INSTRUCTIONAL DESIGN AND ASSESSMENT

Impact of an Elective Course in Community and Ambulatory Care Pharmacy Practices on Student Perception of Patient Care

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Objective. To determine the impact of an elective course on students' perception of opportunities and of their preparedness for patient care in community and ambulatory pharmacy settings.

Design. Each course meeting included a lecture and discussion to introduce concepts and active-learning activities to apply concepts to patient care or practice development in a community or ambulatory pharmacy setting.

Assessment. A survey was administered to students before and after the course. Descriptive statistics were used to assess student responses to survey questions, and Wilcoxon signed rank tests were used to analyze the improvement in student responses with an alpha level set at 0.05. Students felt more prepared to provide patient care, develop or improve a clinical service, and effectively communicate recommendations to other health care providers after course completion.

Conclusion. This elective course equipped students with the skills necessary to increase their confidence in providing patient care services in community and ambulatory settings.

Keywords: ambulatory care pharmacy, community pharmacy, elective, active learning

INTRODUCTION

Evolving models of health care, such as the patient-centered medical home (PCMH) and accountable care organizations (ACO) are shifting the focus of health care from acute, episodic care to chronic disease state management and preventive health. Medications are fundamental to managing chronic disease states and helping patients achieve better health outcomes. With this shift in health care practice and focus on optimal medication use, pharmacists are uniquely positioned to provide medication and disease state management in community and ambulatory settings.[1,2]

The *2011 Report to the US Surgeon General* highlighted that pharmacists already are integrated into primary care as health care providers. Further, this report urged health care leadership and policymakers to implement and support pharmacist-delivered patient care.[3] In addition to ambulatory pharmacists providing medication and disease state management, PCMHs and ACOs also are partnering with community pharmacies to provide care in patient neighborhoods.[4]

The *Pharmacy Forecast 2014-2018*, a trend report published by the American Society of Health-System Pharmacists (ASHP) Foundation, predicts that pharmacists will have extraordinary opportunities for expansion of pharmacy practice in community and ambulatory settings.[5] Specifically, 87% of surveyed pharmacists report that they believe medication therapy management services will be provided for ambulatory patients in 25% of health systems by 2018.[5] Additionally, 46% of pharmacists surveyed believe such health systems will recover all costs associated with these services through third-party billing.[5] A report issued by Avalere Health LLC also stated that the accessibility of pharmacists should be leveraged to improve preventive care services, disease state screening, patient education, health coaching, and medication management.[6]

Patient care in community pharmacy settings improved patient outcomes in more than 300 studies.[7] Specifically, when patients received care from community pharmacists, hemoglobin A1c levels improved by up to 1%, 63% of patients met their lipid goals, 68% of patients had improved depression symptoms, more patients received osteoporosis screening, and total health expenditures decreased.[8-14] These studies included various interventions, including employer-sponsored treatment programs, patient self-referral or physician referral to pharmacy intervention, and screening efforts resulting in referral to a physician. All studies led to an improvement in patient outcomes as

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a result of care provided in a community pharmacy. As a result, patient care in community and ambulatory settings is increasing.

Student and trainee interest in patient care provided in these settings also is increasing, leading to more postgraduate training in community and ambulatory settings. In 2010, 82 (10%) of the postgraduate year 1 residency programs available were in a community setting. This increased to 160 (14%) programs in 2014. These programs offered training sites for 93 and 193 residents, respectively.[15] Additionally, from 1998 to 2014, postgraduate year 2 residency (PGY2) programs tripled, increasing from 199 programs to 617 programs. In 2014, there were 116 positions available in ambulatory care, making ambulatory care residencies the third most common PGY2 specialty.[15] In addition to postgraduate training, the 2011 Accreditation Council for Pharmacy Education (ACPE) Standards required all doctor of pharmacy (PharmD) students to complete advanced pharmacy practice experiences in both the community and ambulatory pharmacy settings.[16]

Based on the expanding opportunities for patient care, the increased interest in postgraduate training, and the student pharmacist demand for exposure to patient care in community and ambulatory settings, an elective course was developed called "Patient Care Services in Community and Ambulatory Pharmacy Practice." The course was offered to second-year and third-year PharmD students at the Ohio State University College of Pharmacy. The course was designed not only to fulfill student interest and elective credit, but also to incorporate the 2011 ACPE standards and the 2013 Center for the Advancement of Pharmacy Education (CAPE) Educational Outcomes.[16,17]

Standards 10 and 11 state students should develop critical-thinking and problem-solving skills through active-learning strategies and activities, including interacting with actual or simulated patients, pharmacists, and other health care providers. Similarly, ACPE Standard 12 calls for the exploration of pharmacists providing patient care as part of an interprofessional health care team.[16] The CAPE Outcomes also address the importance of ensuring PharmD students understand the approach to patient care and practice including problem solving, patient advocacy, interprofessional collaboration, and communication. All of these principles were incorporated into the didactic and active-learning sessions of the patient care elective course.[17]

