An introductory clinical clerkship course was developed to involve students in patient care activities early in their college experience, introduce students to clinical communication and organizational skills in preparation for future clerkships, better relate early didactic curricular content and principles to the practice of pharmaceutical care, provide students with opportunities to practice clinical and scientific writing skills, and assist students in evaluating future professional training and practice options. The clerkship is a two or three credit-hour professional elective offered to first and second professional year pharmacy students. Each student is required to develop a “Clerkship Portfolio” that allows both the student and his/her preceptor to track clerkship performance throughout the rotation. The portfolio includes consultation notes, a case presentation handout, a drug information paper, a disease monograph, and a patient counseling guide. Throughout the clerkship, students practice patient presentation skills, formulate answers to drug information inquiries, and develop professional writing skills. Results of student course evaluations indicate that the clerkship introduces effectively the process of rendering pharmaceutical care. Instructor assessments indicate that first and second professional year students are capable of conducting direct patient care activities under the guidance of a preceptor. All students indicated that the course helped them relate didactic curricula to the practice of pharmaceutical care. The majority of students who completed the clerkship suggested that this experience should be a curricular requirement.

BACKGROUND
Introductory practice experiences early in the pharmacy curriculum are recommended by the new American Council of Pharmaceutical Education Accreditation Standards and Guidelines(1). Early practice experiences can assist students in gaining an understanding of the basic principles learned in the classroom and demonstrate how these principles apply to the “real” patient care environment(2). Such “introductory clerkships” may also allow early opportunities to practice the clinical skills necessary to render pharmaceutical care. Moreover, professionalization of students during the early years may be facilitated by faculty role-modeling and mentoring. However, there are limited published reports detailing the methods or results of such early clinical experiences in the pharmacy literature(3-7). The sole exposure to the patient care environment that most pharmacy students obtain early in the curriculum consists of written and/or verbal patient case scenarios introduced in the classroom setting. Until recently, students at the St. Louis College of Pharmacy could participate in clinical clerkships only during their final academic year.

Background Paper II from the Commission to Implement Change in Pharmaceutical Education suggests that pharmacy students should be “effectively sending and responding to communications for varied audiences and purposes including writing, reading, speaking, listening, and using data...” In order to address this educational outcome, ample opportunities to practice verbal and written communication abilities in the clinical setting are required(8).

Hence, an experiential course entitled “Introductory Clinical Clerkship with Emphasis on Clinical Practice and Writing” was developed to: (i) involve students in patient care activities as a member of an interdisciplinary health care team in a patient-care environment; (ii) introduce students to clinical communication and organizational skills in preparation for future clerkships; (iii) better relate early didactic curricular content and principles to the practice of pharmaceutical care; (iv) provide students with opportunities to practice clinical and scientific writing skills; and (v) assist students in evaluating future professional training and practice options.

COURSE DESCRIPTION
The clerkship is a two credit-hour (nonwriting emphasis) or three credit-hour (writing emphasis) professional elective offered to pharmacy students in their first or second professional year. Each student is assigned to an inpatient medicine or outpatient ambulatory care site with a clinical faculty

**Introductory Clinical Clerkship During the First and Second Professional Years: Emphasis in Clinical Practice and Writing**

Dimitra Vrahnos and Michael S. Maddux

*St. Louis College of Pharmacy. 4588 Parkview Place, St. Louis MO 63110-1088*
Table I. Writing emphasis course guidelines at the St. Louis College of Pharmacy

A Writing Emphasis course is a 2-, 3-, or 4-semester hour elective that has:

- Section size limited to 25
- Minimum of 20 pages (5000 words) of total writing distributed across the semester
- Minimum of three writing assignments
- Minimum of two assignments (2000 words) requiring revision after assessment by the instructor and perhaps peers
- Writing assignments that account for at least 50 percent of course grade
- Curriculum committee approval as a Writing Emphasis course

*Adopted Fall, 1993.

