be taken from patients or relatives especially those being monitored. You should include information such as prescription and non-prescription drugs used by the patient, medications administration habits, compliance with prescribed medications, financial source of drugs, previous adverse drug reactions and allergies.
- During the rotation, many drug information questions will be solicited to you. One-drug information report (DIR) is required and must be turned in by the completion of the rotation. The report should be suitable for publication at the hospital newsletter and be at least 1 or 2 pages in length and be appropriately referenced.
- During the rotation, you will be asked to present at least one case study. Each student presents case presentations on a scheduled basis (**See p. 13**).
- Towards the end of the rotation, at least one journal club article to be presented by the student to the group for discussion. The article is to be a recent, original report.

What are pharmacy rounds?

Pharmacy rounds are an informal conference in which small groups of students meet with the preceptor for the purpose of discussing on-going problems in patients being monitored. The framework for pharmacy rounds is as follows:

1. Each student briefly presents the patient (10 minutes).
2. All students actively participate in the discussion, evaluating the therapy, discussing problems, and identifying solutions (time limit, 20 minutes).
3. Questions will be posed and students' depth of knowledge is assessed.

This type of interaction is highly reflective of the consistency of the problem-solving abilities of each student. Practicing pharmacists are expected to exhibit knowledge accumulated from all previous class or coursework, self-education, and experience.

What are my clinical responsibilities as a student?

- A. You must use the monitoring form and complete the necessary information for every new patient admitted. Patient follow-up is to be done on daily basis.
- B. You must interview every new patient admitted on your team service to determine patient drug regimen compliance before physician sees the patient and document information in the monitoring form.
- C. You must provide patient counseling on medication to all patients in your team service. (Only under the supervision of the preceptor)
- D. You should actively involve, in general, patient education concerning disease state such as diabetes, hypertension. etc.
- E. You must be proactive and be a provider of drug information to physicians, nurses, and other health care providers.

Ambulatory care

Requirements:

1. Participate in ambulatory clinics. Provide drug information, and pharmaceutical service to medical clinic staff and patients.
2. Write one proposal for an article. First draft to be due by the end of third rotation week. Final draft due on last rotation day.
3. Give one presentation to house staff during rotation.
4. Participate in journal club once during rotation. One journal will be reviewed during each session by student and all relevant issues in ambulatory care.
5. Attend preceptor meeting and present patients/topics/journal articles per schedule.
6. Provide continuity of care for patients seen in clinics. Develop clinical skills in assessing patients, developing pharmacotherapeutic treatment plans and following up patients to determine efficacy, tolerability and to adjust therapy based on assessment. Develop communication skills with physicians and nurses. Use patient assessment form to be submitted to the preceptor at the end of the rotation.
7. Take medication histories, analyze possibilities for adverse drug reactions, and provide pharmaceutical counseling to patients seen in clinic. Use patient assessment form (attached).
8. Complete Educational Material Project for Clinic to be determined by preceptor.
9. Each Pharm.D. candidate must be familiar with at least the *following disease*:

<ul style="list-style-type: none">• Heart Failure• Hypertension• Hyperlipidemia• CHD• Thrombotic disorders• Asthma/COPD• Diabetes Mellitus• Peptic Ulcer /GERD• Urinary Tract Infection• Depression• Rheumatoid/Osteoarthritis• Gout• Arrhythmias• Myocardial Infarction	<ul style="list-style-type: none">• Common Cold• Diarrhea• Cellulitis• Sinusitis• Systemic Lupus• Osteoporosis• Contact Dermatitis• Anxiety• Alcohol Withdrawal• Headaches• TIA/CVA• Pyelonephritis• Hyper/Hypothyroidism	<ul style="list-style-type: none">• Contraception• Sexually Transmitted Disease• HRT• HIV/AIDS• Acne• Otitis Media/Externa• Upper Respiratory Infection• Pulmonary Embolism
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Hospital Pharmacy (Inpatient Pharmacy) Practice

In this rotation, the student is expected to apply knowledge and advance experience in the processes and functions carried in the inpatient pharmacy with emphasis on pharmaceutical care skills.

Rotation Specific Learning Objectives:

1. Perform and practice: Clinical skills including collecting and recording patient- specific data, measuring and documenting patient outcomes, problem solving, medication monitoring, dosing, therapeutic recommendations, medication reconciliation, patient education and discharge counseling, medication error reporting, and responding to drug information queries with efficient communication skills (verbal & written)
2. Understand & review the processes of checking medication orders.
3. Understand and perform pharmaceutical preparation, including extemporaneous

- pharmaceuticals.
- Utilize different pharmacy computer systems in a hospital setting.
 - Demonstrate and understand pharmacy operations including Medication orders, Order processing, Automated medication systems, Inspection and filling of medication storage and inventory Management

Other Rotations and subspecialties Goals

For elective and mandatory rotations (depend on the availability)

Cardiology Rotation

Goals: To prepare the student applying the knowledge & skills gained during didactic courses in solving problems related to the management of patients with cardiac diseases.

