



Pharmacy Training Manual

Bachelor of Pharmaceutical Sciences

King Khalid University
College of Pharmacy
Pharmacy Training Unit
Experiential Education Office

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Introduction

Vision

To provide a high quality of pharmacy education in order to produce competent pharmacists for the community.

Mission

1. To provide patient care in cooperation with other members of the health care team based on therapeutic knowledge and disease management skills.
2. To manage and use the resources of the health care system, in cooperation with prescribers and other health care providers, to improve the therapeutic outcomes of medication use.
3. To promote health improvement, patient education, compliance, and disease prevention in the community in cooperation with the health care team.
4. To participate in scientific research and develop new hypotheses in disease management for the benefit of healthcare and the community.

Code of Ethics

Code of Ethics (KKU)¹

King Khalid University (KKU) was founded on a set of values derived from the teachings of our Islamic religion, which has been the path for the country's leaders and is consistent with the Ministry of Education policies. KKU is an academic institution that is committed to providing education, research and community service at the finest level. The versatility of KKU's mission has led to the development of a framework for values and ethics that should be respected and followed by all KKU students.

¹ For more information on KKU ethics, please visit the official KKU website: http://eportal.kku.edu.sa/sites/default/files/pdf/code_of_ethics.pdf

Code of Ethics for Pharmacists (APhA)²

Pharmacists are health professionals who assist individuals in making the best use of medications. This Code, prepared and supported by pharmacists, is intended to state publicly the principles that form the fundamental basis of the roles and responsibilities of pharmacists. These principles, based on moral obligations and virtues, are established to guide pharmacists in relationships with patients, health professionals, and society.

1. A pharmacist respects the covenantal relationship between the patient and pharmacist.
2. A pharmacist promotes the good of every patient in a caring, compassionate, and confidential manner.
3. A pharmacist respects the autonomy and dignity of each patient.
4. A pharmacist acts with honesty and integrity in professional relationships.
5. A pharmacist maintains professional competence.
6. A pharmacist respects the values and abilities of colleagues and other health professionals.
7. A pharmacist serves individual, community, and societal needs.
8. A pharmacist seeks justice in the distribution of health resources.

² Adopted from the American Pharmacists Association October 27, 1994. <http://www.pharmacist.com/code-ethics>

Responsibilities

Preceptor Responsibilities

- Accept the responsibility of supervising the student's activities and monitor the achievement of required tasks consistent with course objectives by devoting adequate time for guidance.
- Exhibit those qualities which foster a positive professional role model (appearance, attitudes, practice style and accomplishments in practice).
- Provide students with the opportunity to advance their knowledge, skills, and experience in an accelerated timeframe through a structured, practice-based training program aligned with the course syllabus.
- Communicate with the students regarding their appearance, conduct, attitude, scheduling of hours, experience to be gained, and general policies and procedures of the training site.
- Never presume the student's capabilities, instead review their work profile and discuss with them their prior experience to better judge their capabilities.
- Provide students with access to available drug information resources.
- Regularly assess the student's performance through constructive evaluation and provide specific recommendations for improvement if needed.
- Complete the evaluation and grading of students on time and send it (via email) to the Experiential Education Office (EEO) at EEO.Pharmacy@kku.edu.sa on the last day of each rotation.
- Correspond with the EEO regarding any significant irregularities related to a student's activities, such as irregular attendance, unprofessional appearance, breach of training site policies, unprofessional behavior, or inappropriate communications with health professionals, patients, or staff.

Student Responsibilities

- Students should dress professionally according to the college's dress code (refer to Dress Code Section).
- Students should attend the rotations punctually as per the schedule and conduct themselves appropriately.
- Students should build good rapport with their preceptors, as this is an effective way to improve learning.