The practice component of the clerkship requires six contact hours (at the practice site) weekly for 14 weeks. The first two weeks are devoted to site orientation. This includes introduction to medical, nursing, pharmacy, and other allied health professionals; and orientation to patient care wards/clinics, patient medical charts, monitoring forms, the laboratory ordering process, and other aspects of daily patient care activities. The remaining 12 weeks involve completion of a variety of clinical tasks that provide continuous practice of the designated course outcomes (Appendix A). The writing emphasis version of the clerkship includes at least five writing assignments and meets institutional requirements for writing emphasis courses (Table I)(9).

Course Outcomes

In the first and second professional years, it is understood that each student's level of didactic preparation is limited. At this stage in the curriculum, students have completed core courses, i.e., biology, general and organic chemistry, human anatomy, physiology, pharmaceutical calculations, and a pharmaceutical care course emphasizing non-prescription drugs. Thus, the clerkship is tailored to allow practice of course outcomes at an introductory, or developing, level (see criteria for outcomes assessment in Appendix B). Structured rotation activities and one-to-one supervision by the preceptor (and a sixth year student or pharmacy resident) allow students to accomplish the following course ability outcomes:

1. **Assess Patient-Specific Disease States.** Students collect, organize, and analyze patient-related information.

2. **Communicate with Patients and Health Professionals.** Students conduct medication histories, educate patients, and document these clinical activities in the medical record. Students also write a series of assignments (described below) related to patient care.

3. **Collaborate with Patients, Caregivers, and Health Professionals.** Students interact with the health care team and contribute to the therapeutic decision-making process.

4. **Select and Recommend a Comprehensive Drug Therapy Plan.** Students use the basic problem-solving steps (SOAP: Subjective, Objective, Assessment, Plan) and the biomedical literature in formulating therapeutic recommendations.

5. **Monitor Drug Therapy.** Students use an appropriate monitoring system to follow disease- and drug-specific monitoring parameters.

The foregoing ability outcomes support both institutional and Division ability outcomes as detailed in Figure 1.

Course Requirements

Each student spends at least six contact hours weekly at an inpatient medicine or ambulatory care site. Between five and ten different clerkship sites are utilized during each Fall, Spring, and Summer semester. All students are required to develop a “Clerkship Portfolio.” The portfolio allows the student and his/her preceptors to track clerkship performance throughout the rotation. Assignments are completed by each student and assessed (self, peer, and preceptor) utilizing assignment-specific evaluation tools. The following assignments are entered into the clerkship portfolio:

---

Fig. 1. Link between College, Division, and Introductory Clerkship ability outcomes.
1. At least five written consultations suitable for entry into the patient’s medical record. The student first conducts a medication history, discharge consult, or other drug therapy consultation and then documents the activity utilizing the SOAP format.

2. One formal verbal patient case presentation with handout. Each student presents and discusses a clinical case. With the preceptor’s guidance, the student chooses a patient appropriate for presentation. The student is responsible for preparing the case and providing a detailed handout to all participants. The handout includes an outline of the patient presentation, followed by a discussion of epidemiology, pathophysiology, diagnosis, and drug therapy. In addition, at least two current primary literature references relevant to the presentation are cited. Prior to the actual presentation, the student discusses the case, handout and planned discussion outline with his/her preceptor for appropriateness of content, length, references, and format. The presentation is assessed by peers and the preceptor.

3. One drug information question. Each student provides a five-page typewritten response to at least one patient-oriented drug information question. The question assigned to the student is answered using a defined five-step process for providing drug information (10) as a guide. At least three primary literature references must be cited in the response. A first draft of the written response is submitted to the preceptor for formative feedback, followed by revision by the student. Grading of the final draft is performed by the site preceptor using a standardized Drug Information Question Assessment tool utilized in most Division of Pharmacy Practice courses. (Appendix C)

4. Drug therapy monitoring profiles. Each student maintains patient-specific drug therapy profiles, reviews these profiles during every site visit, and presents informally pre-assigned patients. Presentations include a current problem list, monitoring strategy, and assessment of drug therapy outcomes.