Rotation Specific Learning Objectives:

Upon completion of the rotation, the student shall be able to:

- Gather and relate to the patient's clinical course all diagnostic, Pathophysiology, differential diagnosis, pharmacokinetics monitoring, pharmacologic, therapeutic, Pharmacoeconomics, and surgical interventions employed in those patients with cardiac disease.
- Apply strategies dealing with physicians, nurses, technicians, and other health care team.
- Gain competence in understanding the basic concepts of hemodynamic monitoring, utilizing data obtained from Swan-Ganz arterial or central venous catheters, and other pertinent information (i.e., arterial blood gases/ fluids and electrolytes imbalance).
- Relate the etiology, pathophysiology, clinical manifestations, and treatment of encountered cardiovascular disease states. Specific attention should be focused on pharmacologic and therapeutic interventions.

Disease states include, but not limited to:

- Hypertension
- Ischemic heart disease including Angina and myocardial infarction
- Atrial and ventricular dysrhythmias
- Congestive Heart Failure/Cardiomyopathy
- Cardiogenic Shock
- Endocarditis
- Hyperlipidemia

Gastrointestinal Clinical Rotation

Goals: student is expected to enhance his/her data base concerning disease states and treatment plans commonly seen in the gastrointestinal department. He/She must be able to discuss and apply the pathophysiological approach to drug therapy. He/She is also expected to develop a working relationship with the rest of the health care team while improving his/her clinical skills through consultations, patient presentations and medical updates. Each student must complete the following required activities for the gastrointestinal clinical rotation.

- Attend rounds with assigned medical team.
- Monitor patient drug therapy. [Using therapeutic drug monitoring from-attached].
- Complete at least one Drug Information Report (DIR).
- Present at least one case study.
- Present at least one Journal club article.
- Attend weekly meetings for pharmacy group discussion.

Pediatric Ambulatory Care

Goals: To supply the student with basic knowledge and problem-solving skills which help him in managing patients in pediatric clinic.

Upon completion of this rotation, the student should be able to:

1. Given a particular disease state, describe its pathophysiology, clinical presentation, diagnosis, and provide a treatment plan based upon evidence based medicine.
2. Provide appropriate monitoring parameters for the chosen treatment plan (including efficacy, toxicity, and side effects).
3. Identify and prevent all clinically significant drug interactions.
4. Effectively communicate the drug treatment plan to the patient with the appropriate precautions and expectations.
5. Discuss the pharmacokinetic parameters of different pediatric drugs especially anti-epileptic drugs.
6. Describe the current treatment protocols
7. Effectively communicate therapeutic interventions to other members of the health-care team.

Ambulatory Care "Anticoagulation Clinic":

Goals: To prepare the student with a knowledge base and problem-solving skills necessary to manage patients in an anticoagulation clinic.

Rotation Specific Learning Objectives:

Upon completion of this rotation, the student should be able to:

1. Given a particular disease state, describe its pathophysiology, clinical presentation, diagnosis, and provide a treatment plan based upon evidence based medicine.
2. Describe the clotting cascade and the its relevance to monitoring patients on anticoagulation therapy.
3. Provide appropriate monitoring parameters for the chosen treatment plan (including efficacy, toxicity, and side effects).
4. Identify and prevent all clinically significant drug interactions.
5. Effectively communicate the drug treatment plan to the patient with the appropriate precautions and expectations.
6. Discuss the pharmacokinetic parameters pertinent to warfarin dosing and be able to account for these parameters when developing a treatment plan.
7. Describe the current anticoagulation treatment protocols for patients who are status-post: acute myocardial infarction, ischemic stroke, deep vein thrombosis, and prosthetic valve replacement.

Ambulatory Care "Asthma Clinic "

Goals: To prepare the student with a knowledge base and problem-solving skills necessary to provide patient care in an asthma clinic setting.

Specific Learning Objectives:

Upon completion of this rotation, the student should be able to:

1. Describe the pathophysiology, clinical presentation, and diagnosis for asthma.
2. Classify the asthma based upon the patient's presentation and determine the most appropriate drug treatment plan.
3. Provide appropriate monitoring parameters for the chosen treatment plan (including efficacy, side effects, and toxicity).
4. Describe the use and importance of peak flow meters.
5. Effectively communicate the drug treatment plan and use of devices to the patient

with the appropriate precautions and expectations.

6. Effectively communicate therapeutic interventions to other members of the health-care team.

Surgical Rotation

Goal: To prepare the student with a knowledge base and problem solving skills relating to the management of surgical patients.

Rotation Specific Learning Objectives:

Upon completion of the rotation, the student shall be able to:

1. Describe the symptomatology, physical findings, pathophysiology, diagnostic procedures, laboratory tests, primary and alternative pharmacotherapies, and non pharmacological treatments for all encountered post-operative complications.
2. Describe the management of chronic illnesses in the post-operative patient (endocrine, cardiovascular, etc.)
3. List current recommendations for antimicrobial surgical prophylaxis
4. Describe the advantages/disadvantages of colloid and crystalloid therapy in the surgical patient.
5. Explain ventilatory support of the surgical patient
6. Discuss the role of nutrition support in post-operative patients.
7. Apply hemodynamic and physiologic monitoring principles as they relate to drug therapy in the surgical patient.
8. Compare and contrast the surgical intensive care unit with other practice settings with respect to the student's personal goals and desires, or current practice options.
9. Evaluate patterns of drug use within the intensive care unit and develop methods of promoting optimal, cost-effective therapy.

