INSTRUCTIONAL DESIGN AND ASSESSMENT

An Elective Course in Adult Acute Care Medicine Using a Hybrid Delivery System

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Objective. To develop and assess the effectiveness of an elective course modeled after activities students encounter on internal medicine advanced pharmacy practice experiences (APPEs).

Design. This hybrid elective course used a Web-based course management system linking pre-class lectures and assignments, classroom discussions, and projects to promote active student learning.

Assessment. Assessment of student performance was based on assignments, quizzes, and participation in classroom discussions. Students were surveyed to ascertain their opinion of the elective.

Conclusion. This elective in adult acute care medicine increased student exposure to inpatient settings and provided students additional opportunities to communicate effectively, evaluate medical literature, and think critically.

Keywords: elective, acute care medicine, hybrid delivery system, advanced pharmacy practice experience

INTRODUCTION

The acute patient care setting is complex and provides many opportunities for pharmacists to expand their practice, provide patient education, and educate future health care professionals. The impact of the pharmacist on inpatient care is well documented.[1] The Institute of Medicine (IOM) encourages pharmacist participation in the team approach to patient care.[2] Implementation of basic pharmacy clinical services for all inpatients, such as obtaining medication histories, drug protocol management, and participation in medical rounds by 2020 would require nearly 15,000 additional full-time clinical pharmacists.[3] Pharmacists in the acute care setting can expand their activities beyond basic dispensing services, but to do so requires a number of important characteristics: the pharmacist must accept and understand the need for the services, have the desire to implement new programs, and have clinical practice experience at multiple levels.[4]

Providing patient care in the acute care setting requires understanding of the level of acuity and an ap-

preciation of the workings of this environment. A lack of exposure to this setting throughout the pharmacy curriculum may lead to fear of or intimidation by the unknown and may cause the students to shy away from choosing "acute care" APPEs (advanced pharmacy practice experiences). In most colleges and schools of pharmacy, the time allotted to the required pharmacotherapy courses may not permit inclusion of specialty practice specifics or detailed evaluation of evidenced-based medicine as a guide to pharmacotherapy management for diseases seen in the acute care setting. Therefore, specialty topics, where students can develop a curiosity, comfort level, and willingness to practice in the acute care setting, are often relegated to elective status. Such is the case with acute care medicine at Nova Southeastern University College of Pharmacy (NSUCOP), a private institution offering a 4-year first-professional doctor of pharmacy (PharmD) degree to students completing the curriculum at 4 synchronized campuses (2 in Fort Lauderdale, 1 in West Palm Beach, and 1 in Ponce, Puerto Rico).

An adult acute care elective course was developed to expand pharmacy students' knowledge on topics and skills that may not be addressed in depth during the required pharmacotherapy courses at NSUCOP. This elective course provided advanced learning opportunities for students specifically interested in acute and emergency

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medicine. The faculty members involved in the creation of the course maintain internal medicine and specialty practices at 3 large hospitals in a metropolitan area and have full-time faculty appointments with NSUCOP. The primary goal of the course was to expose students to the medical management of the adult acute-care patient during their last year of classroom courses in a PharmD curriculum. Additional goals included to prepare students for their acute care APPEs by expanding their understanding of acute care topics and the role of evidence-based practice, and provide an opportunity for them to improve their written and oral communication skills. The creation and implementation of this 2-credit course complemented the pharmacotherapy courses.

DESIGN

The adult acute care medicine elective was designed to allow pharmacy students to explore their interest in acute and emergency practice while participating in an active-learning delivery system. The course developers offered the elective in the fall semester of the third year. Prerequisites for the course consisted of successful completion of *Therapeutics and Pathophysiology I* and concurrent enrollment in *Therapeutics and Pathophysiology II*. The faculty felt that the design of the course required a more intimate class setting; therefore, the class size was limited to 36 students and offered only at the main campus in Fort Lauderdale. The primary goal of this course was to expose students to acute and emergency medicine therapies and procedures, to prepare them for their acute care APPEs, as well as improve their written and oral communication skills. Objectives for the students as defined in the syllabus are listed in Table 1.