5. Student clinical performance is assessed utilizing a tool to evaluate each ability outcome. The evaluation form is completed by the student (i.e., self-assessment) and the preceptor during the sixth and fourteenth week of the rotation. Each evaluation is discussed thoroughly by the student and preceptor.

Additional assignments, required only in the writing emphasis clerkship, are:

6. Patient Education/Counseling Guide. Each student completes a two-page written guide on a specific drug or drug group. The guide must use lay terminology and provide information useful to the patient. The guide is evaluated by a peer and by the faculty preceptor (Appendix D).

7. Disease Monograph. Each student completes a disease monograph of approximately four pages in length. A first draft is submitted to the preceptor for review and subsequent revision. The monograph must discuss the epidemiology, pathophysiology and desired therapeutic endpoints for the specific disease state assigned. (Appendix E)

8. Self-evaluation. The student submits a one-page self-assessment at the end of the semester evaluating his/her performance in each of the designated course outcome areas.

COURSE ASSESSMENT
Forty-nine students have completed Introductory Clinical Clerkship since its inception in Fall, 1993. Seventeen of these students completed the writing emphasis version of the clerkship.

Assessment of Student Performance by the Preceptor. The preceptor assesses student clinical performance at the midpoint and end of the clerkship by reviewing the student’s portfolio and by completing a clinical performance assessment tool. At the mid-rotation conference, the preceptor discusses the assessment in detail, identifying the student’s strengths and weaknesses. Specific examples are given to clarify the assessment and strategies to improve the student’s performance are discussed. Figure 2 shows the percentage of students that accomplished the clerkship’s ability outcomes as assessed by the preceptor (expert) assessor. Over 80 percent of students performed all ability outcomes successfully. All writing assignments were completed and submitted in draft form for assessment by peers and by the faculty preceptor. After detailed feedback was provided to the student, the written assignment was revised and resubmitted for final evaluation. The mean scores of the students’ writing assignments are shown in Figure 3.
Table II. Results of students' course evaluations (1993-1997: n= 44)

<table>
<thead>
<tr>
<th>The introductory clerkship:</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>effectively introduced me to patient care responsibilities</td>
<td>88</td>
</tr>
<tr>
<td>demonstrated a relationship of early curricular content to the practice of pharmaceutical care;</td>
<td>100</td>
</tr>
<tr>
<td>helped in evaluating future professional training and practice options;</td>
<td>100</td>
</tr>
<tr>
<td>Comments</td>
<td>Agree</td>
</tr>
</tbody>
</table>
| "Particularly enjoyed rounding with the health care team and the interaction with the patients."
| Very realistic—'hands-on' experience. I was able to follow patients' drug therapy on a day-to-day basis and see the benefits and effects of the medications."
| The strongest aspect of this course was interviewing patients and being actively involved in their care." | 88 | 12 | 0 |
| "I better understand why we have to learn the SOAP process in class."
| "This is a good class to connect all of the classes together."
| "This class drew relationships between subjects that had been obscure."
| "It was good seeing the disease states that I just learned in class—it helps me remember them better."
| "Provided a different view of pharmacy besides hospital and retail. I was not sure before but now I am definitely going for the PharmD."
| "This course allowed me to see how a clinical pharmacist is helpful in an ambulatory care setting."
| "This course gave me an idea of what clinical rotations would be like and the current 6th year students helped me understand what my responsibilities will be." | 100 | 0 | 0 |

Fig. 4. Student self-assessment of course outcomes.

