

**COURSE TITLE: Ambulatory Care APPE
 PHAR 981**

REQUIRED/ELECTIVE: Required

Description

The ambulatory care pharmacy experience is a six week (240 hours) session designed to teach the student to integrate basic pharmacy-related concepts to patient care as a member of an interdisciplinary health care team and provider of pharmaceutical care in the ambulatory care setting. Using an educator/practitioner as a role model, the student will directly involve him or herself in the development of drug treatment regimens for selected patients. Individual initiative is required. The student will be asked to call upon all previous course work, and use of the resources of the institution to provide a workable solution to the patient's problems. Emphasis is placed on direct patient involvement in drug therapy decision-making, provision of drug information, medication histories, pharmacokinetics, medication management review, patient education, and compliance assessment.

Justification

Gums JG. Recent Advances: Ambulatory Care and Family Medicine. *Ann Pharmacother.* 1995;29:716-8.

Hepler CD, Strand LM. Opportunities and Responsibilities in Pharmaceutical Care. *Am J Hosp Pharm.* 1990;47:533-43.

ASHP Guidelines on Pharmacist-Conducted Patient Education and Counseling. *Am J Health-Syst Pharm.* 1997;54:432-4.

The ACCP Clinical Practice Affairs Committee, 1990-91 Clinical Pharmacy Practice in the Non-institutional Setting: A White Paper from the American College of Clinical Pharmacy.

Hatoum H, Akhras K. 1993 Bibliography: 32-year Literature Review on the Value and Acceptance of Ambulatory Care Provided by Pharmacists. *Ann Pharmacother.* 1993;27:1106-19.

Course Goals:

The goals of the session are to:

- A. Teach the student the rationale of prescribing medication in an ambulatory care setting.

- B. Familiarize the student with laboratory tests and diagnostic procedures used in the monitoring of drug therapy.
- C. Teach the student both the physical and laboratory parameters for evaluating effective medication use in ambulatory patients.
- D. Reinforce to the student the need for effective instructions to a patient in the proper usage in both prescription medication and non-prescription medication.
- E. Teach the student the basis of developing progressive medication treatment plans in a patient with chronic diseases.
- F. Show the student how to apply information acquired during previous undergraduate courses to clinical care, in particular, the areas of therapeutics, pathophysiology, pharmacology, pharmaceuticals, biopharmaceutics, and pharmacokinetics.
- G. Utilize appropriate and effective communication skills to assure complete and accurate information to team members and patients concerning drug therapy and patient response.
- H. Function as an educator for patients and health professional colleagues by conducting inservice sessions, compliance counseling, and group discussions.
- I. Enhance a positive professional attitude. This includes:
 - 1. A concern for the individual patient;
 - 2. An appreciation of the impact of illness on the individual patient and recognition of the psychosocial factors which affect medical illness;
 - 3. Developing the philosophy of a team approach to patient care; and
 - 4. An appreciation of the need for and learning habits necessary for life-long learning as a pharmacist.
- J. Acquiring a sense of responsibility for a patient's outcome.

Course Objectives:

At the completion of this session, the student-pharmacist will be able to:

A. Communication Skills

- 1. Use a knowledge of interpersonal skills to effectively manage working relationships.
- 2. Address all communication at the level appropriate for the audience.
- 3. Effectively communicate patient database and assessment to peers.
- 4. Explain verbally physical parameters and laboratory parameters and their relationship to the evaluation of the efficacy of any drug used in any of the patients which a student follows during the session.

5. Articulate and justify recommendations.
6. Effectively counsel any ambulatory patient about any one drug or any combination of drugs that the patient is prescribed.
Parameters include:
 - Name of the medication
 - What the medication is used for
 - How to take the medication
 - When the medication should be taken
 - How long the medication should be taken
 - Possible side effects
 - Precautions to observe
 - Storage requirements
 - What to do in cases of missed doses.
7. Use correct grammar, punctuation, spelling, style and formatting conventions in preparing all written communications.
8. Use listening skills effectively in performing functions.
9. Provide concise, applicable, and timely responses to requests for drug information from health care providers and patients.

B. Demonstrate Techniques to Enhance Patient Compliance

1. Communicate to the patient the importance of taking the medication regularly, as well as the medical repercussions of noncompliance.
2. Demonstrate and assess patient understanding of metered dose inhalers, spacers, etc.
3. Develop individual strategies for enhancing patient adherence.

