LETTERS

Modifying a Traditional Course for the PharmD Curriculum

To the Editor: We thoroughly enjoyed Dr. Poirier's recent article, "A Seminar Course on Contemporary Pharmacy Issues," and would like to share our experiences.[1] We at the University of Oklahoma College of Pharmacy were also faced with the dilemma of modifying a traditional post-baccalaureate doctor of pharmacy seminar course to accommodate not only an increase in student enrollment, but also the addition of a distance campus. The evolution of the degree also necessitated course goal revision to better address future professional practice. To accomplish this, peer review of the seminar course occurred and resulted in a redesigned, year long, 1-credit hour seminar course series launched in the 2006-2007 academic year. Traditionally, the former course consisted of students delivering a 15-20 minute oral presentation on a contemporary pharmacy issue in 1 semester and a patient case poster presentation in the other semester. In our new course offering, we retained the oral presentation component in the spring, known as the Seminar Preparation and Delivery Series, and replaced the poster presentation with a Professional Development Series in the fall. We feel that the addition of the Professional Development Series and the instructional design workshops in the Seminar Preparation and Delivery Series were a novel approach to address concepts and skills that were not necessarily highlighted previously in the curriculum. The new course objectives emphasize that, while not all students become full-time faculty members, effective teaching skills are needed in practice.

The Professional Development Series consisted of ten 2-hour lectures and workshops once a week during the fall semester. Workshop topics included: postgraduate training options, writing resumes and curriculum vitae (separate workshops offered for those pursing postgraduate training or traditional entry-level pharmacy positions), effective interviewing techniques, business etiquette, contract negotiation, and financial planning (2 workshops). In addition, students participated in 2 immunizations workshops (immunization practices and procedures lecture and immunization technique workshop). Once successfully completed, students were eligible to apply for an immunization permit with the Oklahoma State Board of Pharmacy upon graduation. Overall, this programming was received well by the students and was offered in a similar fashion the following 2 years. Future modifications to this fall series will include an additional presentation requirement to accommodate student requests for additional presentation practice.

The Seminar Preparation and Delivery Series consisted of seven 2-hour workshops offered once a week during the spring semester. The objective of the series is to have the students prepare an in-depth seminar on a controversial, debated, or timely pharmacotherapeutic, pharmacoeconomic, pharmacy administration, or basic science topic related to the profession of pharmacy. Students chose individual topics from a faculty-prepared list or submitted a topic of interest for approval. Initial activities were similar to those utilized by Dr. Poirier and included: presentation skills, creating an effective PowerPoint presentation, writing effective objectives and test questions, preparing quality handouts and giving and receiving feedback. A 1-hour hands-on PowerPoint workshop was also offered. During this time, students began choosing and preparing their seminar topics under the guidance of their seminar group leader. The class was divided into 8 small groups and the semester concluded with 3 (range 2-4) students presenting a 25- to 30-minute lecture with complete lecture objectives followed by questions and answers, for 6 weeks. Students also wrote and administered a multiple-choice test for the audience to complete. Students were graded using a standardized rubric (created by the course coordinators) and received immediate feedback from the 2 faculty group leaders and volunteer faculty observers in attendance, as well as from their peers. All students were encouraged to self-assess their seminar using the rubric prior to their presentation delivery and all faculty group leaders received at least 2 hours of training on rubric use to promote inter-rater reliability. Student feedback was also positive for these activities and many believed it would be useful in their future careers.

By combing these 2 series of programming, we believe that our students are now better prepared to enter the workforce with skills that they may not have attained otherwise.

Jonathan D. Ference, PharmD
Nesbitt College of Pharmacy & Nursing
Wilkes University

Melissa S. Medina, EdD
The University of Oklahoma College of Pharmacy

References

1. Poirier TI. A seminar course on contemporary pharmacy issues. *Am J Pharm Educ.* 2008;72(2):Article 30.

Incorporation of PDAs for Case-Based Learning of Infectious Diseases

To the Editor. To optimize drug therapy, knowledge is needed at the time of therapy decisions. The use of information technology, such as personal digital assistants (PDAs), is often utilized to provide point-of-care information resources. A survey of information resources used in antimicrobial prescribing, an area often implicated in medical errors, found that 55% of physicians refer to an external resource regarding an antimicrobial prescription.[1,2]