- Students are expected to be respectful in their communication with their preceptors; in the case of a difference of opinions about a particular situation, they are expected to resolve the conflicts in private in an atmosphere of mutual respect. All criticism should be viewed as a means of learning.
- All students are required to effectively use and respond to written, verbal and non-verbal communications from diverse audiences (physicians, pharmacists, other health professionals, and patients) and for varied purposes.
- Students are bound by a duty of confidentiality to the patients in regard to their conditions and records; this obligation is fundamental to the practice of pharmacy.
- Students must remain proactive during rotations and continue to seek guidance and mentoring to achieve the goal of excellence.
- Students must NOT make any clinical decisions that affect patient care without verifying it with the preceptor.
- No student should perform procedures or tasks for which he or she is not legally authorized or qualified.
- Students should seek clarification on any clinical dilemmas from all the concerned persons in order to gain further understanding.
- Students must avoid discriminatory practices, behavior, or work conditions that may impair professional judgment.
- Students must NOT accept portions of someone else's work or data and present it as his or her own work. All forms of plagiarism should be avoided.
- Students should abide by the law and comply with the Code of Conduct which governs the practice of pharmacy, as well as all institutional policies, rules, and regulations.

Pharmacy Training Program

The Bachelor of Pharmaceutical Sciences (BPharm) has been designed to provide students with experience in various areas in hospital pharmacy including inpatient and outpatient pharmacies. The major goal is to prepare students to develop independent judgment skills and to integrate their fundamental knowledge into practice. The pharmacy training is an 8-credit hour course with Pass/Fail grading system. It consists of 15 weeks of training. It starts upon the completion of the 5th year of BPharm program. Students are required to take 600 hours of training in a 15-week period.

Main Objectives

1. To prepare students to review, evaluate, implement, and monitor the prescription outcomes associated with a pharmaceutical care plan for patients in hospitals. The students will gain knowledge regarding handling of prescriptions and different pharmaceutical dosage forms in the hospital.
2. To help students to develop a solid knowledge of medical terminology, communication skills, drug monitoring skills, provision of drug information, therapeutic planning skills, and the ability to assess and interpret physical and laboratory findings.
3. To foster and incubate student ideas for innovation that will advance professional pharmacy services which will lead to improving local and global health service quality, delivery, and productivity.

General Description

The Pharmacy Training Program consists of three rotations: Two required rotations and one elective rotation. The two required rotations are:

- Hospital rotation (inpatient settings)
- Hospital rotation (outpatient settings)

Examples of the elective rotations include:

- Academia
- Community pharmacy
- IV preparation & total parenteral nutrition (TPN)
- Research
- Other types of rotations

The duration of each rotation is 5 weeks (a total of 600 hours for all 3 rotations). The students are expected to complete their training in one semester.

Activities During Training

Students will be directed to perform various activities by their preceptors. These activities are graded and may include journal clubs, presentations, drug consults, and written assignments.

Assessment of Training

- Evaluation will be based on the National Commission for Assessment and Academic Accreditation (NCAAA) domains:
 - Knowledge
 - Cognitive skills
 - Interpersonal skills
 - Communication and information technology skills
 - Psychomotor skills
- All preceptors should use the “Rotation Evaluation Form” provided by the EEO.
- Preceptors should evaluate the student twice during the rotation: mid-rotation and end of rotation. The purpose of the mid-rotation evaluation is to detect any deficiencies in student performance and advise him/her on how to improve in order to complete the rotation successfully.
- Students will receive a final grade based on the preceptor’s evaluation for each rotation. The student should have a final score of $\geq 60\%$ to pass the rotation; otherwise, it will be considered as a failed rotation and will result in a delay in his or her graduation by at least one semester. The student will have to repeat the failed rotation until he or she receives a final grade of $\geq 60\%$.

Training Outcomes

By the end of the training period, students will be able to:

- Provide optimal patient care by processing prescriptions accurately and in collaboration with prescribers, nurses, pharmacists, and other healthcare professionals.
- Identify the role of different pharmacy services in the hospital.
- Manage and use the resources of the health care system, in cooperation with prescribers, nurses, pharmacists, and other health care providers, to promote health, provide accurate medication consultation, and improve therapeutic outcomes of medication use.

- Develop the leadership qualities to function effectively as a member of the health care team in order to deliver health and family welfare services.
- Communicate effectively with patients and the community.