As students learn in a variety of ways, this course made use of multiple types of instruction in an attempt to provide each student with an optimal learning experience (Figure 1).[5-8] In addition, the course accommodated student expectations of technology by incorporating Web-based course management tools and encouraged development of communication skills by participating in small group activities. There were pre-class assignments and in-class assessments, nontraditional instruction by guest specialty experts, and group projects that required critical thinking, analysis, and oral presentation by the students. The integration of cases into this course was important to the developers because past students completing APPEs had expressed an inability to incorporate lecture material presented in class into active patient care plans. Limiting the number of students in the course also allowed for adequate demonstrations of common invasive procedures and devices utilized in the acute care setting.

Table 1. Learning Objectives for the Adult Acute Care Elective Course

Upon completing all assignments, reviewing pre-class clinical pearl sessions, and attending all class discussions, the student will be able to:

1. Describe the pathophysiology of selected disease states and explain the rationale for corresponding drug therapy.
2. Describe pharmacodynamic and pharmacokinetic properties of medications prescribed for various disease states.
3. Determine appropriate initial and maintenance drug regimens.
4. Understand and interpret relevant diagnostic tests and laboratory values associated with applicable disease states & medications.
5. Analyze patient specific pharmacotherapy cases utilizing a Subjective/Objective/Assessment/Plan (SOAP) format that includes:
   a. Identifying and assessing the patient's medical problem(s).
   b. Identifying abnormal physical findings and laboratory values.
   c. Describing potential adverse effects of medications and discuss strategies to prevent and/or manage the occurrence of such effects.
   d. Identifying drug/drug, drug/laboratory, and drug/food interactions and provide appropriate strategies for the prevention or management of such interactions.
   e. Developing the most appropriate therapeutic plan including specific monitoring parameters and therapeutic goals for the patient.
   f. Developing appropriate counseling strategies to promote optimal patient outcomes.
6. Understand the role of a pharmacist as a member of the health care team.

The course was designed as a hybrid course, combining distance-learning technologies (in this case via Web-based coursework) with some face-to-face contact with a professor.[9] The elective included pre-class Web-based sessions and assignments that provided the foundation for the corresponding class discussion and promoted active self-learning. Specialty practitioners recorded the 10-15 minute session focusing on clinical "pearls" and controversies related to the topics scheduled for discussion (Table 2). During this session, the faculty specialists also offered guidance to the students on where to focus their learning efforts in preparation for class. This additional guidance was provided in response to anecdotal feedback from previous therapeutics and pathophysiology students who indicated that they did not know how to prepare for class or what to focus on within the pre-class readings.
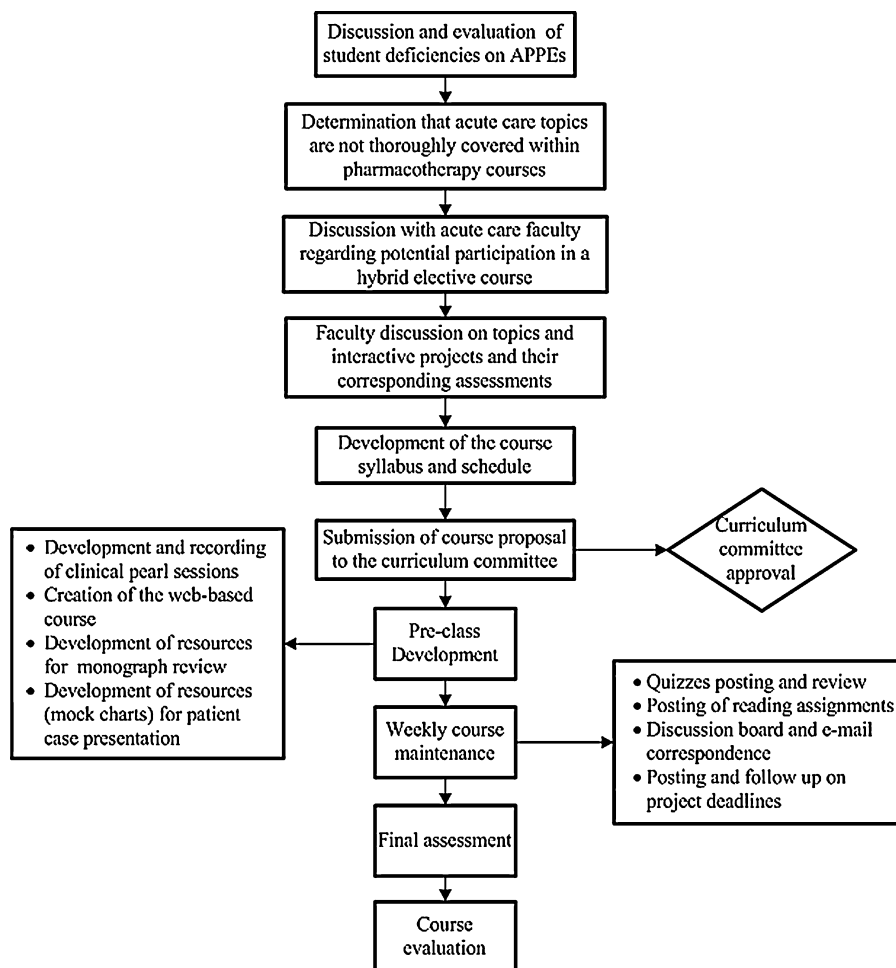
Figure 1. Flow-Chart Describing Course Design