Nephrology Rotation

Goals: To prepare the student with a knowledge base and problem-solving skills relating to the management of patients with renal disorders.

Rotation Specific Learning Objectives:

Upon completion of this rotation, the student should be able to:

10. Describe the pathophysiology, clinical presentation, and diagnosis of a patient with acute and chronic renal failure.
11. Describe the differences in pathophysiology and clinical presentation of patients with cystitis, urethritis, and pyelonephritis.
12. Determine the most appropriate treatment of renal failure based on clinical presentation, pharmacodynamic & kinetic parameters, and medical history.
13. Communicate the treatment plan with patient.
14. Monitor adverse events, drug interactions, and efficacy of all medications affecting the renal system and recommend changes in drug therapy when appropriate.
15. Evaluate patient adherence and develop strategies for improvement.

Infectious Diseases Rotation

Goal: To prepare the student with a knowledge base and problem solving skills relating to the treatment of infectious diseases with antimicrobial agents.

Rotation Specific Learning Objectives:

Upon completion of this rotation, the student shall be able to:

1. Describe the symptomatology, physical findings, pathophysiology, diagnostic procedures, laboratory tests, primary and alternative pharmacotherapies, and non-pharmacological treatments for all the encountered infectious diseases.

2. Demonstrate a working knowledge of the spectrum of activity, pharmacokinetic principles, tissue penetration, and cost of the all antimicrobial agents including antibacterial, antifungal and antiviral drugs. Define appropriate utilization and understanding of laboratory tests specific to infectious diseases including:
 - a. Kirby-Bauer antimicrobial susceptibility testing
 - b. MIC and MBX determinations
 - c. Serum bactericidal titers
 - d. Immunologic techniques including:
 - i. ASO/AHT titers
 - ii. Serological testing for legionella, mycoplasma, and hepatitis
 - e. General smear and staining techniques (gram-stain, acid-fast, silver stain, KOH stain, etc.)
 - f. Limitations and techniques of culture and susceptibility testing
 - g. Concepts regarding synergy testing and post-antibiotic effects
 - h. Interpretation of white blood cell count and differential, and adequacy of specimens obtained for stain and culture
 - i. Interpretation of nonspecific laboratory evaluations including erythrocyte sedimentation rate, serum complement levels, and acute phase reactants
3. Understand the underlying mechanisms of infections in general, including alterations in specific host defense mechanisms
4. Demonstrate an understanding of drug-induced and non-drug-induced antimicrobial resistance

Intensive Care Unit

Goals: To prepare the student with a knowledge base and problem solving skills relating to the provision of patient care in an intensive care setting.

Rotation Specific Learning Objectives:

Upon completion of the rotation, the student should be able to:

1. Describe the symptomatology, physical findings, pathophysiology, diagnostic procedures, laboratory tests, primary and alternative pharmacotherapies, and non-pharmacological treatments for all encountered medical illnesses.
2. Discuss treatment considerations in the following situations:
 - a) diagnostic and therapeutic usefulness of hemodynamic monitoring via Swan-Ganz catheter
 - b) potential effects of drug and nutrition therapy on the mechanically ventilated patient
3. Identify & prioritize clinical significance of the factors in intensive care situation.
4. Monitor patient outcomes, efficacy, side effects of drug therapy, and patient parameters such as:
 - a) respiratory function (i.e. pulse ox, spirometry, PFTs, etc.)
 - b) cardiac function (i.e. ECG, echocardiogram, etc.)
 - c) fluid status and nutritional status
 - d) renal/hepatic function
5. Demonstrate the ability to interact with patients or patient care givers in a manner consistent with the patient's age, level of understanding, physical disabilities, or other barriers common to the critical care environment.
6. Compare and contrast the pharmacokinetic parameters of patients in the intensive care setting with patients from other practice settings.
7. Compare and contrast the medical intensive care unit with other practice settings with respect to the student's personal goals and desires, or current practice options.

Drug information Rotation:

The objective is to develop and enforce the Pharm.D. student's expertise in all the services provided by drug information center that includes:

1. Support for clinical services: Answering questions and Developing criteria/ guidelines for medication use
2. Pharmacy and therapeutic committee activity: Developing a medication use policies and Formulary management
3. Publications--Newsletter, Journal columns
4. Education-- in-services for health professionals, students
5. Medication usage evaluation
6. Investigational medication control
 - Institutional review Board Activities
 - Information for practitioners
7. Coordination of reporting program—adverse drug reaction/Medication Error reporting.
8. Poison Information.