Registration and Training Site Selection

- It is the responsibility of the student to register for rotations during his/her final semester of coursework in order to start the rotations the following semester.
- At the beginning of the semester, the EEO will announce the availability of registration forms, lists of the approved training sites, and the deadline for submission. It is the student responsibility to adhere to the announced deadlines.
- Students who wish to receive training outside the approved training sites should fill out Request for Letter to External Site form. They should also provide the official email address of the external site in the same form. The EEO will send official letters to the external sites by the end of the registration period. A 2-week period will be given for the external site to respond. In case of rejection or no response (for more than two week), the EEO will assign the student to one of the approved sites based on availability.
- Students are placed in the training sites by the EEO according to their preferences, GPA, and availability of specific rotation sites.
- Once the EEO announces the individual training schedules, the students are allowed to request to change the training sites within a week (i.e. 5 business days) of the announcement. After that period, the individual training schedules are final and cannot be changed.
- After the schedule has been finalized, it is the responsibility of the students to contact their preceptors at least 2 weeks before the rotation starts.
- Students are expected to fulfill all the required procedures of the training site.

Policies

Professionalism

Students on the training site should behave professionally and follow the professional ethics without any compromise. Students must abide by the Islamic ethics, as well as the rules and regulations of the college and the training site. In the case of any violation, the preceptor should inform the EEO, and the final decision will be made by the College Board on such issues.

Dress Code

Students must exhibit a professional appearance as a pharmacy intern, both in manner and in dress. The student must adhere at all times to the standards of dress and behavior specified by the training site to which he or she is assigned. Appropriate professional appearance should include, but is not limited to, the following expectations:

- Students should wear the college uniform and a professional white coat with the university logo at all times while at the training site.
- Students should wear their identification card (i.e. pharmacy intern card) on an outer garment or hanging around the neck. It must be visible at all times.
- Students should keep their clothes clean and neatly ironed.
- Hairstyle should be professional. Students should NOT wear a hat or cap.
- Footwear should be appropriate for the setting. Canvas shoes or professional shoes are expected. Sandals, slippers, or high heel shoes are NOT allowed.
- Students must follow any additional rules regarding dress code as established by the training site.
- Students must keep in mind, at all times, that they are representatives of King Khalid University and must maintain discipline and good attitude at the training sites.

Immunizations

It is the responsibility of students to meet the immunization requirements of the training sites prior to the beginning of their training period. Failure to fulfill the requirements in advance may result in the cancelation of rotation. Therefore, it is highly recommended that students have proof of immunization ready for submission upon request at the training site. The most common required immunizations are MMR, polio, tetanus/diphtheria, pertussis, varicella, chicken pox, seasonal flu vaccine, and the hepatitis B vaccine series. Students may also need to show proof that they are free from tuberculosis,

hepatitis B, and rubella. A certificate from an accredited Basic Life Support (BLS) course might also be needed.

Absence Policy

- Students must complete the required training period (200 hours for each rotation) in the allocated time.
- The daily attendance sheet, provided by the EEO, should be signed by the intern every day and submitted to the EEO, along with the evaluation form.
- Students must inform their preceptor of any absence or lateness one day before its occurrence, and the preceptor should inform the EEO if absence exceeds 3 days (or 5 days for excused absence).
- Unexcused absence:
 - If a student was absent for 3 days or less per rotation, the student has to complete the missed hours within his or her training period by performing extra hours with the coordination of the site preceptor. Failure in doing that may result in canceling the rotation.
 - If a student was absent for more than 3 days per rotation, the rotation will be canceled, and the student will have to repeat that rotation type after completing the training schedule.
- Excused absence:
 - Students who want to apply for an excused absence should inform the preceptor and apply to the EEO one week before or after the incident, with the appropriate required documents.
 - If the student was absent for 5 days or less per rotation, the student has to complete the missed hours within the training period. The preceptor may choose to assign the student to do an assignment that is worth of the work of the missed days.
 - If the student was absent for more than 5 days per rotation, the student will have to repeat that rotation type after completing his or her training schedule.

Lateness Policy

- Students should always be punctual and follow the daily schedule given by the preceptor and the training site.
- If a student is late for his or her rotation, the student has to make up for the missed hours.