The University's Office of Information Technologies Department (OIT), which provided support for online teaching tools, facilitated the recording sessions at the University's recording studio 2 months prior to the first day of class. After editing by OIT, the recording was incorporated into corresponding PowerPoint slides and saved as an Impatica file.[10] The pearl sessions were then posted on the Web-based course management system (WebCT) a week prior to class to allow students time to review the material.

To enhance the students' understanding of evidence-based practice, students were required to prepare for class by completing primary and tertiary literature reading assignments. There were 11 topics covered in a 9-week period. Eight primary and 4 tertiary literature articles were assigned throughout the course, as well as, 7 book chapters. The level of reading assignments (ie, primary vs. tertiary literature) depended on students' previous exposure to the selected topics in their pharmacotherapy course. An example of a reading assignment may be found in Table 3. Knowledge gained from the completion of pre-class

assignments and readings were assessed by online quizzes consisting of 5-10 questions. Quizzes were made available 48 hours prior to the class date and students were allotted 20 minutes to complete the questions. The outcomes of the quizzes were assessed and used to facilitate class discussion. Ten quizzes were administered throughout the semester and accounted for 30% of the students' final grade. There were no written examinations used to evaluate student knowledge or skills gained during this course.

Classroom activities included class discussion, medical supply demonstrations, case presentations, and video presentations of procedures correlating with topics, when applicable. Pre-class preparation was essential for successful completion of the course because of the depth of the class discussions. Ten percent of the final grade was based on class participation. Level of contribution during case discussions and the general topic discussions was used to assess participation. The 2 course coordinators were responsible for the assessment of student participation.

Class activities were designed to simulate activities the students would experience during their acute care

Table 2. Class Topics Covered in the Adult Acute Care Elective Course

Pharmacy and Therapeutics Committee Overview
Role of medications during percutaneous coronary interventions
Neurologic emergencies
Fluid and medication management for shock
Role of medications after coronary artery bypass grafts
Dialysis
Anticoagulation in special populations
Pulmonary management
Trauma
Advanced cardiac life support (ACLS)
Considerations in anti-infective therapies

APPEs. The course developers felt it was important for students to participate in active discussions, including question-and-answer sessions resembling patient care rounds in an acute care setting; therefore, specialty practitioners were encouraged not to provide a formal lecture. For example, during the class on the role of medications utilized after coronary artery bypass graft (CABG) surgery, a video presentation of the CABG procedure was shown followed by an evaluation of 2 clinical trials that analyzed the management of the most common postoperative complications. Additionally, students were expected to analyze and present several patient cases with peri-operative complications. The cases discussed in class were available either prior to class on WebCT or during class.

In order to provide a unique learning opportunity, a field trip was incorporated into the elective the second year it was offered. During the acute respiratory disorders topic, the class was divided into 2 groups. Each group visited an area hospital on their scheduled date for a demonstration on ventilator management by a respiratory therapist who works with the critical care specialist leading the discussion.

There were 2 required projects. The class was divided into groups of 2 to 3 students. All group members were required to work together on both the mock Pharmacy and Therapeutics (P&T) Committee drug formulary review and patient case presentations at a designated time during the semester. Students were evaluated on the written and oral presentation components of these projects. Skills assessed included communication, critical thinking, and problem solving.

