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임상약학 교육을 위한 수련과정

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Clerkship on Clinical Pharmacy Education

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The goal of this clerkship is to expose the student to basic skills needed for a patient oriented pharmacist to assume an existing clinical role and participate in therapeutic decision making processes. As the pharmacy profession has moved from the traditional product orientation to a patient orientation, curricula within the college of pharmacy have evolved to include more experiential coursework to foster this patient orientation. This change has been supported by the philosophy of pharmaceutical care which encourages pharmacists to assume a patient advocacy role in optimizing a patient's drug therapy while minimizing the adverse effects of the medication. The role of experiential education, and especially the clerkship experience will be to hasten and enhance the development of this concept and philosophy for pharmacy students.

Introduction

There are currently three types of experimental programs for pharmacy student in America: externships, clerkships, and internships. Externship and clerkship are school sponsored programs for which students receive academic credit. Internship, however, are not school sponsored and students do not receive academic credit. Rather, students in internship program paid for their work and must complete a set number of hours, as determined by the respective state, prior to licensure. Some states require that at least a portion of the internship experience be completed after graduation from pharmacy school.[1] Other states allow clerkship or externship hours to count toward the total number of internship hours required for licensure.

The difference between clerkship and externship is more subtle. The primary focus of an externship is to give students experience with the technical and distributive aspects of providing medication to patients. This includes experience such as filling and dispensing a prescription, preparing an intravenous solution, and filling a unit dose medication cart. As with an internship, externships can be completed in a community, chain, clinic or hospital pharmacy setting.

Clerkship, whether in a hospital, ambulatory clinic, community, or nursing home setting, use patient care experience to integrate and apply information from prior didactic coursework. Their goal is to develop and enhance a student's therapeutic problem-solving skill and knowledge of the appropriate use of medications. The experience is often thought of as the laboratory component to a therapeutic course, because information on appropriate medication selection, use, dosing, and monitoring is applied in a

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patient care environment. Traditionally, clerkships take place in an inpatient hospital setting which provides a wealth of experience in understanding terminology, abbreviations, laboratory tests, physical examination parameters, diagnostic tests, and use of medications in a controlled setting over a relatively short period of time. This is in contrast to an ambulatory patients setting, where patients are often not acutely ill. The response of ambulatory at that particular setting for a longer period of time to observe response therapy. For example, a patient with rheumatoid arthritis started gold therapy usually requires at least three month of continued therapy before a response is observed. There is, however, an increased interest in providing more clerkship experiences in ambulatory and community setting more closely reflect the evolution and status of health care delivery in the United States.

Clerkship goals

Within a clerkship experience, several general goals are aimed at and enhancing students' skill in implementing this philosophy of pharmaceutical care.[2,3] Through participation in an institutional clerkship, students should: Gain an appreciation and understanding of the concept of pharmaceutical care and its importance in the delivery of health care to an institutionalized patient. Develop the skills necessary to effectively and efficiently apply and integrate information from the basic pharmaceutical and medical sciences to direct patient care. Gain experience in prospectively solving medication related problems. Develop the skills necessary to communicate effectively with patient and health care professional.[4-7]

Course competencies and objectives.

More specifically, upon completion of a clerkship rotation, students should be able to : Understand symptoms, pathophysiology, laboratory tests, physical examination, diagnosis, and prognosis of acute and chronic disease. Formulate, on a prospective basis, a therapeutic management plan for drug and non-drug treatment for particular disease state. Demonstrate competency and efficiency in monitoring therapy using subjective and objective parameters for efficacy and toxicity. Formulate patient specific medication dosing adjustments. Utilize the problem-solving approach effectively and efficiently in the patient care setting. Provide basic life support. Discuss the chemical properties such as stability, compatibility, and storage requirement of drugs and drug products. Understand the mechanisms of action of drugs and drug products. Describe adverse reactions, side effects, or contraindications of drug and drug products. List potential drug-drug, drug-food, and drug-laboratory interactions for drug and drug products. Describe available product formulations for drug and drug products. Provide drug information to patients and health care professionals in an effective and efficient manner using both written and verbal communication skills. Communicate therapeutic recommendations to the prescriber. Conduct a patient medication history to identify medication use and allergies. Provide discharge medications to patients. Prepare and present educational information to classmates and preceptors. Use primary literature and reference sources to effectively answer questions and provide information. Demonstrate a technical knowledge of drugs and drug products. Communicate effectively with patients and other health care professionals. In general, the above objectives are focused on the student's ability to demonstrate an appreciation and understanding of diseases, principles of therapeutics, and the role of drug therapy for disease states commonly observed on the assigned rotation.