- The following penalties should be applied:

Lateness Times	Penalty
1 st time	Warning letter from the preceptor
2 nd time	It will be considered as a half-day absence (the student has to make up the hours for half a day).
3 rd time	It will be considered as a one-day absence (the student has to make up the hours for 1 day).
4 th time	It will be considered as a two-day absence (the student has to make up the hours for 2 days).
5 th time	It will be considered as an unexcused absence of more than 3 days, and the rotation will be cancelled.

- In case the student did not make up the missed hours or was late for the 5th time, preceptors should inform the EEO.

Holidays

Students are obligated to follow the holiday calendar that will be provided by the EEO, along with their training rotation schedule. Students are NOT allowed to follow any other calendars.

Confidentiality

- Students must NOT discuss their patients with other patients, colleagues, friends, family members or anyone who is not directly related to their patients.
- Students must observe confidentiality at all times.
- Students must NOT discuss patient cases in front of other people who may overhear.
- Students must NOT include patient identifiers (name, file number, etc.) in their case presentations.
- Students must NOT breach confidentiality by leaving confidential documents in public places or taking them home.
- Students should NOT develop personal relationships with patients.

- If the training site asks students to sign a confidentiality statement, the students must do so.
- Students must follow any additional rules and regulations of the training site.

Plagiarism

Plagiarism is a form of academic dishonesty which consists presenting someone else's work as his or her own work (e.g. copying other students' or authors' work for his or her own assignments or research purposes). If any students are found to be involved in such activities, his/her research or assignments will be nullified by the preceptor or by the EEO, and the student will receive a zero grade.

Cancellation of Rotation

The EEO will cancel the rotation of any student if complaints are received regarding their professionalism or attitude. The student has to repeat the cancelled rotation after completing his/her training schedule. If the EEO receives a second complaint, the EEO will raise the student case to the College Board to discuss his or her dismissal from the program.

Failure of Rotation

If a student fails a rotation, he/she will have to repeat that rotation type after completing the training schedule. This will result in a delay in his or her graduation by at least one semester.

Required Rotations

Hospital Rotation (inpatient & outpatient settings)

The Hospital Pharmacy Rotation aims to provide students with experience in various aspects of inpatient pharmacy practice. This may include, but not limited to, the delivery of drug products to patients and other hospital departments, pharmacy informatics, and pharmacy management.

Goals and Objectives

At the conclusion of the hospital rotation, students should gain experience or at least exposure to the following activities:

1. Processing Medication Orders:

Students should have considerable exposure to processing medication orders. Exposure to processing medication orders tasks should be distributed across different areas within the pharmacy department and integrated into other activities of pharmacy services. At the conclusion of this activity, students should be able to:

- Participate in order entry and screening in patient care areas, satellite pharmacy locations and central inpatient pharmacy if applicable.
- Describe requirements for receiving written, electronic, verbal medication orders that are allowed by the institution.
- Evaluate orders for completeness, appropriate indication, appropriate dosing and route of administration, allergies, drug-drug interactions, drug-food interactions, drug-disease interactions and formulary requirements.
- Create patient profiles or modifying existing ones in addition to perform order entries and select products appropriately.

2. Pharmacy Management

1-2 days of exposure to various activities of pharmacy management such as: inventory procedures including procurement & storage, billing procedures, procurement and maintenance of pharmacy equipment, compliance with regulations, departmental and institutional meetings (e.g. staff meetings, P&T etc..) and adverse event monitoring and medication errors reporting.

3. Controlled Substances

Students should be trained on procedures for procurement, storage and inventory of controlled substances as well as procedures for distribution and tracking.

4. Preparation and Distribution of Products:

Students may work with pharmacy technician performing these tasks, including but not limited to the following:

- Unit dose: Pyxis machines and cart fill/delivery.
- Labeling & Repackaging: bulk to unit doses and bulk dispensing with appropriate recording.
- Non-sterile compounding: perform accurate compounding calculations, accurate measurements, and the use of appropriate ingredients and correct procedures to make the final product.
- Sterile compounding: Students should be trained on aseptic technique and how to maintain sterile environment. Students will also be trained on making accurate calculations and measurements and learn the fundamentals of IV compounding, compatibility and stability.
- Cytotoxic agents: If applicable, students should be trained on aseptic technique and how to maintain sterile environment as well as the use of appropriate personal protective equipment.