**Student Self-Assessment of Course Outcomes.** Each student completes a self-assessment of his or her clinical performance at the midpoint and end of the rotation. Results of final rotation self-assessments are shown in Figure 4. During the mid- and final rotation conferences, self- and expert assessments were compared. We found that self- and expert assessments were very similar. (Figures 2 and 4)

**Student Evaluation of Clerkship.** Results of course evaluations (Table II) indicate that students believe that the clerkship effectively introduces them to the concepts of rendering pharmaceutical care. All students agreed that the course helped them relate early didactic curricula to the practice of pharmaceutical care. The majority of students said they

DISCUSSION
This introductory clinical clerkship with an emphasis in clinical practice and writing was initiated to develop clinical skills during the first or second professional years. Students were able to work with role model practitioners who showed them how to apply early didactic coursework to direct patient care. This clerkship allowed students to experience first hand the provision of pharmaceutical care in the clinical setting. In addition, students' verbal and written communication skills were evaluated in order to identify weaknesses early in the curriculum so as to effect improvement. During this clerkship, students were able to develop patient presentation skills, learn to work-up and monitor patients, perform patient education, formulate answers to drug information inquiries, and develop professional writing skills. These accomplishments were a surprise to many preceptors because first and second professional year students have a
limited knowledge base and because the course is offered before completion of any didactic pharmacology or pharmacotherapy course work. However, an abilities-based approach, adapted from Alverno College, has helped students successfully achieve the clerkship outcomes (11).

Abilities-based education involves explicitly defining the expectations of the course as ability outcomes and then explaining them to the students. Students repetitively practice the ability outcomes by completing multiple assignments. Their performance is assessed utilizing assignment-specific criteria. Feedback, probably the most important step of this process, is provided to the student by both peers and preceptors. The student then practices the assignment again and the process continues. (Figure 5) Preceptors and students utilized this approach during the clerkship to practice defined clinical abilities and written communication. All materials were entered into the Clerkship Portfolio, allowing students and preceptors to track and improve student performance during the clerkship.

Previously described introductory practice experiences in pharmacy schools have consisted of shadow programs (3,7), "mini-externships" (6) or site visits (5). During shadow programs, students typically observe the responsibilities of a pharmacist at a community or hospital practice site during a single visit. In most shadow experiences, students are exposed primarily to pharmacists’ distributive and administrative duties. While students find shadowing beneficial, drawbacks to such programs include the limited time spent at the site, no “hands-on” experience, minimal observation of pharmacists’ interactions with other health care professionals, and little direct patient contact (3-7). As suggested by Beck et al., the ideal early practice experience should enhance professional socialization, inculcate the philosophy of pharmacy practice, and enhance the learning process (12). Students must interact with patients and other health care professionals in order to understand, learn, and render pharmaceutical care.

Bucci et al. and Erstad et al. describe similar programs that introduce students to pharmacy practices other than those found in traditional hospital or community sites (4,5). Both programs have a first year pharmacy student shadow a fourth year clerkship student in a clinical setting. In the program described by Bucci et al., students completed four one-day (eight-hour) clerkship site visits in ambulatory medicine, geriatrics, hospital practice, and community practice. At the end of each day, first and fourth year students met with the assigned preceptor to discuss the pharmacists’ activities at that site. In the program described by Erstad et al., students spent three to four hours at one clinical site. Students and preceptors in both programs agreed that these experiences were beneficial. Feedback from first year students indicated that more exposure to “hands-on” patient
care, i.e., conducting medication histories, monitoring disease and drug therapy, and reviewing patient medical charts would be valuable(4,5).

Other health professional schools have included more early patient care experiences in their curricula. At the University of New Mexico School of Medicine, first year medical students attended ambulatory “continuity clinics” on three occasions in order to improve their patient interviewing skills(13,14). Preceptors and students agreed that interviewing skills improved and that students enjoyed the sessions. The Harvard Community Health Plan provides medical students with an early exposure to patients in an HMO setting(15). These students reported “... a synergistic effect of patient experiences and classroom learning.” Moreover, students reflected upon their experiences by “doing it, then talking about it.” Boston University has created the Applied Professional Experience (APEX) program which provides dental students early exposure to the practice environment(16). The APEX is divided into four innovative clerkships beginning in the freshman year. Students continue their clerkship at the same site for the next three years, thus maintaining continuity of care. The unique aspect of this program includes student compensation, from $6.00-10.00/hour, thereby assisting the dental offices with the manpower needed and providing students with monetary compensation for their work. Students and practitioners gave very positive assessments of this program. Students developed a mentoring relationship with the dental practitioner, increased communication with patients, gained knowledge of dental procedures and related to these concepts developed in the classroom setting, and were introduced to the administrative functions of the dentist’s office.

