



Optimizing Patient Care

Comprehensive Pharmacy Practice Rotation Plan for PharmD Students

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Optimizing Patient Care (OPC), is a Pharmacy Practice Rotation Plan, which all PharmD students mandatorily undergo, for the fulfillment of their degree requirement. OPC is a clinical practical training and coaching program, for the SHU PharmD students, which is, in compliance with the international and national standards, proposed by the American Council of Pharmacy Education (ACPE), Pharmacy Council of Pakistan (PCP) and other applicable regulations.

The PCP mandatorily requires a hospital facility, attached to the pharmacy educational institution, in order to impart applied professional training in pharmacy practice including clinical pharmacy to the SHU students. In compliance to this, SHU engages various healthcare outfits, hospitals, research labs. and community pharmacies, to provide training and clinical exposure to the SHU students.

A 200 Hours' PharmD Residency Program will be carried with activities in the following areas:

1. **Inpatient Pharmacy**

- 1.1. Order receiving and entry, checking of prescribed drug(s) for dosage, frequency, route, duration of therapy, etc.
- 1.2. Monitoring, evaluating and maintaining of drug storage and handling.
- 1.3. Monitoring and maintaining drug inventory and stocks.
- 1.4. Monitoring and managing of Drug Adverse Reactions.
- 1.5. Information of Drug-Drug, Drug-Food interactions.
- 1.6. Monitoring the expiration of medicines.

2. **Drug Poison Information Centre (DPIC)**

- 2.1 Answering to queries regarding dosage, route, frequency, duration of therapy, dilutions etc. of medicines to physicians, paramedics and entertains outside queries.
- 2.2 Monitoring and managing of Drug Adverse Reactions.
- 2.3 Providing information regarding receiving storage, distribution and handling of medicines.
- 2.4 Calculation of doses according to age, weight, creatinine clearance and drug dilutions.
- 2.5 Providing Poison and Antidote information.
- 2.6 Managing the poisoning as per toxicity practice.

3. **Compounding**

- 3.1 Extemporaneous and bulk compounding of skin preparations.
- 3.2 Compounding of certain oral preparations according to the age of patient.
- 3.3 Monitoring and maintaining drug inventory and stocks.
- 3.4 Monitoring the expiration of medicines.

4. **Chemotherapy**

- 4.1 Provide information on Chemotherapy, combination of chemo drugs, and calculation of dosage and schedule of chemotherapy rounds.
- 4.2 Information on Nutritional therapy, Calculations and preparation of "Total Parental Nutrition" (TPN) to designated patients.
- 4.3 Handling and storage of chemotherapy medicines.
- 4.4 See reference 2.1.3.2.1.4 and 2.1.6.
- 4.5 Monitoring and maintaining drug inventory and stocks.
- 4.6 Monitoring and managing of Drug Adverse Reactions.
- 4.7 Monitoring the expiration of medicines.



5. Point of Care Pharmacy (PoCP) and different wards of the hospital

- 5.1 Reviewing of patient profile.
- 5.2 Antibiotic therapy - choice rational of therapy, culture (sputum) or urine/ blood culture to determining sensitivity.
- 5.3 Titration of doses of drug that have narrow therapeutic windows.
- 5.4 Monitoring, evaluating and maintaining of drug storage and handling.
- 5.5 Monitoring and managing of Drug Adverse Reactions.
- 5.6 Patient counselling regarding drugs and diagnosis.
- 5.7 Labs - analysis/reports/test, that help in diagnosis of disease.
- 5.8 Advising physician/consultants/residents for cost effective choices of drug therapy with respect to hospital formulary.
- 5.9 Preventing medication errors.
- 5.10 Evaluating Drug-Drug and Drug-Food interactions

6. Ambulatory Care Pharmacy

- 6.1 Prescription handling, combination of drug, dosage, route, frequency and duration of therapy.
- 6.2 Patient counselling with respect to disease and medications.
- 6.3 Improving compliance of the patient.
- 6.4 Evaluating and recommending cost effective choices of brands/generic formulations with for patients or for hospital formulary.
- 6.5 Preventing medication and dispensing errors.
- 6.6 Evaluating Drug-Drug interactions and drug-food reactions and providing counselling to patient regarding this issue.
- 6.7 Monitoring, evaluating and maintaining of drug storage and handling.
- 6.8 Monitoring and maintaining drug inventory and stocks.
- 6.9 Monitoring and managing of Drug Adverse Reactions.
- 6.10 Monitoring the expiration of medicines.