The P&T Committee drug formulary review was due at the semester midpoint. A "P&T Committee" was developed in order to stimulate a "real-world" scenario for presentations. The committee was composed of 12 faculty members from the NSUCOP who represented the members of a typical P&T committee meeting. These included several medical specialties, nursing and pharmacy representatives, and institution administrators. The course coordinators acted as the Committee chair and secretary

Table 3. Sample Reading Assignment Instructions for Trauma Topic

Reading	Instructions Given to Students During Web-based Pre-class Pearl Session
Web site of the Eastern Association for the Surgery of Trauma (www.east.org/tpg.html)	● Skim through the trauma practice guidelines published on this web site ● Make a list of complications that may be encountered by a patient experiencing major trauma (eg, motor vehicle accident)
Vracken MB. Administration of methylprednisolone for 24 to 48 hours or tirilazad mesylate for 48 hours in the treatment of acute spinal cord injury: results of the third national spinal cord injury randomization controlled trial. *JAMA*. 1997;277:1597-1604.	● As you read the article answer these questions: ○ Was the study well designed? ○ Prospective, randomized, placebo-controlled trial? ○ What were the interventions studied? ○ What were the primary outcome measures? Secondary outcome measures? ○ Was the study well executed? ○ How many patients were enrolled? ○ How many patients dropped out of the study at six weeks, six months, and one year? ○ Did the results reach statistical significance with appropriate tests? ○ What is an intent-to-treat analysis? ○ Why did the investigators exclude the "noncompliers"? ○ What are some flaws with sub-group analyses?

and did not have voting privileges, resembling the set up of a real P&T Committee.

Each group was assigned a medication from a predetermined list of formulary addition requests. The P&T Committee evaluated 2 medications from the same class for addition to the formulary, where 2 different groups presented the 2 opposing medications. Ten medications were evaluated and presented during 2 class sessions. The medications selected were based on formulary issues occurring locally, and included HMG-CoA reductase inhibitors, proton pump inhibitors, glycoprotein IIb/IIIa inhibitors, low molecular weight heparins, and inhaled beta agonists. Each group received a mock formulary request from a physician that included the following information: the type of hospital from which the request came, previous year's hospital nonformulary usage, and the medication's intended use. Every effort was made to select medications that were relatively equivalent with regards to safety and efficacy.

Students were directed to view a clinical pearl session describing the functions and purpose of a P&T Committee, as well as review the sample monograph posted on WebCT prior to beginning their assignment (Table 1). Each group was responsible for the written and oral presentation of the selected medication at the scheduled mock P&T Committee meeting (similar to a pharmacy representative would at a hospital's P&T Committee).

The written component of the presentation consisted of a complete drug monograph, including pharmacology, pharmacokinetics, contraindications, warnings, adverse reactions, drug interactions, clinical efficacy (minimum of 2 clinical trials), indications, dosing, and cost comparisons, as well as any other pertinent information. Students were given 4 weeks to evaluate their medication and develop its corresponding monograph. This component was evaluated using a predeveloped evaluation form and accounted for 50% of the drug formulary monograph presentation grade.

During the oral presentation, each group had to present a brief overview of the monograph and their arguments for why their medication should have been approved by the P&T Committee. Once the first group presented their medication, the opposing group was given the opportunity to present the merits of their medication. Immediately following the presentations, the Committee members were given the opportunity to ask each group questions and subsequently vote on which medicine to add to the formulary. The faculty vote was based on the group's oral arguments for formulary status. The group presenting the medication that was selected for addition to the formulary—or in some cases, to remain on the formulary—was awarded 5 bonus points.

Students received an individual grade for the oral presentation component, which accounted for the remaining 50% of the drug formulary monograph presentation grade. The mock P&T presentation accounted for 30% of the final grade for the course. Following the mock P&T meeting, there was a wrap-up session with the course coordinators, which included a discussion regarding what the students learned, what they might have done differently, and why, from a hospital pharmacy administration perspective, the topics were selected.

The second project the students were required to complete was a formal patient case presentation mimicking a case presentation that a student would complete as a requirement of an APPE. Case presentations focused on material covered in this elective and in previous pharmacotherapy courses, including acute coronary syndrome, stroke, liver disease, chronic obstructive pulmonary disease, and renal failure. The course developers created 10 different mock patient charts that each simulated a hospital chart and included admission data, history and physical, consultations, physician orders, progress notes, vitals graphic section, radiology, medication administration records, nursing notes, laboratory data, and other pertinent sections depending on the patient's specific circumstance.