5. Investigational Drugs

If applicable students should become aware of the pharmacist role in investigational drug programs within the institution as well as storage, distribution and record keeping of those drugs.

Activities

- Attending morning meetings.
- Detailed case presentation.
- Patient counseling.
- Journal club.
- Any other activities assigned by the preceptor.

Elective Rotations

The descriptions of the elective rotations were adopted and modified from the following universities and institutions:

- The University of Arizona
- Vancouver Island Health Authority

Academic Rotation

Rotation Description

An academic rotation is designed to enhance student's awareness of a career in academia. The rotation will allow the student to develop a teaching style that complements their style and strengths, and all exposure to the wide range of responsibilities associated with a didactic based academic career.

Objectives

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

- Understand the different roles in the educational environments:
 - Lecture
 - Laboratory
 - Training site
- Describe and develop a teaching philosophy.
- Understand the way to assess student learning.
- List barriers for educating students.
- Develop a syllabus for a course for pharmacy students.
- Develop and deliver a lecture.
- Develop questions for quiz or exam.
- Identify characteristics necessary for effective teaching.
- Describe the responsibilities of faculty outside of the classroom.
- Understand the workings of the academic institution and how it differs from others.
- Review the NCAAA and ACPE standards.
- List the process for academic rank.
- Describe the requirements for promotion, such as publications and teaching load.

Activities

- Write and discuss with preceptor the desired objectives from this rotation.
- Case or disease state presentations and discussions for the classroom.
- Research drug information question.

- Prepare newsletter for the EEO.
- Develop a Continuing Education Program (lecture or written).
- Participation in College and University Meetings.
- Required Readings.
- Any other activities assigned by the preceptor.

Community Pharmacy Rotation

The community pharmacy rotation aims to provide students with experience in various aspects of community pharmacy practice, which may include but not limited to, dispensing products, providing pharmacy services, and pharmacy management.

Goals and Objectives

At the conclusion of the community Pharmacy Practice rotation, students should gain experience or at least exposure to the following activities:

1. Preparation and Dispensing of Prescription Products

- Students should understand the legal and practice site specific requirements for handling prescriptions received via written, facsimile, electronic, verbal or any other methods used at the practice site.
- Students should learn how to evaluate new and refill prescription for completeness, indication, dosing, route of administration, patient allergies, drug-drug, drug-food, and drug-disease interactions, and legal requirements.
- Students should be trained on how to collect missing information, create and modify patients' profiles accurately and efficiently.
- Students should learn how to generate and check prescription labeling for dispensed products.
- Students should learn how to select appropriate containers for dispensing finished dosage forms, select the right products from inventory, and accurately count of measure the quantity to be dispensed.
- For compounding products, students should learn how to make accurate calculations, select appropriate ingredients, make accurate measurements, and follow established good compounding procedures and good laboratory processes. In addition, students should be trained on following legal requirements and established procedures for documentation of compounding products.
- For cytotoxic and hazardous products, students should be trained on how to recognize cytotoxic/hazardous products and how to safe handling them.

2. Medication Therapy Management

- Counselling and communication skills: Students should be trained and demonstrate communication skills needed for counselling patients. These skills include but not limited to using appropriate terminologies, asking appropriate

questions, listening to patients, display caring attitude, and verifying patient understanding.

- **Drug information:** Students should learn how to respond to patients' and healthcare providers' questions. They should also be trained on how to clarify questions, consult appropriate references, and formulate a complete, accurate and concise response.
- **Documentation:** Students should learn how to document interventions, interactions with patients and communications with health care providers.
- **Prescription problems:** Students should be able to review and evaluate prescription orders to identify and resolve any prescription problems. Students should be trained on how to interview patients and care givers to obtain information needed to evaluate prescriptions, as well as communicate prescription problems and suggest resolutions to physicians and other healthcare providers.

3. Controlled Substance

Students should be trained on procedures for procurement, storage and inventory of controlled substances as well as procedures for filling controlled substances prescriptions and disposal procedures for expired drugs.