Scheme of Pharmacy Practice and Clinical Rotation Plan

S.#	Semester	Course Code	Course Title	Contact Hours	Requirement	Outline
1	III	IPP201	Pharmacy practice-XA (Introductory pharmacy practice experience)	3	curriculum	<ul style="list-style-type: none"> • Vital signs and HEENT assessment Practice - • Patient interview • Preparing SOAP notes (Introductory • In-patient rotation for Disease and Pharmacy therapy review (Gastrointestinal) Practice • Understanding out-patient! Retail Experience) Pharmacy Practice • Prescription review and patient counselling in a community pharmacy practice
2	IV	IPP202	Pharmacy practice-XB (Introductory pharmacy practice experience)	3	curriculum	<ul style="list-style-type: none"> • Vital signs and HEENT assessment Practice - • Patient interview • Preparing SOAP notes • In-patient rotation for Disease and Pharmacy therapy review (Pulmonary & Practice Cardiovascular) • Mandatory diseases: angina



						<ul style="list-style-type: none"> • NSTEMI, STEMI, Dyslipidaemia and hypertension, Asthma • Understanding out-patient! Retail Pharmacy Practice • Prescription review and patient counselling in a community pharmacy practice
3	V	PHM302	Pharmacy practice-IV A (Hospital Pharmacy)	3	curriculum	<p>In patient medication management skills</p> <ul style="list-style-type: none"> • Receiving, verification and reviewing prescriptions • Compounding • Drug selection • Inventory management • Drug distribution system • Understanding and demonstration of CPOS
4	V	PHM303	Pharmacy Practice- VA (Clinical Pharmacy-I)	3	curriculum	<ul style="list-style-type: none"> • Vital signs and HEENT assessment • Preparing SOAP notes (Clinical) • ADR identification and reporting • Observing how to handle DPIC cans and retrieving data at practice sites • Monitoring parameters, drug interactions and ADRs of important medicines class studied in theory and their counselling material
5	VI	PHM308	Pharmacy practice-IVB (Hospital Pharmacy)	3	curriculum	<p>In-patient medication management (esp. Sterile dispensing/chemotherapeutic (Hospital agents/IV and compounding) Pharmacy)</p> <ul style="list-style-type: none"> • Collection of brochures and relevant material for chemotherapeutic drugs, identify their dosing protocols and storage, as well as calculation of TPN of live orders • Drug utilization review of antibiotics w.r.t. diagnosis and culture
6	VI	PHM309	Pharmacy Practice-VB (Clinical pharmacy -I)	3	curriculum	<ul style="list-style-type: none"> • Developing Drug Therapy Plans: Workup therapy plan. Enlist the patients' problems. What are the goals for treatment in this patient, Decision for therapeutic plan for this patient (General, Drug therapy). Rationale of drug selection), • Monitoring Drug Therapy Plan • Therapeutic Drug monitoring of narrow therapeutic index drugs • Dose adjustments in compromised renal and liver functions • Disease Management of gastrointestinal infections
7	VII	PHM402	Pharmacy Practice-VIA (Advanced Clinical Pharmacy II)	3	curriculum	<ul style="list-style-type: none"> • Rotations in each wards and Outpatient covered in the whole semester. This lab will be a more extensive rotation and will encompass all the aspects studied in 3rd Prof in clinical Pharmacy courses • Health Science project: Collect data for DUR of antibiotics, duplication of same class drugs.
8	VIII	PHM404	Pharmacy Practice- VIB (Advanced Clinical Pharmacy-II)	3	curriculum	<ul style="list-style-type: none"> • Disease Management of oncology patients • Disease Management of diseases by applying the clinical skills for different types of infections



9	IX	PHM509	Pharmacy Practice - XIIA (Advanced Clinical Pharmacy III)	3	curriculum	<ul style="list-style-type: none"> • Anticoagulation Management Practice - • Review Pathophysiology of thrombosis • Indications for anticoagulation & Clinical Guideline Review Pharmacy • New anticoagulants • Pain management
10	IX	PHM511	Pharmacy Practice - XIA (Advanced Pharmacy Practice Experience)	3	curriculum	<ul style="list-style-type: none"> Internal Medicine – 1 week (10 hours /week) • Cardiology /CCU - 1 week (10 hours /week) • Critical care - 1 week (10 hrs /week) Experience) • Surgical ICU and nutritional support - 1 week (10 hrs /week) • Hematology & Oncology - 1 weeks (10 hrs /week) • Nephrology /Endocrinology. 1 weeks (10 hours /week) • Infectious diseases - 1 weeks (10 hours /week) • Drug and poison information system - 1 week (10 hours/week) • IV aseptic area – 1 week (10 hrs /week) • Extemporaneous compounding 1 week (10 hrs /week)
11	X	PHM512	Pharmacy practice XIB Advanced Pharmacy Practice Experience)	3	curriculum	<ul style="list-style-type: none"> • Internal Medicine-1 week (10 practice XI hours /week) • Cardiology /CCU-1 week (10 Pharmacy hours /week) • Critical care - 1 week (10 hrs /week) Experience) • Surgical ICU and nutritional support - 1 week (10 hrs /week) • Haematology & Oncology-1 weeks (10 hrs /week)) • Nephrology /Endocrinology - 1 weeks (10 hours /week) • Infectious diseases-1 weeks (10 hours/week) • Drug and poison information system-1 week (10 hrs/week) • IV aseptic area –1 week (10 hrs/week) • Extemporaneous compounding 1 week (10 hrs/week)