C. Chart Review and Patient Monitoring

1. Create a patient profile from information available about patient including charts and patient interviews using format requested by preceptor.
2. Review a patient's medical chart and obtain information needed to fulfill the pharmacist's role in monitoring drug therapy.
3. Understand and evaluate laboratory tests as they relate to drug therapy.
4. Assess chart and/or computer profile for correct drug, dosage and compliance.
5. Demonstrate the ability to analyze patient information to assess therapeutic effectiveness and adverse drug effects.
6. Identify standards of therapy and alternatives and be able to recommend appropriate therapy for the individual patient.
7. Identify drug-induced disease, drug-drug interactions, drug-disease interactions, or drug-laboratory interactions.
8. Identify therapeutic end-points for drug therapy as for therapeutic effectiveness or failure.
9. Demonstrate consistent use of a systematic approach to problem solving.
10. Formulate solutions to complex patient care problems that maximize the achievement of pharmaceutical care.

11. Determine the presence of any of the following medication therapy problems in a patient's current medication therapy:
 - medication used with no medical indication
 - medical conditions for which there is no medication prescribed
 - medication prescribed inappropriately for a particular medical condition
 - anything inappropriate in the current drug therapy regimen (dose, dosage form, schedule, route of administration, method of administration)
 - presence of therapeutic duplication
 - prescription of drugs to which the patient is allergic
 - presence of potential for adverse drug events
 - presence or potential for clinically significant drug-drug, drug-disease, drug-nutrient, or drug-laboratory test interactions
 - interference with medical therapy by social or recreational drug use
 - patient not receiving full benefit of prescribed medication therapy
 - problems arising from financial impact of medication therapy on the patient
 - patient's lack of understanding of the medication therapy
 - patient not adhering to medication regimen

D. Therapeutic Drug Monitoring

1. Utilize biopharmaceutical and pharmacokinetic principles of drug therapy in ambulatory patients.
2. Demonstrate the ability to appropriately adjust dosage regimens by the use of pharmacokinetic principles and equations.
3. Display initiative in preventing, identifying, and resolving pharmacy-related patient-care problems.

E. Literature Evaluation

Demonstrate the ability to critically review the literature and apply it to the patient care situation.

F. ADRs

Demonstrate the thought and documentation process for assessment of ADRs.

G. Drug Interactions

Demonstrate the thought and documentation process for assessment of drug interactions.

Ambulatory Care Minimum Knowledge Base Disease States

In order to ensure standardization and prevent duplication between sites, there are identified minimum knowledge base disease states for each experience type.

A student on an ambulatory care experience is responsible for the following disease states and therapies:

Diabetes Mellitus	Thyroid Disease
Hyperlipidemia	Community Acquired Infections
Hypertension	Congestive Heart Failure
Peptic Ulcer Disease	Reactive and Obstructive Airway Disease
Arthritis	Oral Anticoagulant Therapy
Coronary Artery Disease	Pain Management

Each ambulatory care site and preceptor has the option of requiring additional site specific topics. While your Therapeutics' notebook may be a starting point reference for this information, new data may be present since your didactic course work. You are responsible for knowing study design, limitations and results for major landmark studies and/or consensus statements for each minimum knowledge base. For example:

Hypertension:

The Sixth Report of the Joint National Committee on Detection Evaluation and Treatment of High Blood Pressure Arch *Intern Med*, 1997; 157:2413-47.

Learning Objectives:

A. Hypertension

1. Classify a patient's hypertension.
2. Determine the differences between essential and secondary hypertension.
3. Identify the risk factors of hypertension.
4. Identify how the major organs of the body are adversely affected by hypertension and how these adverse affects can be subjectively and objectively monitored.
5. Be able to measure blood pressure.
6. Be able to list the drugs, which might induce hypertension and foods, which may precipitate hypertension in a patient on monoamine oxidase inhibitors.
7. Be able to list the non-pharmacologic treatment of hypertension and when it is indicated.
8. Be able to list the side effects of antihypertensive medication.
9. Be able to individualize the management of patients with hypertension
10. Be able to select an oral drug and dose for treatment of hypertensive emergencies and urgencies.

11. Be able to select the drugs of choice and possible alternatives in hypertensive patient with the following concomitant diseases:
 - Diabetes Mellitus
 - Congestive Heart Failure
 - Angina
 - Cardiac Arrhythmias
 - Chronic Obstructive Pulmonary Disease (COPD) and Asthma
 - Peripheral Vascular Disease
12. Be able to effectively counsel a patient on his or her antihypertensive therapy.
13. Be able to establish a target blood pressure for each patient.
14. Be able to list the drugs which may aggravate hypertension.