Clerkship activities

To accomplish these objectives, a variety of structured patient oriented activities and experiences

are incorporated into typical institutionally based clerkship programs. These activities normally include, participation in patient care rounds ; application of therapeutic drug monitoring principles ; provision of pharmacokinetic consultations, patient counseling, and answers to day to day drug-related questions ; presentation of case to peers, faculty, and health care providers ; and obtainment of admission drug histories.

Patient care rounds

In a teaching hospital, patient care round or work round typically occur early in the morning for medical services and even earlier for surgical services. Rounds are used by physicians to systematically evaluate each patient's response to therapeutic intervention, review the results of diagnostic or therapeutic procedure, and establish and communicate future treatment plans to the patient and the team. During work rounds, the physician gathers subjective data from patient communications and objective data from routine physical examination, laboratory tests, and nursing notes. He then analyzes the data and further formulates therapeutic and diagnostic plans.

A variety of health care professionals take part in rounds and the types of practitioners on rounds upon the hospital and the specific types of patients receiving care. Participants in work rounds at a teaching hospital generally include an attending physician, a medical resident, a medical intern, a nurse, a pharmacist, and perhaps one or two students from each health care discipline.

Work rounds provide excellent opportunities for learning. For many students this often is their first face-to-face contact with hospitalized patients and health care professionals. In this environment, students have the opportunity to review a variety of clinical patient data(e.g., laboratory tests, blood pressure and other measurements of vital signs, fluid and electrolyte balance, and physical examinations) for variety of medical problem.[8-10] Most importantly, students see patients on a daily basis and can evaluate these patient' responses to drug therapy both in terms of efficacy and toxicity. In addition, with so many students and other health care professional participating in rounds, this is an excellent atmosphere for discussion of disease states, drug therapy, prognosis, and other patient care issues in a multidisciplinary setting.

As pharmacists, attendance at work rounds allows direct patient observation and information gathering that can be used to monitor a patient' medication therapy ; to plan admissions and discharge counseling ; and to anticipate daily workloads.[11-14] Work rounds also provide a means for communication between health care professionals and serve as a continuing source of educational experiences. However, because of their design, work rounds cannot serve as a forum for extensive discussion of any given topic.

Objectives-By attending work rounds, students should be able to : Identify and gather subjective and objective data necessary to monitor medication therapy for efficacy and toxicity. Establish a prospective therapeutic management plan that includes therapeutic endpoint, monitoring parameters, individualization of dosages, and patient counseling. Communicate effectively with other members of the health care team on topics such as therapeutics, drug information, policies and procedures, and patient planning needs. Assess patient medication teaching needs and communicate medication information to the patient, including why drug changes are made, and when the patient should expect to notice results from therapy changes. Resolve questionable or unclear medication orders and explain any medication errors such as missed doses or incorrect drug or dose. Prioritize daily workload based on information obtained during rounds. Develop a formal working relationship with the health care team. Assess patient medication needs upon discharge, solving problems such as drug and dosage discrepancies, where presc-

-riptions should be filled, and when drug are needed.