Assessment Methods:

- OSCE/ OSPE
- Viva (Internal and External)
- Case-Based Assignments
- Quizzes

Learning Outcomes:

Skills, Knowledge, Practice or any Specialized Skills (See above table for details)

SALIM HABIB UNIVERSITY



Experiential Education



Faculty of Pharmacy

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1- Preparation for Rotations

The preceptor will develop goals and objectives for the student pharmacist to achieve during the institutional experience. A review of the practice site along with a thorough assessment of what makes it unique will go a long way towards helping make the best use of the learning opportunities. To evaluate practice site, following activities will be consider:

- Order processing
- Medication reconciliation
- Pharmacokinetic monitoring
- Formulary management
- Inventory management
- Pharmacy management
- Inter disciplinary health care services
- Community-based health and wellness services
- Ongoing disease state management programs
- Collaborative relationships with other health care professionals
- Business/contractual relationships with purchasers and vendors

There will likely be many other potential pharmacy related activities underway at practice site that could also be added to this list with the goal of sharing and getting active student participation.

1. Institutional Pharmacy Rotation
2. Ambulatory Care
3. Internal Medicine
4. Cardiology & CCU
5. Pediatrics
6. Medical ICU
7. Hematology/Oncology
8. Nephrology
9. Emergency Medicine
10. Infectious Diseases
11. Surgery
12. Obstetrics & Gynecology
13. Psychiatry
14. Community Pharmacy
15. Drug Information Services

2- Orientation

A thorough orientation benefits both parties by way of the exchange of information needed to set the ground rules of the site and clear the path for learning. An orientation is an excellent opportunity for the preceptor to share with the student a number of factors relevant to the site. This also provides the student an opportunity to discuss their own goals and objectives for this experience.

Recommended orientation topics will include (this list is not all inclusive):

- a. Expectations
- b. Workflow
- c. Drug information resources
- d. Pharmacy layout and stock arrangement
- e. Policies and procedures
 - Dress code
 - Telephones
 - Coffee/meal/breaks
 - Hours of operation
 - Patient privacy and confidentiality
 - Parking
 - Introduction to personnel and their responsibilities of Professional staff, Technicians and various health care personnel

The student will be familiar with the following topics previously assigned in the institutional rotation curriculum. Therefore, the knowledge of these topics can be applied to patient care during the rotation.

- Commonly used injectable medications
- Nonprescription medications
- Laboratory tests and values
- Handling drug information requests
- Calculations
- Order processing and verification
- Medication reconciliation
- Drug devices (insulin delivery, self-injection devices, inhalers)

3- General Site Requirements and Responsibilities:

The sites for the Professional Experience Program included depending upon the availability of acute care settings, community pharmacies, long term care facilities, nuclear pharmacies, home care pharmacies and other non-traditional practice areas committed to patient care and student education. Requirements and responsibilities of the site include:

1. Meeting standards set by all governmental regulatory agencies and health department.
2. Maintenance of library and/or reference material to support student learning.
3. Adequate work space for students and faculty.
4. Accessible patient data (in the form of patient charts and patient profiles, for student/preceptor review).
5. Ongoing supports for patient care services.
6. Opportunities for inter professional communications relating to patient care issues.
7. The environment must be conducive to achieving the outlined learning objectives.
8. Site descriptions which accurately reflect the site and corresponding experiential faculty must be made available to Director of Experiential Education.