Outcome of Drug Information Rotation:

1. Receiving drug information question process and Getting Requestor demographics
2. Standard questions for obtaining background information from requestor
3. Categorization of DI questions
4. Search categories & identifying Useful resources for commonly requested drug information
5. Systematic approach to drug information: Primary, Secondary & Tertiary Literatures
6. Searching computerized data base (Drugdex & poindex) and On-line searching
7. Formulating effective response and provision of response
8. Drug Information Request Form/Response
9. Recommending drug therapy, Monitoring drug therapy and Patient counseling
10. Data evaluation & analysis
11. Applying evidence based practice & clinical practice guidelines
12. Pharmacoeconomics & applying cost benefit analysis
13. Participating in P&T committee
14. Identifying & reporting adverse drug reactions and medication errors
15. Quality improvement & the drug use evaluations
16. Evaluating clinical trials and clinical research articles
17. Participating in the quarterly issued Drug Information Newsletter
18. Preparing drug information statistics
19. Enhancing professional communication with medical, pharmacy & nursing staff
20. Preparing: drug information handouts /brochures for pharmacy staff, patient education materials on different medications, and drug evaluation monograph for P&T committee
21. Present at least one Drug Information Report on medication error or ADR or report on a prepared question with complete answer.
22. Present at least one Journal club article
23. Attend weekly meetings for pharmacy group discussion (if applicable).

Oncology/Hematology Rotation

Goals: To integrate basic pharmacy related concepts and oncology/hematology patient care through patient care activities, discussions, and selected exercises. Rotation Specific Learning

Objectives: Upon completion of the rotation, the student shall be able to:

1. Describe the symptomatology, physical findings, pathophysiology, diagnostic

procedures, laboratory tests, primary and alternative pharmacotherapies, and non-pharmacological treatments for the following medical illnesses: Leukemias, Hodgkin's disease, Non-Hodgkin's lymphoma, Multiple myeloma, Breast cancer, Lung cancer, Gastric cancer, Colon cancer, Genitourinary tract cancer (cervical, ovarian, endometrial, prostate, testicular, urinary bladder, kidney), Head and neck cancer, Cutaneous melanoma

2. Discuss the role of diagnostic, palliative, and curative radiation therapy and surgery in cancer management including the monitoring and management of the associated complications.
3. Establish therapeutic and toxic endpoints of therapy.
4. Discuss the rational use in the cancer patient of: nutritional support, nausea and vomiting treatment, pain control
5. Discuss the presenting symptomatology and treatment of oncologic emergencies: e.g., superior vena cava syndrome, hypercalcemia, malignant effusions, spinal cord compression.
6. Discuss the role of the pharmacist in supportive-terminal care and pain control.

Transplantation Rotation

Goals: To prepare the student with the necessary knowledge base and problem solving skills.

Upon completion of the rotation, the student shall be able to:

1. Describe the symptomatology, physical findings, pathophysiology, diagnostic procedures, laboratory tests, primary and alternative pharmacotherapies, and non-pharmacologic treatments for all encountered medical illnesses.
2. Participate in daily rotation to review patient work ups and drug therapy.
3. Monitor the patient's disease process and response to treatment. Evaluate the drug treatment including efficacy, adverse reactions, and drug interactions.
4. Identify effective ways to be a proactive member of the health-care team.
5. Recommend alterations in drug therapy where appropriate. Provide drug information upon request and voluntarily.
6. Discuss immunosuppressive drugs used for renal transplantation, including their mechanisms of action and adverse effects.
7. Discuss the presenting symptoms & treatment of renal transplant complications (e.g. delayed graft function, rejection, drug toxicity, infection, malignancy, CVS, GIT, bone & mineral metabolism, post-transplant DM).

HOW TO ORGANIZE THE CASE STUDY PRESENTATION:

The student should possess a thorough knowledge of the disease affecting the patient and its treatment. The case presentation consists of the following parts. Evaluation is based upon how well each portion is presented.

A. REVIEW OF THE DISEASE

It is important that the student explain the basic underlying lesion and how it is amenable to drug therapy. Additionally, a good discussion of the disease state should include the following:

Incidence	Signs and Symptoms
Etiology	Manifestations & complications
Pathology & Pathophysiology	Parameters used to assess status
Parameters indicating cure	Physiology
Prognosis	Laboratory diagnosis
	Management & pharmacological treatment

B. THE PATIENT'S CASE

Here is a format to follow in presenting the patient's case:

1) Chief Complaint (CC)

Briefly state the major reason why the patient is seeking medical care (do not confuse with HPI).

2) History of Present Illness (HPI)

List the sequence of events leading to the medical problem mentioned in chief complaint. In chronologic order, describe original onset of symptoms, treatment used and patient response to most recent problems. Restrict the length of this section.

3) Past Medical History (PMH)

List other medical problems and the prescribed therapeutic regimen. List all other medications taken routinely and their indication. List drug sensitivities/allergies.

4) Social History (SH)

Relevant information pertaining to cigarette smoking, alcohol consumption, drug abuse, etc.

5) Family History (FM)

Relevant diseases of parents, siblings, etc.

6) Review of Systems (ROS)

List pertinent data (subjective data obtained by physician during patient interview) concerning body systems.

7) Physical Examination (PE)

List abnormal physical findings; list normal findings pertinent to the patients' disease state - indicate as WNL (within normal limits).

8) Assessment

List medical problems identified.