Activities-When attending work rounds, students should : Orient new medical house staff and nursing staff to pharmacy and procedures unique to the particular unit. Review patient medication therapy on a daily basis before rounds to ensure their understanding of the indications, dosage, routes of administration, efficacy, and toxicity of their patient's medications. Obtain information to update and correct the medication profile. Formulate and document a problem list for new or existing patients seen by the service. This list should focus on disease, drug, and socioeconomic factors. Attend work rounds on a consistent basis. Communicate the following information to other on rounds : Patient' current medication use. Deviances in patient's therapy(e.g., incorrect dosage, missed or refused doses, intravenous infiltration, late doses). Observed subjective or objective signs of efficacy or toxicity. Drug distribution problems(e.g., non-formulary status). Prospective therapeutic management plans for patient problems (e.g., change of therapy, discontinuation of a drug, change in pain medication, use of prophylactic antibiotics, identification of therapeutic alternatives). Students should gather the following information : Subjective and objective data for monitoring a patient's medication therapy. Changes in patient status including : improved or worsened condition, discharged data, surgery, planned diagnostic procedures, and the results of those procedures. Changes in non-drug therapy(e.g., dietary, socioeconomic, physical therapy, respiratory therapy, occupational therapy). Changes in medication therapy(e.g., new drug orders, or discontinued orders, or changes in doses, route of administration, or duration). When chemotherapy, pre-ops(preoperative medications), or intravenous solutions are needed. Patient' understanding of medication, name, strength and expected benefits and toxicities. Projected discharge date, including any special teaching needs(e.g., home antibiotics or total parenteral nutrition).

Therapeutic drug monitoring

The increased potency and complexity of modern drugs, along with patient's varied responses to drug therapy, present health care professionals with the monumental problem of adequately overseeing patient's pharmaceutical needs. A solution that has proven both cost effective and clinical effect is the utilization of clinically trained pharmacists to ; act as drug therapy consultants and to perform general drug therapy monitoring ; provide drug information and education ; participate in drug utilization review and patient care audits ; detect and report adverse drug reaction ; conduct clinical drug studies ; and monitor investigational drug studies. The process of monitoring drug therapy involves more than just the assessment and management of a patient's drug therapy. For the purpose of this text, the term drug therapy monitoring is defined as utilizing patient, drug and disease monitoring parameters to determine : appropriateness of drug choice, drug dose, drug dosage form, route administration, and duration of therapy for the patient and disease disorder ; a patient's beneficial or averse response to drug therapy ; serum drug level and, whenever needed, recommend dosage adjustment to assure that therapeutically effective serum drug level are achieved and that toxic serum level are avoided ; and serum drug levels are appropriate for the particular patient being evaluated to either cure or control the disease disorder. Prior to entering clinical pharmacy practice, the pharmacist needs to have developed competency in pathophysiology, therapeutics, interpersonal relationships, and communication skills, as well as possessing a sympathetic and caring attitude for the patient. All of those elements are necessary for the clinical pharmacist to better communicate with the patient and other health professionals.[15,16]

Goal and Process-The primary goal of having a clinically trained health care professional assessed monitor a patient's drug therapy should be to : as-

-sure appropriate, rational drug therapy is utilized to achive the desired therapeutic objective ; maximize the drug's beneficial effects and prevent or minimize the drug's undesirable effects ; and help reduce the cost of medical care for patients. These goals may be achieved when the clinical pharmacist identifies existing or potential medication problem and either initiates problem solving measures or recommends them to appropriate health care professionals. Problem solving measures are those which help to improve the efficiency of drug therapy or decrease the risk of adverse drug effects in patients. However, to accomplish these goals fully, the pharmacist will need to develop his or her clinical skills so that he or she feels comfortable that the pharmacist develop a rational plan for approaching both routine and complicated aspects of drug therapy. The clinical pharmacist should remember that monitoring drug therapy is on ongoing process, and it must be reevaluated at regular intervals to keep up with patient progress and drug therapy modifications.

The monitoring process involves four major steps :

1) Data gathering
2) Data assessment
3) Problem formulation, and
4) Intervention and follow-up assessment

The monitoring process begins, irrespective of the type of pharmacy practice, when you see a patient for the first time. The first step involves interviewing the patient to obtain baseline information for generating a patient specific data base. This is then followed by concise documentation of relevant clinical information.