Other programs have described early practice experiences that involve meeting with families on a single occasion or at periodic intervals(12). This allows students to understand the social impact of the family on pharmaceutical care; however, it neglects many of the clinical components of patient care that are important to truly enhance learning of basic science and pharmacotherapeutic principles discussed in the classroom setting.

At present, our introductory clerkship is offered only as an elective because there are not enough sites to accommodate large numbers of students in a required, semester-long introductory clinical experience. Alternative course configurations are being explored and it is realistic to expect that the ongoing expansion of clinical sites, together with a shortening of clerkship duration (i.e., to five weeks), will increase our program’s capacity to conduct a required introductory clinical experience for all students during the second or third professional year. Also, more involvement of senior pharmacy students and pharmacy residents as primary mentor-preceptors could further increase our introductory clerkship capacity. Medical schools have successfully utilized senior students as teaching assistants in the clinical setting(17,18). In these programs, underclassmen reported that their relationship with a senior student created motivation, enthusiasm, support, and friendships. In our introductory clerkship, students interact regularly with senior students and residents, although the impact of these interactions has not been evaluated formally. Nonetheless, students indicate that they have gained a better understanding of postgraduate training opportunities through their contact with residents and upperclassmen. Overall, students generally agree that this should be a required experience that ensures clinical interactions with patients, practitioners and other members of the health care team early in the curriculum.

**SUMMARY**

Introductory Clinical Clerkship: Emphasis in Practice and Writing, a unique course offered in the first and second professional years, effectively engages students in rendering pharmacological care; provides early opportunities to participate in clinical practice; links early didactic coursework to the patient care environment; develops professional verbal and written communication skills; and exposes students to a variety of opportunities for future training and practice.


**References**


APPENDIX A. COURSE ABILITY OUTCOMES AND CLINICAL ACTIVITIES

The preceptor assesses professional outcome abilities through out the rotation by involving the student in specific activities and tasks. Abilities and associated tasks are noted below.

<table>
<thead>
<tr>
<th>Ability Outcomes</th>
<th>Clerkship Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assess patient-specific disease states</td>
<td>Review patient charts; use the SOAP method as a template for initial patient work-ups; organize and correctly interpret content, laboratory/test data; compile these data on a monitoring form; prioritize patient-specific problems.</td>
</tr>
<tr>
<td>2. Communicate with patients and health professionals</td>
<td>Conduct drug histories; provide patient and drug information to health care professionals; have small group discussions during rounds/clinic; write chart notes; use Medwatch forms to document ADR’s; utilize the biomedical literature to respond verbally and written to patient-related drug information questions prompted by practice activities; educate patients on drug administration and technique; conduct written and verbal presentations; document clinical activities.</td>
</tr>
<tr>
<td>3. Collaborate with patients, caregivers, and health professionals</td>
<td>Participate actively in patient care settings; establish identity/responsibilities within the health care team (e.g. clarifying medication histories, assessing compliance, performing discharge counseling and pharmacokinetic consults). Interact appropriately with patients, health professionals, and preceptor(s); reflect on specific role(s) within the interdisciplinary team; identify personal strengths and weaknesses.</td>
</tr>
<tr>
<td>4. Select/recommend a comprehensive drug therapy plan</td>
<td>Recommend appropriate non-drug and drug therapy, and provide therapeutic rationale. Use pharmacokinetic principles as necessary. Justify drug therapy recommendations based on synthesis and analysis of data; identify additional data that may be required. Read and critically evaluate literature pertinent to patient-specific therapies.</td>
</tr>
<tr>
<td>5. Monitor drug therapy</td>
<td>Organize patient-specific data and track therapeutic problems/outcomes on monitoring form; use the SOAP method as a template for ongoing monitoring; review pharmacy patient profiles, medication records; assess compliance; assess therapeutic outcomes and recommend revised therapies (including cessation of therapy).</td>
</tr>
</tbody>
</table>