B. Arthritis

1. Compare and contrast the pathophysiologic processes, epidemiology, and clinical course of rheumatoid arthritis and osteoarthritis.
2. Recognize and describe lab parameters pertinent to diagnosis and monitoring of rheumatic diseases.
3. Explain proposed indications, mechanism of action, dosing, monitoring parameters and drug interactions of the following:

Salicylates	Methotrexate/leflunomide
Nonsteroidal anti-inflammatory drugs	Immunosuppressives
Gold — PO and IM	Corticosteroids
Penicillamine	Antimalarials
α -TNF Inhibitors	

4. Explain the pathophysiology of uric acid production as it relates to gout.
5. Discuss the clinical features of gout.
6. Recommend appropriate pharmacotherapy dosing and monitoring parameters for treatment of acute gout and hyperuricemia including:

Colchicine	Nonsteroidal anti-inflammatory agents
Probenecid	Corticosteroids
Allopurinol	

7. Be able to appropriately counsel a patient regarding his or her arthritis therapy.

C. Peptic Ulcer Disease (PUD)

1. Describe the epidemiology and incidence of PUD.
2. Identify the physiologic controls involved in gastric acid secretion.
3. Explain the underlying causative mechanisms and pathophysiology involved in PUD.
4. Describe the usual clinical presentation of a patient with duodenal or gastric ulcers and esophageal reflux (GERD).

5. Discuss the various pharmacologic agents including: H-2 antagonists, antacids, proton pump inhibitors, sucralfate, antibiotics, prokinetics used in the treatment of PUD with respect to their:
 - a. Mechanism of action
 - b. Efficacy
 - c. Dosing and duration of therapy
 - d. Side effects
6. Discuss treatment regimens for *H. pylori*.
7. Formulate reasonable treatment plans for a patient with gastric or duodenal ulcers, and esophageal reflux disease for both acute and chronic management.
8. Be able to counsel a patient on non-drug measures for GERD.
9. Be able to appropriately counsel a patient regarding his or her PUD therapy.

D. Congestive Heart Failure (CHF)

1. Describe the epidemiology, etiology, natural history, and long-term prognosis of CHF.
2. Explain the pathophysiologic mechanisms involved in CHF.
3. Describe the clinical evaluation and usual clinical presentation of patients with CHF.
4. List the advantages, disadvantages and indications for use of diuretics, cardiac glycosides, vasodilators, ACE inhibitors, angiotensin II antagonists, beta blockers, spironolactone and inotropes in the management of CHF.
5. Formulate reasonable treatment plans for a patient with CHF, including both drug and non-drug measures and his or her monitoring parameters
6. Identify and explain controversies in the management of CHF.
7. Be able to appropriately counsel a patient regarding his or her CHF therapy.
8. Be able to list the drugs which may aggravate CHF.

E. Hyperlipidemia

1. Be able to cite the benefits of lowering serum cholesterol in a patient with hypercholesterolemia.
2. Be able to state the total and LDL serum cholesterol levels which correspond to the NCEP definitions of “desirable”, “borderline” and “high risk” serum cholesterol.
3. Given the results of a lipoprotein analysis, be able to discuss the significance of these results.
4. Be able to discuss the role of triglycerides as a risk factor for CHD.
5. Be able to recognize those drugs, which may have a detrimental effect on serum cholesterol and triglyceride levels.
6. Be able to list the risk factors for coronary artery disease, which must be taken into account along with serum cholesterol in determining a patient’s treatment regimen.

7. Be able to state the goals of antihyperlipidemic therapy in terms of target serum cholesterol.
8. Be able to discuss the role of diet in the management of hyperlipidemia and be able to counsel a patient on general dietary guidelines.
9. For each of the major lipid lowering agents, be able to cite their effects on each of the major serum lipids, magnitude of this effect and their role in drug therapy.
10. Given a patient situation, be able to outline an appropriate treatment and follow-up plan.
11. Be able to recognize and solve problems related to the use of each of the lipid lowering agents.
12. Be able to appropriately counsel a patient regarding his or her hyperlipidemic drug therapy.