Pharmacokinetic consults

The blood concentration of drugs with narrow therapeutic ranges(e.g., aminoglycosides,[17-20] digoxin,[21,22] phenytoin,[23,24] theophylline[25-27] must be monitored closely to enhance the probability of therapeutic efficacy and to minimize toxicity. Pharmacists today are active participants in pharmacokinetic programs in most teaching hospitals ; however, the extent of their involvement varies greatly among institutions. Some pharmacists operate solely as a consultant when the medical team faces a difficult case. Others take responsibility for prescribing and administering the dose and drawing blood for drug concentration analysis.

Participation in pharmacokinetic monitoring allows clerkship students to practice calculation learned in school and to combine these skills with their clinical patient assessment abilities. Patient parameters such as changing renal or liver function or volume of distribution, require insights and interpretation when recommending doses and establishing plans for subsequent monitoring.

Pharmacokinetics are performed as a formal consult in some hospitals. With this type of program, pharmacists are responsible for evaluating the patient, recommending the dosing regimen, and documenting their actions as a formal note in the patient chart. This documentation must be complete and accurate as this note is usually included in the patient's permanent record.

The format for written pharmacokinetic consultative notes varies considerably among institution, but the underlying concept remains the same. The drug, dose, dosing interval, day of therapy, infusion time for the anticipated dose, and times and results of pervious blood concentration should be included. Calculated values such as extrapolated peak, half-life, and volume of distribution, should follow the demographic data. Fluctuating laboratory values may also be included(e.g., serum creatinine, WBC counts, and differentials) in support of the recommendations. The note should end with a recommendation, the statement will continue to follow if therapy is to

continue, and the pharmacist's signature and title.

Table I *Example of pharmacokinetics results.*

Initial Work-up

3/5/94 Pharmacokinetic Consult

Day #1 of tobramycin therapy

One tilme bolus of 140mg infused over 60 minutes (0855-0955), follow by three post-infusion levels.

Time	Post-Infusion	Level
1109	1 hr, 14 min	3.0 μg/mℓ
1303	8 hr, 8 min	1.2 μg/mℓ
1427	5 hr, 32 min	0.6 μg/mℓ

Extrapolated peak	4.4 μg/mℓ
Half-life	1.52 hr
Volume of distribution	0.25 L/kg

To achieve a peak of 7.0 and trough of 0.2μg/mℓ, recommended regimen :

tobramycin 220mg Q 12 hr

will continue to follow Jinpil Burm, MS RPH

Table II *Example of pharmacokinetics results.*

Peak and Trough Work-up

3/6/94 Pharmacokinetic Consult

Day #8 of gentamycin therapy

Current regimen : 180mg Q 12 hr. Patient afebrile× 3 days WBC=9000 180mg gentamycin infused over 60 minutes(0910-1010)

Time	Time Post-Infusion	Level
0909	11 hr, 8 min(through)	0.4 μg/mℓ
1109	59 min(peak)	6.9 μg/mℓ

Extrapolated peak	9.1 μg/mℓ
Half-life	2 hr, 28 min
Volume of distribution	0.33 L/kg

Recommend discontinuing therapy.

Peter Burm, MS RPH

Admission histories and discharge medication counseling

In order to obtain an accurate record of a patient's medication history, pharmacists in many hospitals obtain admission interviews for some or all hospitalized patients. This experience is often included in clerkship rotations. During an admission interview it is important to collect information such as : The patient's height and weight. A history of drug allergies or adverse reactions.(If present, type of reaction, how long ago the reaction occurred, and whether or not the patient was rechallenged with the offending agent). All current prescription medication including dose, route, frequency, indication, duration, and number of doses already taken for the day. Any significant past medications the patient has received (and, if patient, why they were discontinued). Over-the-count(OTC) medications the patient takes and approximately how often. Any history of social drug use, such as consumption of alcohol, smoking, or illicit drug use.