APPENDIX B. INTRODUCTORY CLINICAL CLERKSHIP ASSESSMENT

Student Name ___________________ Preceptor ___________________

Type of Assessment: _____Self_____ Expert

Date: _____ Mid-module_____ Final: _____

Assess the student’s performance based on the rating scale below. Please substantiate your assessment by providing evidence in the specified area. In addition, suggest methods of improvement in order for the student to achieve the outcome.

1 - Not Acceptable
The student requires extensive intervention; the preceptor must complete the task.

2 - Needs Development
The student requires consistent intervention; task is completed after directed questioning.

3 - Competent Performance
The student requires one or two interventions; task is completed.

4 - Excellent Performance
The student requires no intervention; task is completed independently.

**Course Ability Outcomes:**

<table>
<thead>
<tr>
<th>I. Assess patient-specific disease states. The student will:</th>
<th>1 2 3 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Retrieve patient data</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>b. Perform basic history and disease assessment</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>c. Integrate patient-related data</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>d. Determine status, etiology, and risk factors of problem</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>e. Prioritize patient problems</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>f. Interview patient about general state of health</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>g. Perform a medication history and review of systems</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>h. Use basic disease assessment skills, e.g., blood pressure, accucheck, peakflow</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>i. Organize subjective/objective data</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>j. Combine patient-specific data to achieve an assessment</td>
<td>Evidence/suggestions:</td>
</tr>
<tr>
<td>k. Explain pathophysiologic mechanisms</td>
<td>Evidence/suggestions:</td>
</tr>
</tbody>
</table>

II. Communicate with patients and health professionals. The student will:

| a. Conduct medication histories | 1 2 3 4 |
| b. Provide patient- and drug-related information | Evidence/suggestions: |

• provide accurate and concise information
• use appropriate verbal, written, and nonverbal language
• provide information logically and coherently
• provide accurate information with confidence
• respond to questions appropriately

c. Write concise, legible and organized chart notes 1 2 3 4

Evidence/suggestions:
• include subjective information
• include objective information
• list complete problem list with status/etiology noted
• include drug therapy recommendations

III. Collaborate with patients, care givers and health professionals. The student will:
a. Apply clinical skills in multidisciplinary, patient care settings 1234

Evidence/suggestions:
• be well-prepared for rounds and/or clinic
• identify indications for patient referral for additional and/or specialized care

b. Interact professionally with patients and health professionals 1 2 3 4

Evidence/suggestions:
• use appropriate oral, written, and non-verbal language
• maintain confidentiality
• arrive on time for rounds and patient care-related meetings

IV. Select and recommend a comprehensive drug therapy plan. The student will:
a. Recommend drug therapy 1 2 3 4

Evidence/suggestions:
• make recommendations that apply to specific patients
• select optimal drug, dose, regimen
• recommend strategies for prevention (e.g., preventative therapies, lifestyle modifications)

b. Develop therapeutic goals 1 2 3 4

Evidence/suggestions:
• identify desired therapeutic endpoints
• relate therapeutic goals to measurable patient outcomes

c. Recommend non-drug therapy 1 2 3 4

Evidence/suggestions:
• determine if non-pharmacologic therapy would be appropriate
• stress the importance of non-pharmacologic therapy, e.g., bowel rest, diet, exercise, etc.