Each group was assigned a mock patient chart. Minimum requirements for successful completion of the case presentation included a written and oral presentation of the patient's complete hospital course evaluation and a review of pertinent primary literature evaluating the appropriateness of the patient's therapy, including a minimum of 2 clinical trials. Since this was the students' first attempt to follow a patient's hospital course, they were directed to review the sample patient case posted on WebCT and advised to utilize the patient monitoring form provided. Additionally, in an effort to guide students through the assignment, deadlines were established for the identification and prioritization of all patient problems, selection of the primary literature articles related to the patient case, and submission of the written case presentation.

Groups were given 4 weeks to review, evaluate, and critique the appropriateness of the patient's therapy. Groups had 20 minutes to present the patients' hospital course and the primary literature review, followed by 10 minutes where the class and coordinators were given the opportunity to ask questions regarding the patient's therapy. Towards the end of the class time, all students were given a brief 3 question quiz reviewing concepts discussed during the case presentations that day, which was incorporated into their total quiz grade.

Students were evaluated using an evaluation form similar to that utilized by the NSUCOP APPE preceptors.

The group received a group grade for the written presentation (80% of the final case grade) and students received an individual grade on the case for oral presentation style (20% of final case grade). The patient case presentation accounted for 30% of the final grade for the course.

Various methods for evaluating the value of this course were used, including tracking students' involvement using the electronic course management system, 2 questionnaires administered at different times, and course evaluations. The course management system utilized for this elective facilitated tracking of student participation in the Web-based component of the course. Forty-six active Web pages, including 12 clinical pearls sessions, were assessed.

As a quality assessment measure, an anonymous questionnaire was developed and distributed to assess the students' perception of the value of the course. The questionnaire was approved by the University's Institutional Review Board and consisted of 17 items, including several requiring ranking on a 5-point Likert scale (5=strongly agree to 1=strongly disagree) and open- and close-ended questions. The initial questionnaire was distributed on the last day of class. An abbreviated follow-up questionnaire was distributed following completion of APPEs, just prior to graduation. Both questionnaires were distributed by a pharmacy resident not involved in either the survey or course evaluation. In addition, upon completion of the course, students were required to complete faculty and course coordinator evaluations.

ASSESSMENT

Originally, 36 students registered for the course; however, following the first day's course overview, 9 students withdrew. Evaluation of the course management system revealed students accessed the WebCT pages 1,823 times, translating to an average of 68 hits per student throughout the semester. Students visited the clinical pearl session pages an average of 20 times (range 16 – 147 times) each. The clinical pearl sessions ranged from 1 to 11 minutes in length; however, the average time spent per clinical pearl session page was 7 minutes, 47 seconds.

The initial quality assessment questionnaire administered yielded a 100% response (n=27). The majority of respondents strongly agreed or agreed that the course assignments were beneficial (Table 4). Seventy-eight percent of students indicated that they would prefer teaching methods that included a traditional lecture component. Forty-two percent (11/26) of the students felt that the coordinators' expectations were fair and 44% (12/27) indicated they would recommend this course to other students. The most frequently stated concern was the volume of reading assignments required for successful completion of this course.

In comparison, there was a 74% response rate (n=20) to the follow-up questionnaire administered following completion of their APPEs. The findings were similar with regards to the perceived value of the course and the 2 major projects (Table 4). However, there was a significant increase in the percent of respondents who would recommend the elective course and in the students' perception of faculty expectations. Ninety-five percent of the respondents indicated they would recommend the elective course to other students and 80% felt that the coordinators' expectations were fair. Additional results are reported in Table 5. Of note, information gathered independently by the Office of Student Affairs demonstrated that 44% of the students registered for the inaugural elective class ultimately chose careers in health-systems pharmacy. Forty-one percent (11/27) pursued postgraduate training and 26% (7/27) were successful in securing a postgraduate training position.

Many of the issues covered on the standard course evaluation completed by the students at the end of each semester were not applicable to this course since it was designed as a discussion-based, hybrid course without written examinations. However, where applicable, the instructor and course evaluations were consistent with survey results, with many students expressing concerns over the volume of reading assignments required for this course. Students indicated that the workload was not appropriate for a 2-credit course and that more traditional lectures would have been helpful.