During the interview, the reliability of the patient or caregiver and the patient's compliance with the prescribed regimen should be assessed and any specific requirements which mat affect the patient's compliance should be noted. For example, an elderly frail patient with arthritis may be incapable of opening prescription vials with childproof caps. The pharmacist should use this information to counsel the patient at time of discharge and ensure that medications are dispensed in east-to-open containers.

In many institutions, pharmacists are responsible for first dose teaching and/or medication counseling at the of a patient's discharge from the facility. This activity may also be incorporated into the clerkship experience. When counseling patients on use of their medication, it is important to use words that patients will understand and to provide them with the following information: Drug name. The drug's purpose and expected benefits the patient should watch

for(e.g., clearing of a rash, decreased pain). Dose, frequency, and route of administration. Special dosing instructions. Duration the patient is to remain on the medication. Frequent minor side effects. Significant adverse effects that warrant notification of the physician if encountered by the patient. Information on refills and storage.

Drug information questions

Drug information questions, whether formal or informal, are a common activity of clerkship. Other health care professional frequently ask questions regarding specific drugs. potential side effect, doses, or a recommended therapy. Often the answers to these inquires are not be obvious. It is important never to guess if you are unsure of the correct answer. The best response is to say, "I' m very really not sure. Let me check some references and get back to you." Health care professional will response to you better if you take the time to research an answer rather than guess, especially if you guess incorrectly ! You must, However, ask when the information is needed and provide it in a timely manner.

In addition to drug information questions, formal written answer to drug related questions that may arise while monitoring a patient' s medication therapy are often a component of clerkships. These formal written responses may be provided to a preceptor, physician, nurse, or other health care professional. The prepared answer should restate the question, establish an answer, and support the answer with appropriate references. Researching an answer will help students understand the issue and familiarize them with the various available references.

Case presentations

Most clerkship require students to prepare and present patient cases. In general, the cases are 20 to 30 minutes in length and presented to pharmacists at the clerkship site, classmates, or perhaps both. These case presentations give students an opportunity to strengthen their communication skills and should consist of a handout, a discussion of disease states, a discussion of a drug therapy, and a summation which critiques therapy and draws conclusions from the presentation.

The handout. - Students should begin their presentations with a handout no longer than two pages (Table Ⅲ). Additional visual aids that assist in clarifying confusing issues are encouraged. References must be in the correct(ASHP) format. The handout should include: Demographic data(Dem data) such as age, sex, race, weight, and service the patient is on. Chief complaint(CC) or reason for the patient' s admission. History of present illness(HPI). Past medical history(PMH) consisting of a brief list of all illnesses, surgical procedures, and previous hospitalizations that have a direct effect on the present illness. Social history(SH). Family history(FH). Medications(Meds) and allergies or adverse drug reactions (ADRs). This list of information is obtained during the medication history and should include the length of treatment and any allergic or adverse drug reactions. Be sure to list how reactions were treated and if the patient was rechallenged. Pertinent physical examination(PE) data. For example an abnormal examination in a patient with congestive heart failure (CHF) may include the presence of 3% ankle edema, + hepato-jugular reflex(HJR), + Jugular venous distention(JVD), and the presence of rales in both lung fields. Pertinent negatives such as a normal rate and rhythm in a patient admitted to rule out myocardial infarction should also be included. Pertinent laboratory values. For example in a patient with anemia, the data may include hemoglobin (Hgb), hematocrit(Hct), mean cell volume(MCV), hemoglobin concentration(MCHC), serum iron, total iron binding capacity(TIBC). Again, pertinent negatives should also be included. Be sure to include normal value ranges and the cretinine clearance and liver function test(LFT) assessments. Problem list.