4. Dispense and counsel over the counter products

- Students should learn how to collect information from patients to accurately assess chief complaints. They also should learn when to recommend an over the counter (OTC) treatment and when to warrant a referral to physician.
- Students should be trained on providing advices to patients on selection of OTC products categories including, but not limited to, analgesics/antipyretics, topical anti-inflammatory and anti-infective, cough/cold/allergy products, ophthalmic and otic products, vitamins and nutritional supplements, etc.
- Students should be trained on how to use therapy monitoring devices and how to explain it is importance to patients.

5. Pharmacy Management

This includes exposure to various activities of pharmacy management such as: inventory procedures including procurement & storage, billing procedures, procurement and maintenance of pharmacy equipment, compliance with regulations, and adverse event monitoring and medication errors reporting.

Activities

- Detailed case presentation.
- Patient counseling.
- Journal club.
- Any other activities assigned by the preceptor.

Research Rotation

Rotation Description

The research rotation is intended to provide an opportunity for the students to acquire experience in the various aspects of research. The intent of this rotation is to expose the student to as many aspects of research as possible. The rotation may be completed with faculty from various departments within the College of Pharmacy.

Prior to the rotation, the preceptor and student should design a rotation schedule that identifies the specific activities the student will perform during the 5-week period. The activities included in the schedule should be part of the actual ongoing research the preceptor is conducting. At the beginning of the rotation, the student and preceptor should review the objectives and the schedule. At the end of the rotation, the student will meet formally with the faculty member to review his experiences and the level of accomplishment for the objectives.

Objectives

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

- Prepare a one-page outline of a research protocol including goals, objectives, significance, background, study design, methods, timetable, statistical analysis plan, and budget.
- Perform statistical analysis of a set of sample data using one of the available statistical programs.
- Maintain and manage data in spreadsheet programs, such as LOTUS 1-2-3, Excel, or Access.
- Review and describe the contents of the submission documents that would be required for approval of a pilot project involving human subjects and/or animal experimentation.
- Calculate the appropriate statistical results on one sample of research data covering at least one of the following: chi-square, t-test, regression, correlation, or analysis of variance.
- Develop a research design (diagram) to test a pharmaceutical research question including a problem that allows or requires random selection, random assignment, crossover design, repeated measures, etc.
- Draft a hypothesis statement related to a selected research question and pharmaceutical theory providing both the null hypothesis and the alternate research hypothesis.

- Prepare a one-page outline of a publication of sample research findings including an introduction, background, methods, results, discussion, and conclusions. Attached to the outline should be a draft of a well-labeled, key table providing sample results and statistical tests.
- Prepare and give a formal presentation of research results collected during the rotation.

Activities

- Prepare a formal presentation of results; this presentation should be advertised in advance within the college, particularly to faculty.
- Required Readings.
- Any other activities assigned by the preceptor.

Total Parenteral Nutrition & IV Preparations Rotation

Rotation Description

To provide the student with a general understanding of issues related to specialized nutrition support and to allow the student the opportunity to develop skills in patient assessment, patient monitoring, parenteral nutrition formulation, and formula adjustment. It also provides an introduction to the sterile preparation of medications given via intravenous routes.

Objectives

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

- Evaluate the appropriateness of parenteral nutrition as the route for nutritional intervention.
- Recognize the purposes and goals of parenteral nutrition therapy.
- Estimate caloric and protein requirements for a patient and formulate a parenteral nutrition plan to meet these requirements.
- Discuss options for controlling hyperglycemia in patients receiving parenteral nutrition.
- Discuss normal fluid and electrolyte balance.
- Recognize the effects of medications on fluid and electrolyte balance.
- Discuss monitoring parameters for patients receiving parenteral nutrition including which parameters to use, how often they are checked, and interpretation of test results.
- Recognize differences between adult and pediatric parenteral nutrition guidelines and requirements.
- Recognize the general categories of enteral formulas.
- Discuss issues related to medications and tube feeding.
- Develop and integrate the knowledge related to central intravenous admixture (CIVA) preparation and dispensing, to manage, improve, and ensure safety of medication use for individual patients and groups of patients.
- Demonstrate an ability to prepare and dispense sterile preparations according to organizational policies and procedures by working in conjunction with the pharmacist and/or technician

Activities

- Attending morning meetings.
- Detailed case presentation.
- Patient counseling.
- Journal club.
- Any other activities assigned by the preceptor.