F. Reactive and Obstructive Airway Disease

1. Explain the proposed pathophysiologies in a patient with reactive airway disease and obstructive airway disease.
2. Differentiate between asthma, chronic bronchitis, emphysema, and other forms of obstructive pulmonary disease.
3. Identify risk factors of developing obstructive lung disease and counsel a patient on these risk factors.
4. Explain the basics of pulmonary function testing and utility of PFTs.
5. Make recommendations regarding the initial medication used in the treatment of asthma, exercise-induced asthma, and chronic obstructive airway disease.
6. Understand the differences between various beta agonists and clinical utility of each.
7. Explain the advantages and disadvantages of the various dosage forms currently available in the treatment of asthma.
8. Make a recommendation regarding initial loading dose and maintenance dose of Theophylline.
9. Make a recommendation regarding pharmacologic change in an existing therapeutic regimen.
10. List the side effect profiles and monitoring parameters of beta-agonists, leukotriene antagonists, methylxanthines, anti-cholinergic, corticosteroids, and mast cell stabilizers.
11. Effectively demonstrate the use of metered dose inhalers and peak flow meters.
12. Be able to cite the NIH guidelines for management of asthma.
13. Be able to appropriately counsel a patient regarding reactive and obstructive airway disease.

G. Thyroid Disease

1. Be able to draw a diagram showing how TRH, TSH, T_4 , and T_3 interrelate.

2. Be able to explain the pathophysiology and other features of Graves' disease and Hashimoto's thyroiditis.
3. Given a patient case including pertinent laboratory information, be able to identify the type of thyroid abnormality.
4. Given information on a hyperthyroid patient, choose the most appropriate drug or non-drug treatment.
5. Given information on a hypothyroid patient, choose a thyroid product and dose.
6. Given a patient case, identify any drug-disease, drug-drug, or drug-lab test interactions related to thyroid disorders.
7. Be able to recommend appropriate laboratory monitoring for any hypo- or hyperthyroid patient.
8. Be able to appropriately counsel a patient regarding his or her thyroid drug therapy.
9. Be able to list the medications that interfere with thyroid function.

H. Coronary Artery Disease

1. Be able to assess the effectiveness of current antianginal therapy.
2. Be able to discuss standards of therapy and alternatives for the prophylaxis of angina.
3. For a given patient, be able to select the most appropriate antianginal therapy.
4. Be able to monitor and recognize the side effects of antianginal drugs.
5. Be able to discuss nitrate tolerance and recommend dosing regimens to prevent its development.
6. Be able to counsel a patient regarding his or her antianginal therapy.
7. Be able to recognize a patient for whom aspirin therapy would be beneficial and recommend a dosing regimen.
8. Be able to list drugs which may aggravate angina.
9. Be able to state goals of therapy for managing angina.

I. Oral Anticoagulant Therapy

1. Be able to state the indications for oral anticoagulant therapy, target INR and recommended duration of treatment.
2. Be able to discuss the rationale for use of the INR as a monitoring parameter and target range for a given indication.
3. For a given patient, be able to recommend a warfarin dose based on the patient's INR and dosing history and recommend frequency of monitoring.
4. Be able to counsel a patient on warfarin therapy.
5. Be able to recognize and solve common problems relating to warfarin therapy (including significant drug-drug interactions).
6. Be able to identify risk factors for bleeding.
7. Be able to discuss the pathophysiology of thrombosis.

J. Diabetes Mellitus

1. Describe the action of insulin and other counter regulatory hormones on the metabolism of carbohydrates, protein and fats.
2. Describe the two major reasons that current insulin preparations using intensive insulin therapy cannot mimic the physiologic response to endogenous insulin.
3. Compare the etiology, prevalence, age of onset, and other important characteristics of Type I and Type II diabetes, impaired glucose tolerance (IGT), and gestational diabetes mellitus (GDM).
4. Be able to discuss the long-term complications of diabetes and their management.
5. Discuss current pharmacotherapeutic strategies for Type I and Type II diabetes including intensive insulin therapy and combination use of oral sulfonylureas and insulin, metformin, acarbose and troglitazone.
6. Identify a patient who would benefit from self-monitoring of blood glucose (SMBG) and choose an appropriate blood glucose monitor.
7. Recognize morning hyperglycemia and identify a given patient with either the dawn phenomenon, or the Somogyi effect and list methods to manage.
8. Identify situations where caution is needed before exercise in a patient with Type I diabetes.
9. List signs, symptoms, and potential interferences with recognizing of hypoglycemia.
10. Differentiate diabetic ketoacidosis from non-ketotic hyperosmolar coma.
11. Explain the rationale and differences between the use of glycosylated hemoglobin, c-peptide, fructosamine, and random blood glucose values.
12. Recognize the diagnostic criteria for Type I and Type II diabetes, GDM, and IGT and determine when a patient is "well controlled" on current therapeutic regimen.
13. Be able to provide diabetes education to a patient and his or her family.
14. Be able to cite the drugs that might aggravate hyperglycemia or interfere with diabetes management.
15. Be able to develop an appropriate treatment and monitoring plan for a patient with diabetes.