Discussion of disease states - This is a general

discussion of the disease process and should cover underlying pathologic and physiologic changes. The discussion of the disease state is important. It will be the foundation for discussing drug therapy and monitoring parameters for both efficacy and toxicity. State the cause of the disease, symptoms, physical, and laboratory finding of a typical case. Discuss the diagnosis and prognosis of the disease. Compare these items to your particular patient case. State the possible complications of the disease.

Discussion of drug therapy - This is a discussion of the therapeutic approaches to the disease. State the objective of drug therapy for the disease, including selection of drug, mechanism of action, dosage, route of administration, and duration of therapy. Discuss common and serious side effects for each medication. The relative importance and frequency of these reactions should be stressed. Be sure to include limits and management of reactions. Describe and outline the monitoring parameters to evaluate response to therapy, including to therapeutic endpoints. Define the potentially clinically significant drug-drug, drug-laboratory, or drug-nutrient test interactions. Describe factors that would modify choice of drug, dose, or route of administration. Be sure to include methods for modifying a dosage when necessary for patients with compromised renal or hepatic function. Define problems likely to be encountered during the administration of medications including compliance problems. Describe nondrug treatment modalities(e.g., diet instruction, physical therapy, occupation therapy, respiratory therapy). Field any questions related to your rational for discussed drug therapy.

Conclusions and critique of therapy - This is summary of the entire case presentation that focuses on the following questions : How closely does the specific patient fit the classic case ? What were the differences or similarities ? Did any adverse reactions occur ? If not, what would you do differently and why ? What medications were given at the time of discharge ? What would or did you tell patient ? Is compliance a potential problem ? What were the most important therapeutic principles you learned ?

Table III *Example of Case Presentation*

Gastrointestinal Bleed Peptic Ulcer Disease(PUD)

Dem. Data : A. P. is a 43-year-old female who was, admitted to the intensive care unit on November 25th. She was transferred to a regular medical floor two days later. A. P. weighs and is 167.4 cm tall.

CC : Coughing up blood

HPI : A. P. presented to the emergency room on November 25th 30minutes following an episode of hematemesis.

She stated she had experience mid-epigastric pain with nausea on 11/24, which was relieved by antacids. This morning following breakfast she had one melanotic stool. She is feeling increasingly fatigued and complains of dizziness when standing. She denies abdominal pain, shortness of breath(SOB), dysuria, hematuria.

PMH : The patient has no history of liver disease, PUD, GI bleed, hypertension, or DM. She denies previous hematemesis, hematochezia, and melena, She does report several weeks of vague abdominal discomfort. She is s/p(status post) appendectomy.

SH : Negative alcohol and tabacco use.

FH : One brother with PUD.

Meds : Patient denies use of any medications including ASA and other NSAIDS.

Allergies : A. P. has no known alleries.

PE : General appearance : Well nourished female.

Vital signs :
Lying : P=91(60-80 BPM) ; BP=110/80 (120-140/〈90mmHg) ; T=37.2(35.8-37.3℃)
Abdomen : Soft, negative distention/tenderness, hypoactive bowel sounds.

Labs : Heme	RBCs		3.4(3.8-5.0gm/dL)
	Hgb		10.6(11.8-15.4gm.dL)
	Hct		31(35-45mL/dL)
	MCV		92(82-98fL/RBC)
	MCHC		34(32-36gm/dL)
	Platelets		249(170-380K/uL)
Chem Lytes		Na	141(135-144mmol/L)
		K	3.5(3.6-4.8mmol/L)
		Cl	103(9-106mmol/L)
		CO_2	25(22-32mmol/L)
		Glu	124(70-110mg/dL)
LFTs : WNL			
BUN			24(7-20mg/dL)
Creatinine			0.6(0.6-1.3mg/dL)
PT			13.6(11-13sec)
asPTT			25.4(20-30sec)