3.1 Faculty of Pharmaceutical Sciences Responsibilities:

The Faculty of Pharmacy will:

1. Carefully select preceptors to ensure that students will receive an experiential experience of the highest quality.
2. Provide ongoing supervision by field coordinators and faculty of the Professional Experience Program.
3. Provide preceptors with the necessary assistance and materials for use in evaluating student performance.
4. Monitor the student's participation and progress in the Professional Experience Program and provide information to Pharmacy Council when the experiential program is complete.
5. Provide evidence based practice guidelines as mandatory annual educational sessions for all students

3.2 Preceptor Requirements and Responsibilities:

1. Registered with Pharmacy Council of Pakistan.
2. Must have Master degree in either Pharmacy Practice or clinical Pharmacy from HEC recognized university preferably from Developed countries including Malaysia.
3. A minimum of 3 year experience in an accredited clinical Pharmacy program with clear objectives for students. The preceptor will notify the Director of Experiential Education of any issues (program, scheduling, student performance etc.) at the earliest possible time so that an acceptable solution can be reached.
4. Provide an orientation for the student to the practice site including schedules (days and hours), parking, evaluation methods, and overall responsibilities.
5. Read the objectives and competencies, as specified, for the Pharmacy Experiential Education Program.
6. Review the student's portfolio in order to tailor activities based upon their previous exposure, goals and expectations, or areas of deficiency.
7. Identify and assign appropriate activities and projects that are in alignment with the objectives and competencies for the rotation to enhance student learning.
8. Monitor student progress to ensure stated objectives are adequately addressed and met.
9. Serve as a role model and mentor for our student pharmacists.
10. Answer student questions and serve as a resource to enhance student understanding of pharmacy and patient-related issues. Share his knowledge and skills with the student.
11. Maintain student confidentiality.
12. Facilitate or seek interactions with members of your staff and other health care professionals.
13. Assess student competence to identify strengths and address weaknesses. At a minimum, complete written and verbal mid- and final-rotation evaluations with the student to communicate student progress and address any areas of concern.
14. Complete in Preceptor the final online "student evaluation" and review this document with the student.
15. Use Preceptor to electronically document the mid- and final evaluations and to review assignments.
16. Communicate with the Faculty of Pharmacy any concerns or questions regarding student progress or the pharmacy program **as soon as** issues arise.
17. Maintain a current CV/resume and provide a copy to the Faculty of Pharmacy as requested. This allows the Salim Habib University to maintain the adjunct academic appointment with Faculty Pharmacy, and continue the benefits as a preceptor, such as access to the BHU library.

18. The preceptor should be aware at all times that his/her role is as a teacher. The preceptor should strive to stimulate the student's interest in all aspects of practice and encourage innovative thinking and approaches to practice.

3.3 Student Responsibilities:

The success of the Professional Experience Program is dependent upon a number of variables. A key variable is the student's contribution to the learning process. Learning is an active process and requires the active participation of the student. The following list represents student requirements for the Professional Experience Program:

1. All health clearances must be completed prior to starting any rotation hours well before the start of the experience to allow this information to be shared with the practice site.
2. All students in the professional phase of their pharmacy are required to carry health insurance as stated in the University's student health policy. Any medical expenses incurred by the student while participating in the Professional Experience Program will be assumed by the student.
3. All students in the professional phase of pharmacy curriculum are required to carry professional liability coverage through the University.
4. During the first professional year, the following must be done: physical exam (must be repeated during the 2nd year), Hepatitis B immunizations (series of three injections for Hepatitis B and a mandatory post-titer level), titers (rubella, rubeola, varicella), DT (diphtheria-tetanus) within last 10 years; PPD annually (Note: if PPD is positive. Chest x-rays are accepted only as a follow up for a positive PPD. In these cases a radiology report is required. Documentation is required for any treatment of TB)
5. Each student is responsible for contacting the site preceptor/coordinator at least 2 weeks prior to the start of the rotation.
6. The student is to conduct himself/herself in a manner, which is professional, courteous and reflects positively on the individual, the preceptor and the Faculty of Pharmacy.
7. Students are obligated to respect any and all confidential information revealed during the rotation including but not limited to patient information, pharmacy records, pricing systems, and professional policies. At NO time are students to discuss patients by name and/or information from their charts/electronic records in public areas.
8. Students must remember that the primary purpose of the experiential program is learning, and that learning is not a passive process, but an active process that requires a serious commitment and effort on behalf of the student.
9. A student should discuss their progress/development or any disagreements with their preceptor in private. All constructive criticism should be viewed as a means of learning and not embarrassment.

