PHA 599: Clinical Pharmacogenetics Advanced Pharmacy Practice Experience

Learning Contract

Precision Health Center
Forty-Fort, PA
Geisinger

CONTACT INFORMATION

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CLERKSHIP DESCRIPTION

The Clinical Pharmacogenetics Advance Pharmacy Practice Experience (APPE) is an elective ambulatory patient care experience designed to provide the student with the opportunity to develop and refine the skills necessary to deliver pharmaceutical care, with an emphasis on the role of pharmacogenetics and pharmacogenomics on rational drug therapy and patient outcomes. The goal of this APPE is to expose students to patients with pharmacogenetic results that have implications on current and/or future medication therapy. To accomplish this goal students will assist the preceptor with communicating pharmacogenetic results to patients and other health care providers. Students will also have the opportunity to address and answer questions regarding pharmacogenetics from patients and providers. Interaction and communication with patients and other health care providers for the promotion of optimal drug therapy are stressed to help the student develop a sound professional approach to the practice of pharmacy. In addition, students are encouraged to broaden their existing competencies and incorporate their professional and personal goals into this clerkship.

This clerkship is a 5-week clerkship with a minimum requirement of 40 hours per week of clerkship related work. This work does not have to be conducted at the clerkship site unless it is related to patient care, but should be conducted at a location suitable for clerkship activities (e.g. Pharmacy Information Center, Farley Library, etc). Students should generally not begin clerkship related work later than 08:30 nor complete their work for the day before 1630 without specific
permission from the preceptor. Failure to adhere to these minimum standards is grounds for course failure.

Development and utilization of the following skills will be emphasized throughout this clerkship: communication, patient interaction, documentation, provision of drug information to healthcare providers/patients/families, and appropriate pharmacotherapeutic interventions.

**EDUCATIONAL OUTCOMES**

1.1. **Learner (Learner)** - Develop, integrate, and apply knowledge from the foundational sciences (i.e., *pharmaceutical, social/behavioral/administrative*, and *clinical sciences*) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and *patient-centered care*.
   - Apply foundational science knowledge to design and monitor drug therapy regimens with a patient-centered focus

2.1. **Patient-centered care (Caregiver)** - Provide *patient-centered care* as the medication expert (collect and interpret evidence, prioritize, formulate assessments and recommendations, implement, monitor and adjust plans, and document activities).
   - Acquire and prioritize relevant subjective and objective patient information
   - Assess therapeutic problems and develop goals for therapy
   - Design evidence-based patient care plans on patient-specific needs, values, and preferences to solve therapeutic problems and monitor for safety and efficacy

3.1. **Problem Solving (Problem Solver)** – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution

3.2. **Educator (Educator)** – Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding
   - Educate patients, caregivers, colleagues, and stakeholders

3.3. **Patient Advocacy (Advocate)** - Assure that patients’ best interests are represented.
   - Advocate, develop and participate in programs to improve public health outcomes.
   - Apply ethical principles in the conduct of human subject research.
   - Demonstrate the appropriate attitude and values necessary to provide care emphasizing awareness and sensitivity to social, cultural, and economic issues.

3.4. **Interprofessional collaboration (Collaborator)** – Actively participate and engage as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs.

3.5. **Cultural sensitivity (Includer)** - Recognize *social determinants of health* to diminish disparities and inequities in access to quality care.
   - Incorporate a patient’s cultural beliefs into a patient care plan

3.6. **Communication (Communicator)** – Effectively communicate verbally and nonverbally when interacting with an individual, group, or organization.
   - Communicate effectively with patients and healthcare providers using a structured approach
• Document patient care activities clearly, concisely, and accurately using appropriate technology
• Use interpersonal skills to build trusting relationships

3.7. Evidence-based Practice (Evaluator) – Demonstrates clinical care that incorporates the principles and application of evidence-based practice and Information Mastery.
  • Articulate an information need in a health situation
  • Systematically critique human subject literature.
  • Use the information gathered to formulate evidence-based answers

4.1. Self-awareness (Self-aware) – Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth
  • Effectively self-assess and improve personal and professional abilities on an ongoing basis. (Continuous Professional and Personal Development)

4.4. Professionalism (Professional) - Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society.
  • Practice pharmacy (or carry out duties) in accordance with legal, ethical, social, economic, and professional guidelines.