9) Plan

List the plan for medical management (if available in chart) for each problem.

10) Hospital Course

List the day-to-day activities of the patient's hospital stay. If the patient has been hospitalized for a long period of time, make a synopsis of the patient's hospital

activities. Use the problem-oriented approach for each day or time period.

11) Auxiliary Information

If numerous laboratory data are presented, list the data on a "flow sheet" and not in the "hospital course" section. If the drug regimen is complicated or involved, list the medications separately with appropriate information, e.g., response, adverse effect, etc.

C. CRITIQUE OF DRUG THERAPY

This is one of the most important aspects of the case presentation. The student should carefully evaluate the patient's drug therapy through accomplishing the following:

1. Explain the effect of drug therapy on the patient.
2. Draw conclusions about the appropriateness of drug therapy and document the efficacy of actual treatment by referring to specific current literature.
3. If therapy is ineffective or toxic, suggest alternatives.
4. Explain patient outcome as the student perceives it. Answer self-initiated questions such as: Was outcome the result of drug therapy? How would the outcome have been different if no drugs had been used? How might have the outcome changed if different drugs had been used?

How can I deliver formal case presentation? (Please review pharmacy seminar course)

A. PRESENTATION

To make a professional presentation, student must exhibit the following characteristics

- | | |
|-------------------------------|-------------------------|
| 1) Organization of material | 2) Knowledge of subject |
| 3) Clarity of content | 4) Enthusiasm for topic |
| 5) Confidence in presentation | |

B. TIME

The presentation should be limited to 45 min. Approximate time distribution may be as follows: Review of the disease (15 min), Case (15 min) and Critique (15 min)

C. VISUAL AIDS

Visual aids are both encouraged and required. Slides, use of color, posters, tables, graphs, or drawings are encouraged. A handout for the audience is required. Included in the handout must be a reference list. It is very helpful to the audience to include an outline of the disease state and/or tables, graphs, or pictures that help to explain difficult concepts.

References are to be reported in the format that appears in major journals, such as the American Journal of Hospital Pharmacy or the New England Journal of Medicine.

HOW TO ORGANIZE A JOURNAL CLUB

Journal Club Guidelines

Article selection

- Article should relate to a pharmaceutical topic. This topic should not be one that the student has already discussed for a formal case presentation or topic discussion.
- Article must describe a study that includes sections that describe the authors' methods and results in detail.
- Article must be from a peer-reviewed, medical journal
- Article should have been published recently (within 1-2 years).
- Provide copies to the preceptor & other students 2 days prior to the presentation.
- Be familiar with related trials, methods of measurement

Format of presentation

- Presentation should be 15-20 minutes long, with an additional 10 minutes for questions

Title, authors, authors' affiliation, journal, date	
Purpose:	
Methods: <ul style="list-style-type: none">• Design• Population• Outcome measured• Inclusion/exclusion criteria• Statistics used	
Results:	
Limitations:	
Conclusion:	

Evaluation and critique of the journal

1. Article selection:

- Is it important regarding the field?
- Are the results generalizable or limited to a specific patient population?
- Is it applicable to your patient in the field?
- Is the journal reputable and impacted?

2. Title & investigators

- Does the title suitable and accurately reflect the study?
- What are the author affiliations? Are there any conflicts of interest?
- Do the authors have other publications in this area?
- Have the authors published other articles related to this study?

3. Study funding

- Who funded the study?
- Are there any conflicts of interest?

4. Human research review board approval

- Was the study approved by a human research review board?

5. Introduction and background

- Do the introduction and background provide enough information to justify doing the study?

6. Study design

- What is the study design?
 - Randomized or nonrandomized
 - Controlled or open label
 - Unblinded, single-blinded, or double-blinded
 - Single center or multicenter
 - Prospective or retrospective
 - Placebo controlled or active comparison
 - Crossover or parallel
 - Phase I, II, III, or IV
- Is the study design appropriate for the study objectives?
 - What are the study objectives?
 - What are the primary and secondary end points?
- What are the study subjects (internal & external validity)?
 - How many?
 - What are the inclusion criteria?
 - What are the exclusion criteria?

7. Data analysis

- Was the study appropriately analyzed?
- Was the study data analyzed descriptively or analytically?
- Are statistically significant results clinically relevant?

8. Results and discussion

- Are results for all study objectives provided?
- Are the results supported by the data?
- Are the tables and graphs accurate representations of the study data and results?
- Are the study strengths and weaknesses appropriately identified and described?
- Does the discussion place the results in context with previously published information?

9. Conclusion

- Is the conclusion appropriate and supported by the facts?

10. Other

- What are the limitations of the study?

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Absence Request Form

Student Name _____

APPE Site/Rotation _____

Number of days of absence included in this request: _____

Approval is requested for absence from rotation activities from ____/____/____

Through ____/____/____ for the reason indicated below:

REASON FOR ABSENCE

- _____ Illness _____ Other Explanation:
_____ Death in Family
_____ Attend Professional Meeting
_____ Personal Reason

FURTHER REASON FOR ABSENCE CAN BE GIVEN HERE IF EXPLANATION IS REQUIRED.