DISCUSSION

Faculty members recognize that comfort comes not only from exposure to topics but from knowledge and

Table 4. Percent of Pharmacy Students Who Agreed or Strongly Agreed With Questionnaire Items Regarding an Elective Course in Adult Acute Care Medicine

	Initial Questionnaire (n=27)	Follow-Up Questionnaire (n=20)
The experience and knowledge gained from this elective will help me succeed in my Advanced Practice Experiences.	89	90
The P & T presentation was helpful in preparing me for my Advanced Practice Experiences.	78	85
The final patient case presentation was helpful in preparing me for my Advanced Practice Experiences.	96	100

Table 5. Pharmacy Students' Evaluation of the Adult Acute Care Medicine Elective[a]

Questionnaire Items	Mean (SD)[b]		P[c]
	Post-Course Questionnaire (n=27)	Post-APPE Questionnaire (n=20)	
This class was exactly what I expected	3.0 (1.2)	NA	
I enjoyed the structure and teaching style of this course	3.0 (1.1)	NA	
The structure and teaching style of this course enhanced my learning experience	3.6 (1.2)	NA	
I would recommend this elective to other pharmacy students	3.3 (1.0)	4.5 (0.6)	<0.05
The experience and knowledge gained from this elective will help me succeed in my APPE	4.4 (0.7)	4.3 (0.8)	0.58
The P&T presentation was helpful in preparing me for my APPE	4.0 (1.0)	4.2 (1.1)	0.71
The final patient case presentation was helpful in preparing for my APPE	4.4 (0.8)	4.8 (0.4)	0.06
The instructors' expectations for this course were fair	3.2 (1.1)	4.0 (0.8)	<0.05

Abbreviations: APPE = Advanced Pharmacy Practice Experience, NA = not applicable (not reassessed post-APPE); P&T = Pharmacy and Therapeutics Committee
[a]Course assessed using survey tool approved by the University's IRB
[b]Based on a 5-point Likert scale on which 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree
[c]Significance defined at $P <0.05$ using Student's t test

skills gained through practicing patient assessment and participation in other aspects of disease and medication management. Students were expected to achieve these objectives through active involvement in this hybrid course. It is important that when a faculty member creates a course, he/she includes primary goals with multiple specific objectives and these should be clear to the students.[11] It is also important that attainment of the objectives is measurable in order to provide feedback to the students and assess whether the objectives were reached. Current practices in education encourage mapping these same course goals to specified curricular outcomes in order to assess efficacy.[12] Many accreditation bodies are now requiring mapping of courses to the curricular outcomes.[13-14] In keeping with the philosophy of needing to map outcomes, the NSU curriculum committee suggests that even electives are mapped to the College educational outcomes. The NSU educational outcomes are adopted from the American Association of Colleges of Pharmacy Center for the Advancement of Pharmaceutical Education (CAPE) Advisory Panel.[15] Faculty members expect that this course contributes in part to students' final achievement of 2 main outcomes: providing patient-centered and population-based care by using a team-based approach.

Students achieve these outcomes through participating in active-learning strategies.

This self-directed hybrid course served as a forum for students who expressed an interest in acute care pharmacy practice, utilizing a multimedia teaching strategy. The primary goal of the course was to prepare students for their acute care APPEs and in their future endeavors by expanding the students' understanding of acute care topics and the role of evidence-based practice. Additionally, the elective offered students the opportunity to develop their written and oral communication skills. The course developers believed the best opportunity for students to grasp these concepts was while immersed in an acute care setting. Therefore, much effort was placed on mimicking real-life situations, such as patient care rounds, acute care APPEs, and P&T Committee meetings. According to student surveys, these goals were attained. The competitive group presentations, intimate classroom discussions, and projects provided students with opportunities to express their opinions, learn from one another, learn to communicate professionally, evaluate medical literature, improve problem-solving skills, and think critically. To our knowledge, this is the first report of such course development.