CLERKSHIP LEARNING OUTCOMES

• Organize and present patient case information to health care providers.
• Analyze individual patients’ pharmacogenomic data in order to optimize therapy.
• Communicate both verbally and nonverbally with patients and health care providers about the pharmaceutical care of patients.
• Communicate both verbally and nonverbally with patients and health care providers about the implications of individual patient’s pharmacogenomic data.
• Make recommendations to other health care providers regarding necessary changes to patients’ pharmacotherapeutic regimens.
• Document in the medical record as necessary regarding patient care.
• Use appropriate references to justify recommendations for patients’ pharmacotherapeutic regimens.
• Counsel patients about their medication therapy.
• Analyze the medical literature and extrapolate the information into practice.
• Present formal and informal lectures to peers and various health care providers.
• Write reports that detail patient events involving their pharmacogenomic data and pharmacotherapeutic regimens.

DAILY ACTIVITIES/RESPONSIBILITIES

Typical daily schedule

- Preparation for patient encounters: 08:00 – 09:00
- Patient discussions: 09:00 – 10:30
- Patient encounters: 10:30 – 12:00
Lunch, conferences/meetings: 12:00 – 13:00
Patient/Drug Info. follow-up: 13:00 – 14:00
Patient/Topic discussions: 14:00 – 15:00
Patient follow-up: 15:00 – 16:30

Expectations for Patient Discussions and Encounters

- Students will arrive to site early enough to collect all relevant patient information prior meeting with the preceptor for patient discussions (i.e. medications, PMH, laboratory data, test results, etc.). This time will vary due to many factors, but a minimum of one hour is recommended at the beginning of the clerkship.
- Students will have researched pertinent pharmacogenetic test results, gene-drug pairs and patient disease states, and will be familiar with the guideline recommendations for relevant gene-drug pairs and appropriate therapy for the diseases states of each patient.
- Students should be proactive in their assessment of pharmacogenetic variants and their therapeutic implications for individual patients. Students are expected to use appropriate drug information resources and an information mastery approach to develop a pharmacotherapeutic plan aimed at addressing any actual or potential pharmacogenetic-based medication therapy issues. Follow up with a more in-depth and critical appraisal of the literature may be necessary after discussion of the patient case with the preceptor. For complex therapeutic issues, drug information questions and patient care issues the student is expected to seek out the advice of the preceptor prior to making any formal or documented recommendation.

Meetings and Conferences

Attendance at conferences/meetings as assigned by the preceptor is required.

Pharmacy Rounds/Patient Discussions

- Students will meet with the preceptor to review patients. Students should be prepared to present patients and lead a discussion of the patients’ most important pharmacogenomic and pharmacotherapeutic issues.

- During these patient discussions/presentations students are expected to:
  1. Extract pertinent information from the medical record and construct a data base for each assigned patient including, but not limited to, the following:
     - Allergies
     - Past medical history (PMH)
     - Medication history
     - Family medical history
     - Relevant social history
     - Relevant review of systems (ROS)
     - Relevant physical exam (PE) findings
     - Laboratory data and other diagnostic data, especially pharmacogenetic results
     - Relevant provider documentation
2. Describe and explain the actual or potential therapeutic implications of pharmacogenetic results.
3. Identify any pharmacotherapy changes or adverse drug events that may be the result of pharmacogenetic variants.
4. State the therapeutic goal (endpoints) for each identified pharmacogenetic variant.
5. State therapeutic alternatives for patients with gene-drug pairs that would require an intervention.
6. Develop a plan for monitoring and follow-up for patients requiring pharmacotherapy changes.

- Students are expected to participate in Therapy/Topic Reviews as assigned by the preceptor during the clerkship. These reviews will not be evaluated individually, but the completion of them will contribute to the student’s overall clerkship evaluation. The final course evaluation may be affected if these reviews are not completed in a timely and appropriate manner. Students should not base these reviews solely on their class notes. Instead, students should find relevant studies, guidelines and review articles to prepare for these sessions.

**CLERKSHIP ASSIGNMENTS**

**Formal Topic Presentation**

Students will provide one or more formal topic presentations applicable to their clerkship experience. Formal presentation must be done in PowerPoint. The evaluation rubric for formal presentations can be found on the APPE website. General guidelines for preparation are also located on the APPE website. At the preceptor’s discretion a formal presentation may be repeated for a different audience at Geisinger.

**Journal Club Presentation**

Students must select and present at least one journal article from the primary literature that pertains to a pharmacogenetic or pharmacogenomic topic. The preceptor must pre-approve the article. The guidelines for the journal club are different from those found in the APPE manual and located on the APPE website. The evaluation criteria can also be found on the APPE website.