V. Monitor drug therapy. The student will:
a. Use an appropriate patient monitoring system 1 2 3 4

Evidence/suggestions:
• maintain an organized, complete, and up-to-date system
• employ complete and pertinent monitoring strategies for each patient

b. Identify and follow patient-specific parameters at intervals 1 2 3 4

Evidence/suggestions:
• identify patient specific subjective and objective parameters
• follow up on appropriate parameters in a timely manner
• identify need for referral when appropriate

APPENDIX C. DRUG INFORMATION QUESTION ASSESSMENT

I. Evaluates biomedical literature. 25 points

Search strategy
• Uses pertinent tertiary (2 pts), secondary (1 pt) and primary (2 pts) sources

Summary and evaluation of literature
• Summarizes methods (4 pts), includes:
  a. study design
  b. variables
  c. outcome measures
  d. statistical method
• Summarizes results (4 pts), includes:
  a. outcome measures
  b. tables, figures as necessary
  c. clinical versus statistical significance

Limitations
• identifies strengths (2 pts)
• identifies limitations (2 pts)

Conclusions
• answers question posed in introduction (4 pts)
• supports body of response (2 pts)
• includes statement regarding strength of data or need for additional data (1 pts)
• states conclusions in appropriate length (5-10 lines) (1 pts)

II. Communicates drug-related information to peers, patients, and other health care providers. 25 points

Introduction
• includes correct clinical case or question (2 pts)
• states introduction in appropriate length (5-10 lines) (2 pt)
• pertains to question (3 pts)

Format and style
• uses effective transitions, uses clear topic sentences (3 pts)
• cites specific evidence to support the question (4 pts)
• presents an insightful viewpoint with examples (3 pts)
• uses correct grammar (3 pts) and spelling (3 pts)
• cites references appropriately according to guidelines for biomedical journals (2 pts)

Total Score:______/50 points

APPENDIX D. PATIENT EDUCATION/COUNSELING GUIDE EVALUATION FORM

I. Educate patients regarding specific drug therapy. 30 points

Search strategy
• Uses pertinent tertiary, secondary and primary sources (2 pts)

Drug Name
• Identifies generic and brand names (1 pt)
• Identifies common indications/use (1 pt)
• Explains substitution policies, if applicable (e.g., oral contraceptives, levothyroxine) (1 pts)
Pharmacologic Mechanism
• Explains the mechanism of action of the drug (3 pts)
• Discusses how the drug helps to treat/cure the disease (i.e., explains the mechanism of the disease) (3 pts)

Side Effects
• Identifies side effects of drug (3 pts)
• Explains strategies to prevent side effects, if applicable (e.g., aspirin to prevent flushing from niacin) (3 pts)

Drug Interactions
• Identifies drug-drug, drug-food, drug-disease interactions (3 pts)
• Explains mechanisms of drug interactions (e.g., Phenytoin may induce or prevent the breaking up of a drug) (3 pts)
• Explains strategies to prevent drug interactions (e.g., space 2 hours apart) (3 pts)

Monitoring Parameters
• Identifies subjective monitoring parameters of the drug and disease (2 pts)
• Identifies objective monitoring parameters of the drug and disease (2 pts)

II. Communicates drug-related information to patients. /20 points

Comments

Style
• Style is innovative and helps to attract or hold reader attention (5 pts)

Format
• Language is appropriate and written at or below the eighth grade reading level (5 pts)
• Uses effective transitions (2 pts)
• Uses correct grammar (3 pts) and spelling (3 pts)
• Cites references appropriately according to guidelines for biomedical journals (2 pts)

Total Score:_______/50 points

APPENDIX E. DISEASE MONOGRAPH EVALUATION FORM

I. Assess disease states /30 points

Comments

Search strategy
• Uses pertinent tertiary, secondary and primary sources (3 pts)

II. Educate health professionals regarding drug therapy of specific disease states. /10 points

Comments

Command of Topic Area
• Demonstrates comprehension of topic (2 pts)
• Demonstrates application of information (2 pts) (e.g., illustrates, teaches)
• Demonstrates synthesis of the subject matter (2 pts) (e.g., devises an algorithm)

III. Communicates disease-related information to other health care providers. /10 points

Comments

Format and style
• Uses effective transitions, uses clear topic sentences (2 pts)
• Uses correct grammar (3 pts) and spelling (3 pts)
• Cites references appropriately according to guidelines for biomedical journals (2 pts)

Total Score:_______/50 points