The course developers maintained clinical practices in the inpatient setting and served as mentors to fourth-year pharmacy students during their APPEs. Throughout their experience, they noted several weaknesses in the students' performance in acute care practice. Because learning during APPEs is much more self-directed, the developers emphasized the need for students to be held accountable for their pre-class preparation. Students in this course did not have any experience with a self-directed hybrid course such as this one; therefore, their apprehension to the teaching style was not surprising. The interactive format and intimate class size required student participation in all discussions and presentations. Students commented that they felt uncomfortable when they were put on the spot during class. The authors believe that the lack of interactive, discussion-based courses in traditional PharmD curriculum led to the perception that the expectations for this course were unfair.

Additionally, little emphasis is placed on student oral presentations in the current PharmD curriculum; therefore, students expressed anxiety regarding the informal and formal presentations required in this course. Specifically, students conveyed that they felt unprepared to present their drug monograph at the mock P&T Committee meetings since they did not understand the workings of such a committee. When asked during the wrap-up session, most students indicated that they had not viewed the WebCT pearls session describing the P&T Committee, which had been posted during the first week of class.

Because the course was offered in the third year of the curriculum; students did not understand APPE preceptor expectations and therefore could not fully appreciate the intensity and value of the course. This was validated on the follow-up questionnaire administered after the students had completed their APPEs, with a significant increase in the number of students that would recommend this course and that indicated the course coordinators' expectations were fair.

Student comments gathered through the initial questionnaire and course evaluations, as well as lessons learned from issues that arose during the semester, were reviewed and the insights revealed were used to improve the elective the following year. As previously mentioned, the most frequently stated student concern was the volume of reading material required for this 2-credit course was excessive. Initially, reading assignments were left up to the discretion of each instructor and were unlimited. Upon review, the second time the course was offered, reading assignments were limited to 1 to 2 per class. This meant that for class periods in which 2 topics were covered, there could only be 1 reading assignment per topic. In addition

to the number of reading assignments, the number of topics covered during the semester was also limited.

It was always the intention to include more field trips to area hospitals for demonstrations, but an unanticipated school closure precluded the field trip for the ventilator management demonstration during coverage of the acute respiratory disorders topic; however, this was successfully incorporated during the second year. Another intention that did not come to fruition due to the difficulty in coordination was to include community interprofessional practitioners in the mock P&T Committee session. This would have given students the opportunity to discuss current formulary issues occurring in their community. Fortunately, most of the faculty members who participated provided similar insight since most of them were members of the P&T Committee at their institutions.

Initial development of this course required intensive coordination due to the electronic component, coordination of schedules and field trips, creation of the medical charts, organization of the mock P&T Committee meetings, and development of the evaluation forms. Arguably the most valuable improvement would be to constantly reinforce the importance of the tools available to facilitate success in this course, such as the clinical pearl sessions, reading assignments, and participation in both formal and informal discussions. Furthermore, although difficult to coordinate for reasons previously addressed, students at all NSUCOP sites should have the opportunity to participate in this elective.

Historically, over 60% of NSUCOP graduates practice in the community setting, and 27% in health-system pharmacy. In contrast, 48% of students in the elective class pursued health-system pharmacy opportunities following graduation. In addition, 41% of the elective class applied for postgraduate training positions, and 26% ultimately secured a postgraduate training position upon graduation. Apparently, the *Adult Acute Care Medicine* elective attracted mostly students who were interested in health-systems pharmacy practice and those considering postgraduate training. The authors were surprised to find that only 22% of students had prior hospital technician experience.

A few students seeking "easy" elective courses also registered for this course, probably because it was "discussion" based and there were no written examinations. At the time offered, this elective was the only one in the College that had no written examinations. Additionally, at the time of registration, the course description was not available in the student handbook, which may have contributed to the 25% withdrawal rate from this course. If the description had been available, these students may not have registered in the first place. In general, this course

seemed to attract student leaders, including the class president, student government officers, and student organization officers. The authors believe courses such as this one will inspire a greater number of students to explore career opportunities in health-systems pharmacy practice.

CONCLUSION

The acute care medicine elective met the goals of the course developers, including increasing student exposure to acute care medication management and, in the opinion of the students, enhancing their performance during acute care APPEs. Electives are an excellent way to increase students' exposure to specialty practice areas and the conditions managed in such areas. Integrating elective courses such as this one into the pharmacy school curricula enables students to develop their self-directed learning skills.

ACKNOWLEDGMENTS

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