K. Community-Acquired Infections

1. Recommend appropriate antimicrobial regimens for diabetic foot infections including monitoring parameters.
2. Identify the most likely pathogens associated with acute sinusitis.
3. Design an appropriate antibiotic regimen, monitoring parameters, therapeutic endpoints, and adjunctive therapies for acute sinusitis.
4. Describe the pathogenesis of pneumonia.
5. List the most likely etiologic agents causing pulmonary infection in a given clinical situation.
6. Be able to recommend the treatment of pneumonia given a specific clinical situation.

7. List the primary infecting organisms in community-acquired urinary tract infections.
8. Design appropriate therapeutic regimens and monitoring parameters for community acquired cystitis.
9. List predisposing factors for urinary tract infections.
10. Outline the AHA recommendations for bacterial endocarditis prevention in a patient.

L. Pain Management

1. Be able to discuss the various types of pain including acute, chronic, neuropathic, headaches, malignant, and phantom limb pain
2. Be able to discuss the physiology of the pain response including the anatomy of the nociceptive pathway- nociceptors, ascending nerve fibers, dorsal horn ganglionic junctions, ascending neuroregulators such as substance P and bradykinins, and the continuation of the ascending pathways to the brain.
3. Be able to discuss the environmental, physical, and psychological factors that determine a patient's "tolerance" to painful stimuli.
4. Be able to discuss the "factors that influence selection" including (but not limited to) mechanism of action, onset of action, duration of action, dosage forms available, generic name trade name, routes of administration, starting dose, maintenance dose, and maximum dose for the following medications:
 - Topical anesthetics
 - Topical analgesics
 - Non-steroidal anti-inflammatory agents
 - Steroids
 - Oral, IV, Intra-articular
 - Opioid analgesics
 - Antidepressants used as analgesics
 - Membrane stabilizing medications
 - Miscellaneous analgesics
5. Be able to discuss the side effect profiles and beneficial and adverse monitoring parameters for each class of medication listed above.
6. Be able to make recommendations for initiation of pain management regimens.
7. Be able to make recommendations for pain management modifications in a patient with an existing regimen.
8. Be able to counsel a patient regarding his or her pain management regimen.

Expectations:

The ambulatory care experience provides the student with exposure to both patients and healthcare professionals – it is expected that the student maximize this opportunity. The student will be present and actively participate as a responsible and

reliable member of the healthcare team. The student is expected to: assume responsibility for patient care, assume responsibility for independent learning, communicate effectively and be adaptable.

Unprofessional conduct, unexcused absences and unexcused tardy attendance from any single assigned responsibility (i.e. clinic, rounds, outpatient dispensing, multidisciplinary meeting, lecture) may be grounds for failure. The student is required to act ethically in the conduct of all pharmacy practice activities. It is the student's responsibility to contact the preceptor or a designee for consent for an excused absence. Co-worker health professional and/or staff at these sites may assist in the enforcement of this policy and in evaluation of student performance. Patient confidentiality must be respected and maintained at all times. The student is expected to be courteous and considerate of patients and clinic staff at all times.

Learning Activities Provided During Ambulatory Care

Patient Counseling	Journal Club/Literature Evaluation
Interactions	Medical Conferences
Case Presentations	Medication Histories
Experience Team Approach	to Written Assignments
Patient Care	Documentation of Interventions

AMBULATORY PHARMACEUTICAL CARE RESPONSIBILITIES MAY INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING LEARNING ACTIVITIES:

Activities/Responsibilities: Site specific activities may vary. On assigned clinic days, the student-pharmacist shall be accountable for the following pharmaceutical care activities:

- A. Patient counseling for clinic patients with a prescription or OTC medication