Problem List Painless UGI bleed

References

Hints on clerkship survival

To help you adjust to the hospital setting and maximize your clerkship rotation, the authors compiled the following list of suggestions. Remember that although each clerkship program is unique, these ideas should apply to all. Ask questions of pharmacists, technicians, nurse, physicians, and other health care students. This is a learning experience for you, teaching is the responsibility of all health care professionals and usually a part of their job description. If you are unsure of the answer to a question, do not guess or make on up. Look up the answer and return promptly with the requested information. Be prepared. Review old class notes or portions of textbooks if necessary. Prepare for work rounds. Depending on the number and complexity of patients on your service, this normally requires about 30 minutes. This is the time to review what has happened with each patient since you left the unit and catch up on new admissions. Participate during rounds. Avoid standing at the back of the group. This is an excellent time to view disease manifestations and the effects of drug therapy on patients. Eat a good breakfast. The sights, sounds, and smells in a hospital are not all pleasant, especially to someone not accustomed to them. Take advantage of any additional(e.g., special lecture or conferences). Some hospitals will allow you to observe a variety of tests and procedure or even a surgery. These types of observations are even more beneficial if someone is available to explain the procedure. Remember to dress and act in a professional manner. This will reflect positively on your profession, your school, and most importantly, you. Patient confidentiality is extremely important. Do not discuss patients in public places or in a loud voice, regardless of whether or not you are using names or initials. You never know who may be listening. Do not fall behind. This is an extremely busy time and if you are stressed to complete work, you will not learn as much from this experience as you would if you had kept up. In addition, much of what you learn a clerkship builds on what you learn the previous week. Remember to work "smart". This translates to working on assignments effectively and efficiently. The clerkship experience does not necessarily require you to work long hours, though this may be necessary if your background is weak in a particular area. A daily calendar can help you organize your days to increase efficiency.

Evaluation of student performance

An important aspect of experience education is the evaluation of the student's performance. Often,

the chosen approach varies considerably by site and institution, as well as by college. Attempts to remove the subjectiveness associated with evaluating a student and improve the evaluation process in experiential education are currently ongoing.

Despite an apparent deficiency, there are several important concepts which can aid preceptors in the difficult area of student performance evaluation. The following general principles are intended to help preceptors eliminate the subjectiveness often associated with performance evaluations. Establish specific clerkship goals and expectations before beginning the clerkship rotation. The object of the clerkship should be documented and measures to determine its completion should be clearly identified. Provide students with the opportunity for input into clerkship objectives. This allows students to tailor their rotation to meet specific needs and interests. Provide specific feedback to students concerning their progress both at the midpoint(a formative evaluation) and at the end of the rotation(a summative evaluation). Identify student' strengths and weaknesses. Suggest ways they can improve or correct deficiencies. Document student performance and progress with specific examples. Evaluate performance as it is currently being performed. Do not evaluate performance based upon anticipated performance or progress that has occurred since the last evaluation. Separate the evaluation process from the assignment of grades. Encourage students to self-evaluate their own performance. This approach is critical for encouraging life-long learning and growth throughout your student' professional careers.

Although some objective measures of student performance evaluation exist and other are being developed, preceptors still need to be appropriately trained in using available evaluation instruments and students need to understand the various objectives and expectation these instruments measure. Much of the frustration and confusion concerning grading in experiential education can be minimized by maintaining and encouraging open communication between student and preceptor. Differences, should be addressed and corrected together, with assistance from the clerkship coordinator when necessary.

Conclusion

The goal of this clerkship is to expose the student to basic skills needed for a patient oriented pharmacist to assume an existing clinical role and participate in therapeutic decision making processes. Several general goals are aimed at developing and enhancing students' skill in implementing this philosophy of pharmaceutical care. In an institutional clerkship, students should gain an appreciation and understanding of the concept of pharmaceutical care and its importance in the delivery of health care to an institutionalized patient. Students should develop the skills necessary to effectively and efficiently apply and integrate information from the basic pharmaceutical and medical sciences to direct patient care. Students should gain experience in prospectively solving medication related problems and develop the skills necessary to communicate effectively with patient and health care professional. The role of experiential education, and especially the clerkship experience will be to hasten and enhance the development of this concept and philosophy for pharmacy students.

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