**Patient Case Report**

Students will be required to formally write up at least one patient encounter in the format of a case report. General guidelines for preparation of the report can be found on the APPE website.

**Patient Case Presentation**

Students will provide one formal patient case report based on a patient encounter. Formal patient case reports must be done in PowerPoint. The evaluation rubric for the patient case presentation can be found on the APPE website. General guidelines for preparation are also located on the APPE website.
Clerkship Project(s)

Each student may also have the opportunity to complete one or more clerkship projects as assigned by the preceptor. These may include, but are not limited to: newsletter articles, in-service presentations, research, or other projects as deemed appropriate. The preceptor must pre-approve any additional project(s) the student wishes to undertake. Formal written guidelines are not provided for additional projects as they may differ for each clerkship block and for each student. If students complete an additional project(s) the time spent on the project will be accounted for accordingly as part of the APPE evaluation. Projects will generally be evaluated based on quality, independence and timeliness of work.

ADDITIONAL INFORMATION

Plagiarism

See the APPE manual for a definition. **If you are unsure of what constitutes plagiarism discuss it with the preceptor immediately.** Using the words or ideas of another, even if referenced or done unintentionally, may be considered plagiarism. Plagiarism of any kind is grounds for project and/or course failure in addition to other penalties as outlined in the Pharmacy Student Handbook.

Internet Use

Use of the internet at Geisinger for purposes other than patient care and clerkship or school related activities is strictly prohibited. Any such use will result in immediate expulsion from the clerkship site and failure of the clerkship.

Photocopying and Printing

- **DO NOT** use the PIC printer as a photocopy machine (no multiple copy printing)!
- Do not print articles or handouts using the PIC printer, unless necessary. **Be aware of the length of articles you do wish to print.**
- Judicious use of the Precision Health Center photocopy machine is permitted for rotation related materials.
- Judicious use of the printers at the Precision Health Center is permitted, but they are not to be used as photocopiers (no multiple copy printing).
- All other printing and copying costs are the responsibility of the student.

Phone Use

The phones at the clerkship site are only to be used for calls pertaining to patient care and clerkship or school related activities. Any other use is strictly prohibited. The phones are not to be used to place long-distance calls unless authorization has been given for the specific call by the preceptor or appropriate member of the Precision Health Center.
Parking

Students are provided with a Wilkes parking pass(s) to allow on-campus parking during the clerkship. These passes are entrusted to the student to facilitate commuting between the site and the university. Be aware:

- Parking passes are the student's responsibility. Financial penalty for lost passes are the responsibility of the student.
- Students will NOT share the pass with others.
- Students are fully responsible for any financial or other loss due to parking on campus.
- Evaluations will not be released until parking passes are returned at the end of the rotation.

Hazardous Weather Policy

The hazardous weather policy for the School of Pharmacy as it pertains to clerkships can be found in the APPE manual. In addition to this policy any compressed schedule, delayed start or other change in the University’s schedule for the day due to hazardous weather will also apply to the clerkship schedule for that day. This policy addition does not apply to any changes in the University’s schedule for reasons other than hazardous weather. For up-to-date information on the University’s schedule call (570) 408-SNOW.

GRADING

Grading for this clerkship is pass/fail and will be based on the applicable guidelines for this clerkship found in the APPE Student manual. The majority (approximately 75%) of an evaluation will be based on the outcomes related to clinical knowledge and skills and professionalism. The remainder of the clerkship evaluation will be based on any additional projects and assignments.

EVALUATIONS

The preceptor will provide student feedback on an ongoing basis, with formal written/oral evaluations performed at the approximate midpoint and at the end of the clerkship experience. Students may be required to perform self-evaluations.

- Extreme non-professionalism is grounds for failure of the clerkship.
- Late assignments may result in an incomplete for that assignment and potential failure of the clerkship.
DISCLOSURE

I have received the internal medicine learning contract and reviewed the assessment methods with my preceptor. I understand all methods by which I will be assessed in this clerkship.

I understand all patient data reviewed or discussed during the clerkship must be kept confidential. Cases should only be discussed with the preceptor or members of the health care team. Any breach of patient confidentiality, however minor, will result in failure of the clerkship (i.e. discussions in the cafeteria or with "friends” working at the institution).

My preceptor has reviewed my portfolio and is aware of my performance in previous clerkships.

_________________________________________________________   __________
Student Name (please print)                                     Date

_________________________________________________________   __________
Student Signature                                               Date

_________________________________________________________   __________
Preceptor Signature                                             Date