1. medication trademark name, generic name
2. intended use, expected action and what to do if the expected action doesn't occur
3. route, dosage form, dosage, and administration schedule
4. directions for preparation
5. directions for administration
6. precautions to observe during administration
7. common side effects, avoidance, and actions if they occur
8. techniques for self monitoring of drug
9. proper storage
10. potential drug-drug or drug-food interactions or combination
11. x-ray, lab procedure issues (interface and timing of doses)
12. refill information
13. what to do in case of missed doses
14. any other information unique to patient or drug

Written medication information will be provided under request of the physician or patient according to clinic-specific procedures of the clinic

- B. Medication history (See, Section III – Assignment Formats) and, when appropriate, perform a visual identification and verification of medications brought to clinic.
- C. Refill authorization – reviewed by the student to recommend to the physician-in-charge according to the clinic-specific procedure available from the preceptor.
- D. Drug information requests – from physicians, healthcare workers, and patients, using the following procedure in Section III – Assignment Formats.
- E. Written assignments may include but are not limited to adverse drug reactions (ADR) reports, drug interaction reports, patient specific questions, medication histories, patient information sheets, literature evaluation, journal club, or kinetic reports. (See, Section III – Assignment Formats).
- F. Formal case presentations – a complete work-up on a patient seen in the clinic will be required twice during the session using the PWDT process and PHARME format (see, Section III – Assignment Formats). Therapeutic alternatives must be supported by the primary literature.
- G. Work rounds case presentations – informal presentations of at least 2-3 patients/week will be presented orally to the preceptor (See, Section III – Assignment Formats).
- H. The student must be able to perform vital signs (blood pressure, pulse, temperature, and respiratory rate) assessment as well as blood glucose monitoring.

Student Evaluations and Outcome Measures:

- A. Daily work ethic/responsibilities. Subjective components to grading include: communication with preceptor, interactions with healthcare members, participation in health professional education, judgment/professionalism, independence/assertiveness, attitude towards session.
- B. Journal Club
- C. Oral clinical case/Oral challenge. Evaluation format based on PWDT format:
- _____ 1. establish patient-pharmacist relationship
 - _____ 2. organize patient data into problem format (collect data)
 - _____ 3. relate drug therapy to specific disease states (organize data – create drug related problems list)
 - _____ 4. identify potential drug therapy problems (therapeutic assessment)
 - _____ 5. develop specific therapeutic goals (rank drug related problems)
 - _____ 6. develop potential therapeutic alternatives (develop specific therapeutic goals-outcomes)
 - _____ 7. choose most appropriate regimen for each DRP (therapeutic alternatives)
 - _____ 8. state monitoring parameters for each drug (drug recommendation)
 - _____ 9. able to communicate rationale for recommendations in a logical and succinct manner monitoring parameters (therapeutic efficacy/toxicity)]
 - _____ 10. appropriate patient education and follow-up
- D. Formal case presentations – educational grand rounds
- E. Written assignments – ADRs, Kinetics, literature evaluations, medication histories, drug interaction reports.
- F. Documentation of activities/interventions
- G. Oral presentation (Inservice)
- H. Work rounds case presentation. Daily work rounds – The student presents patients in a modified grand round format to other students and to preceptors. Discussion is tailored to the specific cases at hand and may include monitoring, kinetics, philosophy, ethics, and disease states. Patient databases and monitoring parameters are to be maintained on a variable number of individuals as required by the preceptor. Grading for the work rounds is subjective.
- I. Patient Medication History Taking
- J. Patient Medication Counseling
- K. Outpatient Dispensing (may not be applicable at all sites)

L. Anchor Scale for Student Evaluations

Textbook:

No textbook is officially required. The student is strongly recommended to have access to drug information sources necessary for the student to appropriately monitor patients (i.e. *AHFS Drug Information, Facts and Comparisons, Dipiro's Pharmacotherapy, A Pathophysiologic Approach, Drug Interactions*, etc.). Patient education resource information will be accessible to the student for on-site clinic use.

Patient Medication Evaluations:

In the ambulatory care setting, thorough and complete medication evaluations are of primary importance along with the patient's medical record in obtaining patient specific data. It is expected that the student will interview and obtain medication histories on ALL possible patients during the session. The purpose of the medication history and evaluation is to obtain information on drug use that may assist in the diagnosis and/or treatment of the patient. Specific objectives include: medications, adverse drug reactions and/or drug allergies, screen for potential drug interactions, assess current therapy in terms of therapeutic response or non-response, detect patient-specific problems or issues with current therapy, document previous drug therapy, monitor current drug therapy for efficacy, safety and cost, determine patient compliance, and potentially recommend more appropriate drug therapy.