10. The student is to notify the field coordinators or the Dean Faculty of Pharmacy of any issues (program, transportation, scheduling, etc.) at the earliest possible time so that an acceptable solution can be found.
11. Students are required to maintain their electronic attendance log in Preceptor and to have their preceptors electronically review and approve this log.
12. Transportation to and from all experiential practice sites, as well as parking costs incurred, will be the responsibility of the student.
13. Provide each preceptor with access to E-portfolio (electronic portfolio) prior to the start of rotation. This will allow preceptor to assess past experiences and to allow them to tailor activities based upon the experiences.
14. Students must complete both the preceptor and site evaluations in Preceptor within 2 weeks of the completion of their rotation to allow the student to view their final evaluations submitted by their preceptors.
15. Students should be aware of all laws, rules and regulations which govern pharmacy practice. Students should seek clarification of such in order to avoid any infringement that might be detrimental to the students, the preceptor, the patient, or the experiential rotation site.
16. Students should make sure their professional decisions and activities are monitored adequately. No student is to dispense a final product or make a recommendation without first consulting the pharmacist preceptor for review and approval.
17. The student will not be allowed to work with a preceptor if they are related in any way.
18. The student will not receive any financial remuneration from the preceptor during the rotation.
19. The student's schedule will not necessarily comply with the University calendar in regards to vacation periods and holidays, but will adhere to the schedule mutually agreed upon with the preceptor.
20. The student should take the initiative in communicating with physicians, patients and other health professionals but should not step beyond the realm of professional courtesy and common sense.
21. Students are expected to dress in a professional manner at all times. Proper dress usually includes a short white laboratory coat. For safety reasons, open toed shoes are not appropriate and jewelry in other than the ears is not permitted. A nametag is necessary to identify as a student in the various health environments and therefore should be worn at all times. Some experiential sites have specific dress codes for all of their professional staff. Students are expected to abide by their regulations while on site.
22. Personal cell phone use (calls and texting) is prohibited during rotation hours, except while on break.

4- Pharmacy Practice Courses:

4.1 Introductory Pharmacy Practice Experience (IPPE)

IPPE is offered during 2nd year of Pharm D program.

Course Name	Year / Semester	Credit Hours
IPP-201: Pharmacy Practice-XA (Introductory Pharmacy Practice Experience)	Second Professional Year / III	1
IPP-202: Pharmacy Practice-XB (Introductory Pharmacy Practice Experience)	Second Professional Year / IV	1

ROTATION PATTERN:

- 1- Expected number of students per rotation will be 6-8
- 2- Placement of students will be mutually decided by preceptors and site coordinators
- 3- Students must follow all the instructions as detailed in clause 3, sub clause 3.3

4.2 Pharmacy Practice (Clinical Pharmacy-I)

PHM 303 & 309 is offered during 3rd year of Pharm D program.

Course Name	Year / Semester	Credit Hours
PHM 302: Pharmacy Practice- IV A (Hospital Pharmacy)	Third Professional Year / V	1
PHM 303: Pharmacy Practice- VA (Clinical Pharmacy-I)	Third Professional Year / V	1
PHM 302: Pharmacy Practice- IV A (Hospital Pharmacy)	Third Professional Year / VI	1
PHM 303: Pharmacy Practice- VB (Clinical Pharmacy-I)	Third Professional Year / VI	1

ROTATION PATTERN:

- 1- Expected number of students per rotation will be 6-8
- 2- Placement of students will be mutually decided by preceptors and site coordinators
- 3- Students must follow all the instructions as detailed in clause 3, sub clause 3.3

4.3 Advanced Pharmacy Practice (Clinical Pharmacy-II)

PHM 402 & 407 is offered during 4th year of Pharm D program.

Course Name	Year / Semester	Credit Hours
PHM 402: Pharmacy Practice- VIA (Advanced Clinical Pharmacy-II)	Forth Professional Year / VII	1
PHM 407: Pharmacy Practice- VIB (Advanced Clinical Pharmacy-II)	Forth Professional Year / VIII	1

ROTATION PATTERN:

- 1- Expected number of students per rotation will be 6-8
- 2- Placement of students will be mutually decided by preceptors and site coordinators
- 3- Students must follow all the instructions as detailed in clause 3, sub clause 3.3

4.4 Advanced Pharmacy Practice Experience (APPE)

APPE is offered during 5th year of Pharm D program after successful completion of four years of the program.

Course Name	Year / Semester	Credit Hours
APP-501: Pharmacy Practice-XIA (Advanced Pharmacy Practice Experience)	Fifth Professional Year / IX	3 Theory + Experiential work
APP-502: Pharmacy Practice-XIB (Advanced Pharmacy Practice Experience)	Fifth Professional Year / X	3 Theory + Experiential work

ROTATION PATTERN:

- 1- Expected number of students per rotation will be 6-8
- 2- Placement of students will be mutually decided by preceptors and site coordinators
- 3- Students must follow all the instructions as detailed in clause 3, sub clause 3.3