Approval requested _____/_____/_____
(Student) (Date)

Approval _____/_____/_____
(APPE Preceptor) (Date)

Approval _____/_____/_____
(College Coordinator) (Date)

This form should be sent to the Department of Clinical Pharmacy. A copy should be kept on file with the preceptor.

Case Presentation Evaluation Form

Student:

Evaluator:

Rotation Title/Number:

Topic:

Date: / /

Organization:

	Score 0-10
Topic was relevant to practice	
Appropriate continuity of presentation	
Logical information sequence and emphasis on main point	
Appropriate utilization of time allotted	

Visual Aids/Handouts

Clear and legible	
Complemented the presentation; not used to read directly	
References in correct format and complete	

Verbal Presentation/Delivery:

Clear, articulate and audible speech (rate was easy to understand)	
Eye contact with audience and no distracting mannerisms	
Ability to handle questions	

Comments

.....

.....

Total score : _____ out of 40 + _____ out of 30 + _____ out of 30 = _____ %

To be included in the assessment forms: total score /20 = out of 5

Preceptor Name: _____

Signature : _____

Journal Club Evaluation

Presenter's Name: _____ Date: ___/___/___

Evaluator's Name: _____

Journal /Article: _____

Journal Citation: _____

Presentation Content:

	Score 0-10
Appropriate background information was provided.	
Study summary was clear and concise.	
Critique of study design (advantages/disadvantages) was appropriate.	
Evaluation of the article conclusion(s) was appropriate.	
Discussion of the clinical significance of the results was accurate.	
Discussion of the topic impact upon pharmacy practice was insightful.	
Responds appropriately to questions.	

Presentation Style:

Appears professional and confident throughout the presentation.	
Eye contact, Voice quality, and pitch are strong and consistent throughout the presentation.	
Does not demonstrate excessive dependence upon notes.	

Comments

Total score : _____ out of 70 + _____ out of 30 = _____ %

To be included in the assessment forms: total score /20 = out of 5

Preceptor Name: _____

Signature : _____

Patient Communication & Education Evaluation Form

Student Name: _____

Date: / /

General Intro/Opening/ ending	Score 0-10	Comments
1. Introduces him/herself to the Patient		
2. Greets patient by name		
3. Elicits patient's reason for visit using open-ended questions		
4. Reassuring the patient regarding the rationale of the visit.		

Comments: _____

Specific Case-Related Questions:	Score 0-10	Comments
1. Obtained patient's medication history (Rx, OTC, Herbal)		
2. Obtained patient's medical conditions		
3. Did the student explain the need and usage of each prescribed medication?		
4. How well did the student communicate?		
5. Was the student able to generate a specific drug question?		
6. Did the student respond satisfactorily to the needs & problems presented by the patient?		

Comments: _____

Total score: _____ out of 40 + _____ out of 60 = _____ %

To be included in the assessment forms: total score /20 = out of 5

Preceptor Name: _____

Signature: _____

*Each student must complete at least ONE (1) Patient Communication Evaluation during the ambulatory care rotation

Patient assessment, Progress Notes and Therapeutic Drug Monitoring Form for clinical medicine and hospital rotations

PATIENT	CHART #	AGE	HT	WT	SEX	RM.#	PHYSICIAN(S)	INTERVIEWER	DATE	
ADMIT DATE	DISCH. DATE	DX			ALLERGIES/ ADRs		FUNCTIONL LIMITATINS			
/ /	/ /									
CC		HPI				FH/SH				
PAST MEDICAL HX		DRUG HX (PRESCRIPTION AND NON PRESCRIPTION ITEMS)				MED HX COMPLETE		PATIENT KNOWS MEDS		
						YES NO		YES NO		
						SOURCE OF RX HISTORY		COMPLIANCE		
						PT/ FAMILY/OTHER		GOOD POOR		
								UNCERTAIN ASSIST- ANCE		
DATE TREATMENT PLAN				DATE TREATMENT PLAN						
START	D/C	DRUG (DOSE/ROUTE(S)/FREQUENCY)			MONITOR	START	D/C	DRUG (DOSE/ROUTE(S)/FREQUENCY)		MONITOR

LABORATORY FLOW SHEET (INTERNAL MEDICINE)

DATE		ELECTROLYTES	
BLOOD:		SODIUM	
HEMATOCRIT		POTASSIUM	
HEMOGLOBIN		CHLORIDE	
RBC X 10 ⁶		CO ₂	
WBC		GLU, RANDOM	
POLYS		GLU, FAST	
BANDS		PHOSPHORUS	
LYMPHS		CALCIUM	
MONOS		MAGNESIUM	
EOS			
BASOS			
RETICS			
		LIVER/CARDIAC:	
PLTS X 10 ³		TOTALPROT	
ESRCSR		ALBUMIN	
		BILI TOTAL	
PT RATIO		DIRECT	
PROTINE % ACT		ALK PT ASE	
PTT		CPK	
		LDH	
URINALYSIS:		SGOT	
SP.GR			
ALBUMIN			
SUGAR			
ACETONE			
BILE		RENAL:	
RBC		BUN	
WBS		URIC ACID	
CASTS		CREATININE	
ABG:		CREAT. CLEAR	
PH			
PCO ₂			
PO ₂			
HCO ₃			
BASE EXCESS			
O ₂ SALT %			
VITALS:		DIAGNOSTIC: X-RAY, ECG, ETC.	
T			
BP			
P			
R			
IN			
OUT			
WT			
C & RESULTS:			