The PDA can also serve as a real-time educational tool in the classroom. Students can utilize PDA-based infectious diseases references to access information related to antimicrobials and participate in patient-related case discussions. A case-based approach to learning infectious diseases pharmacotherapy, instead of relying primarily on lectures to deliver content (which promotes student memorization), should assist in reinforcing content, making course material more clinically relevant, and sharpen clinical problem-solving skills. By utilizing the resource in class, students are prepared to use the PDA application to obtain relevant information during patient encounters and multidisciplinary rounds during experiential rotations and in professional practice.

In order to familiarize students with a personal digital assistant (PDA) application that is available to support infectious diseases clinical decision-making, third-year doctor of pharmacy students enrolled in an *Infectious Diseases Pharmacotherapy* course in 2007 were provided with a PDA application installer CD of the *Sanford Guide to Antimicrobial Therapy 2006* for use on their Dell Axim X30 PDAs (provided by Virginia Commonwealth University School of Pharmacy). To ensure familiarity with the resource, an in-class demonstration session was held. Limitations of the resource were emphasized including that generating antimicrobial regimens is not "cookbook medicine" and that often there is not just one antibiotic option; that the *Sanford Guide* is not all encompassing; and that students will need to access primary literature and fully referenced guidelines at times, as well as local antimicrobial susceptibility data.

In the first half of the course, didactic lectures were given on antibiotics and clinical microbiology. To ensure that students learned the fundamentals of infectious diseases pharmacotherapy, a direct recall multiple-choice examination was given. The students were administered a second examination in which the majority of the questions were based on the students' ability to effectively use the *Sanford Guide* to ensure that they became adept at using the software.

Students were then given infectious diseases cases generated from real-life patient scenarios. Students reviewed relevant background reading material before class and quizzes were administered via the Web-based Blackboard system. During class, students used their PDAs as a tool in generating appropriate antimicobial regimens, including modifications for renal impairment. Students worked in small groups as they worked through a case, allowing them to discuss different approaches in choosing antimicrobial regimens and monitoring parameters. For example, students were given a case involving a patient with infectious endocarditis who had Gram-positive cocci obtained from blood cultures. Students answered questions such as: (1) what empiric antibiotic regimen would you select for the patient and how would you monitor and dose the regimen? (2) how would change your empiric regimen after final culture and susceptibilities return? (3) is rifampin indicated?

The utility of the PDA application was assessed by students using a questionnaire with Likert-scale responses. The survey response rate was 98% (61/62). The majority of students perceived the use of the *Sanford Guide* as a positive learning experience. Ninety percent of students agreed that information on antimicrobials was easy to retrieve with the PDA application, while a slightly lower percent (86%) agreed that information on infectious diseases was easy to retrieve. The majority (92%) agreed that a case-based approach to learning infectious diseases pharmacotherapy enhanced learning and 85% agreed that it prepared them for professional practice. The question with the highest agreement (95%) was the one inquiring whether being tested on utilizing the PDA was helpful in becoming familiar with the resource. Others have emphasized the importance of user training for the implementation and adoption of technology, such as PDAs, into the curriculum.[3] Education on the use of the tool and subsequent testing on the proficiency ensures understanding of the tool's capability and an ability of the user to obtain information in a quick and adept manner.

Amy Pakyz, PharmD, MS
School of Pharmacy
Virginia Commonwealth University

References

1. Bobb A, Gleason K, Husch M, Feinglass J, Yarnold PR, Noskin GA. The epidemiology of prescribing errors: the potential impact of computerized prescriber order entry. *Arch Intern Med.* 2004;164:785-92.

2. Sellman JS, Decarolis D, Schullo-Feulner A, Nelson DB, Filice GA. Information resources used in antimicrobial prescribing. *J Am Med Inform Assoc.* 2004;11:281-4.

3. DeHart RM, Mont-Tutor MR, Worthington MA, Price SO, Sowell JG. Schoolwide implementation of personal digital assistants (PDAs): a first-year report. *Am J Pharm Educ.* 2004;68:Article 98.