Student name:

Preceptor Name: _____

Signature: _____

Patient Assessment form (by student)

Pharmaceutical Services

Ambulatory care rotation

Clinic:..... **Name:**.....
Consultant name:..... **Medical Record :**.....
Date:...../...../..... **Date of birth:** .../...../.....
(Primary Reason for Clinic Visit CC) **Phone Number:**

Problem List: (disease)

1.	3.
2.	4.

Social History:.....
Allergies: (1) Food: **(2) Drugs:** **(3) Environment:**
(4) Others: **(5) Explain:**

Current Medications:

Drug	Dosing Schedule	Comment

Past Medications:

Drug	Dosing Schedule	Comment

Vital Signs: **BP:** **HR:** **Temp:** **Weight:**

Labs:

Notes & Observations:

Assessment:

Recommendations:

Patient Counseling: (Drugs, Instructions, etc.)

Additional Comments:

Follow up with:.....

Follow up date/time:.....

Time required for intervention:

Was intervention solicited? If so, by whom?

Student Name: _____

Preceptor Name: _____

Signature: _____

Grading Policy

- Grading will be from 100 % according to the assessment forms and finally will be pass or fail.
- A student who fails to meet the minimum standards after multiple remediation attempts may be pulled from the experience. The minimum passing grade for each rotation is 60% on the final rotation assessment form.
- A mid-point evaluation of the professional experience (for each rotation) will be performed at the end of the 2nd week by the preceptor.

NB.: Rotation assessment forms should be filled and submitted at the end of each rotation

CLERKSHIP EVALUATION FORMS
Professionalism (Personal and Behavioral) (30 marks)
For all Rotations

Rotation: Training period:
 Student's Name: ID:

Characters	Score 0 – 3	Comments
Attendance		
Professional appearance		
Attitudes		
Quality of work		
Organization and time management		
Written communication		
Oral communication		
Dependability		
Punctuality		
Initiative, motivation, self starter		
Total Grade (30)		

Clinical skills for each rotation (70 marks)

INTERNAL MEDICINE ROTATION

This evaluation form is to be used in any internal medicine rotation or internal medicine subspecialty such as cardiology, endocrine, gastroenterology, pediatrics, oncology, ICIU, CCU,

Activity	Score 0- 10	Comments
1. Attend rounds with assigned medical team.		
2. Monitor patient drug therapy		
3. Attend pharmacy group discussion		
4. Drug Information report completed		
5. Journal club article Presentation (see journal club evaluation form p. 26)		
6. Case study presentation (see case presentation evaluation form p. 25)		
7. Oral / Written (Exam/Quizzes)		
Total Grade (70%)		*For the remaining 30 marks please fill Personal & behavioral evaluation form p. 35 on the manual

Clinical evaluation + Personal & behavioral evaluation*

Final grade =out of 70 +out of 30 =out of 100

Student's Name: _____

Evaluator/Preceptor name: _____

Position: _____ Signature: _____

- N.B**
- 1- This should be returned to the college of pharmacy (Department of Clinical Pharmacy)
 - 2- Comments section should be filled to explain score given as needed.

AMBULATORY CARE-CLINICAL ROTATION

Activity	Score 0 – 10	Comments
1- Participate in ambulatory clinical with active contribution of patient care-knowledge of patient condition and current status		
2- Ability to interpret lab data, take medication histories by using patient assessment		
3- Knowledge of monitoring parameters to assess therapeutic success or failure, analyze possibilities for adverse drug reactions		
4-Ability to identify potential drug/drug, drug/food, drug/disease and drug/lab interactions		
5- Complete an educational material as specified by clinician or preceptor		
6- Present one topic, or article to the pharmacy staff or ambulatory clinic		
7- Provide patient counseling on appropriate use of medication (see student-patient communication form p.27)		
Total Grade (70)		*For the remaining 30 marks please fill Personal & behavioral evaluation form p. 35 on the clerkship manual

Clinical evaluation + Personal & behavioral evaluation*

Final grade =out of 70 +out of 30 =out of 100

Student's Name: _____

Evaluator/Preceptor name: _____

Position: _____ Signature: _____

- N.B** 1- This should be returned to the college of pharmacy (Department of Clinical Pharmacy)
 2- Comments section should be filled to explain score given as needed.

HOSPITAL PHARMACY ROTATION

Activity	Score 0 – 10	Comments
1- Understanding of the general policy and procedure for inpatient pharmacy: unit dose system, drug distribution, IV admixtures, TPN and computer system		
2- Performance at IV solution room: [A]- Understand the various equipment used: Laminar air flow [vertical/Horizontal] per-filler, HEPA-filler. - Prepare solutions under aseptic technique. - Calculate and prepare TPN solutions [manual/computer]		
[B]- IV order, IV card flow scheme, information required for labeling and checking of the finished product: - Able to discuss the different references used. - Understand the common clinical indication, evaluation process therapeutic monitoring.		
3- Performance at other inpatient pharmacy services: [A]- General procedures and all functions carried out. - Differentiate between central and decentral pharmacy services. - Understanding of distribution system- centralized/decentralized		
[B] - Understand unit dose system and floor - stock system. - Understand the inpatient medication orders and processes. - Differentiate between physician drug order, MAR, patient drug profile, drug data		
[C]- Utilize computer system - Understand automatic- drug stop order. - Understand mechanism used for inventory control. - Prepare some extemporaneous preparations. - Understand all requirements for handling and dispensing controlled on narcotic drugs.		
4- [A]- Prepare one article for the pharmacy newsletter and/or a small project OR. [B]- Prepare and deliver a pharmacy related topic in the inpatient pharmacy practice.		

Total Grade (70)

Clinical evaluation + Personal & behavioral evaluation*

Final grade =out of 70 +out of 30 =out of 100

Student's Name: _____

Evaluator/Preceptor name: _____

Position: _____ Signature: _____

N.B

- 1- This should be returned to the college of pharmacy (Department of Clinical Pharmacy)
- 2- Comments section should be filled to explain score given as needed.

DRUG INFORMATION ROTATION

Activity	Score 0-10	Comments
1. Comprehensive understanding of DIC literatures and searching processes		
2. Comprehensive understanding of Micromedex & to be utilized appropriately		
3. Performance during stay in DIC receiving and preparing the answers to the DIC daily questions		
4. Performance during delivering the answer to the health care provider or to a lay person.		
5. Discussion during answer searching processes.		
6. Drug information report on ADR or Medication error or an appropriately answered DIC question		
7. P & T drug monograph participation		
8. Participation in journal club		
9. Drug or disease presentation		
Total Grade (70)		*For the remaining 30 marks please fill Personal & behavioral evaluation form p. 35 on the clerkship manual

Clinical evaluation + Personal & behavioral evaluation*
 Final grade =out of 70 +out of 30 =out of 100

Student's Name: _____

Evaluator/Preceptor name: _____

Position: _____ Signature: _____

- N.B** 1- This should be returned to the college of pharmacy (Department of Clinical Pharmacy)
 2- Comments section should be filled to explain score given as needed.

Rotation Competencies and Activities

Each student needs to take responsibility for completion of the activities to demonstrate their competency. The exact order and type of activity can vary from student to student.

Rotation month	1	2	3	4	5	6
Rotation name						
I Ethical, legal & professional responsibility						
Practice within legal requirement & demonstrate professionalism						
II Provide Patient Care						
1.Direct patient interaction – samples of medication history, med reconciliation, patient counseling and/or MTM evaluation						
2.Patient care notes – samples of renal dosing, pharmacokinetic, anticoagulation management, therapy monitoring, IV to PO						
3.ADR/ Medication Error reports						
4.Patient Encounter Data Collection Forms						
III Communicate & educate						
Communicate effectively with patients & HCP						
IV Health promotion						
1. Formal presentation for HCP						
2. Journal club presentation						

3. Presentation for public						
4. Patient Education Material						
5. Drug Information Requests						
V Manage the Practice with product distribution						
Compounding worksheet (1 sterile, 1 non-sterile product) Practice Management Issues (Written Discussion)						
VI Management & practice						
Formulary Management (P & T Committee) e.g. drug monograph, therapy protocol review/development, QA activity						
VII Knowledge & research application						
1. Newsletter article (for health professional or public)						
2. Medication Use Evaluation						
XI- Quality & safety						
collaborate in developing, implementing, & evaluating policies, procedures & activity that promote quality & safety.						
VIII Interprofessional experience						
Preceptor name						
Preceptor signature						



OUTLINE OF REQUIRED PAPERWORK TO BE COMPLETED AND SUBMITTED BY THE STUDENT

A. COMPLETED BY THE PRECEPTOR:

Final Rotation Assessment Forms (pgs 26 – 30) will be completed by the preceptor and signed by both the preceptor and student.

B. COMPLETED BY THE STUDENTS:

1. Calendar and tasks which is present in the student logbook
2. Rotation competencies & activities (pgs31 – 32)

Checklist & timeline for document submission by students:

At the end of each rotation:

- Student log-book
- Student portfolio**

At the end of all rotations:

- Rotation competencies and activities (**pgs 31 – 32**)

NB.: It is the student responsibility to develop his own **“Portfolio”** so that it contains evidence of ALL activities/assignments as required in the APPE. These activities/assignments may include:

1. Patient progress/reports submitted in SOAP format., all patient information **MUST** be de-identified
2. Handout or slides used for formal patient case presentation.
3. Handout of Journal club presentation.
4. Drug information responses.
5. Handout or other evidence of an in-service or educational session you provided to pharmacy, nursing or medical staff.

This Portfolio needs to be submitted to the PFC by the end of each rotation

Checklist & timeline for document submission by Preceptors:

- Final assessment form at the end of each rotation

GOOD LUCK