No previous studies have been completed to assess the impact of a new elective course on student pharmacist perception of the opportunities and of their preparedness for patient care in community and ambulatory pharmacy settings. The objectives of this study were to compare student pharmacist perception of the opportunities for patient care in community and ambulatory pharmacy settings, and of their level of preparedness for components of patient care in community and ambulatory pharmacy settings before and after implementation and completion of the elective course. A third objective of the study was to evaluate course activities to determine their impact on student perception of understanding and preparedness for patient care in community and ambulatory settings and perceived level of each activities' benefit.

DESIGN

The Patient Care Services in Community and Ambulatory Pharmacy Practice course was a 7-week (2 hours per week), 1-credit hour elective course offered to second-year and third-year PharmD students during spring semester. Twenty-nine students were enrolled in the course, including 8 (28%) second-year students and 21 (72%) third-year students. The course was developed, coordinated, and taught by two PGY2 pharmacy residents and one pharmacy practice faculty member. Second-year and third-year PharmD students were targeted for the elective course as it was designed to foster an environment for the application of pharmacy practice principles and project management skills gained from required introductory coursework to community and ambulatory pharmacy practice. It focused on exploring past, present, and future opportunities and barriers to providing patient care in community and ambulatory pharmacy settings, building and maintaining collaborative relationships with other health care providers and stakeholders, and continuous practice improvement.

The approach to the course development was unique. Course instructors met with a focus group of 13 third-year and fourth-year PharmD students to assess current knowledge regarding patient care in the community and ambulatory pharmacy settings and to garner student reaction to the preliminary course syllabus developed by instructors. A second focus group with 5 clinical faculty members was held to elicit feedback on incorporating this elective course into the curriculum at The Ohio State University College of Pharmacy and to obtain faculty reaction to the preliminary syllabus. The questions listed in Table 1 were used to stimulate student and faculty response during the focus groups. Information from the focus groups was valuable and extensive.

Overall, students concluded they understood the concept of medication therapy management (MTM), but that they had little confidence or familiarity with initiating or sustaining a pharmacy service in a community or ambulatory setting, with building relationships with other health

Table 1. Questions on Design of the Elective Course for Student and Faculty Focus Groups

Student Questions	Faculty Questions
Current Thoughts and Knowledge	Elective in Curriculum
1. Tell us what you know about opportunities for pharmacists in health care.	1. What do students need to know for the future in community and ambulatory pharmacy?
2. In your mind, what do pharmacists do in a patient-centered medical home? What about patient care in a community pharmacy?	2. What do you do in your course that involves ambulatory and community pharmacy patient care?
3. What opportunities are there for pharmacists to be reimbursed in community and ambulatory pharmacy settings?	3. Where do you think students learn about business plans, medication therapy management, communication, health care reform?
4. Where in the curriculum do you feel you received this information?	4. Where else in the curriculum do students receive information about community and ambulatory pharmacy practice?
5. What do you feel is well emphasized in the curriculum related to patient care in community and ambulatory pharmacy settings?	5. What do you think is lacking in our curriculum regarding a student's ability to provide direct patient care in an ambulatory or community setting?
6. What else do you feel you need to learn about patient care in these settings?	6. What do you see as this elective course's place in the curriculum in relation to your course and what students are lacking?
7. How confident do you feel you would be able to implement patient care services?	
Reaction to Preliminary Syllabus	Reaction to Preliminary Syllabus
1. What are your first reactions to this course overall?	1. What are your reactions to course activities?
2. What would you expect a student who completes this course to be able to do?	2. What is new/innovative and what duplicates other courses?
3. Which activities do you like?	3. What would you expect a student who completes this course to be able to do?
4. What would be redundant with other courses in the curriculum?	4. What activities do you like?
5. What else would you want to be included in the course?	5. What else would you like to be included?
	6. What are we missing?

care providers, or with utilizing business or reimbursement models. They also reported that they did not understand the future of health care in relation to health care reform and potential future opportunities for pharmacist-provided patient care.

Faculty perspective supported student feedback, specifically that students in general receive little project management experience, do not learn strategies for building interdisciplinary relationships, and have low self-awareness of personal strengths and weaknesses. Students and faculty members requested that active-learning activities or real-life experiences be used to demonstrate these concepts to students, with the expectation that such activities would result in better retention of the knowledge and skills than passive-learning activities.

After completion of the focus groups, course instructors attended the Course Design Institute offered by the University Center for the Advancement of Teaching to design the new elective. Through this institute, the principles of backwards design were used. Backwards design requires the educator to identify long-term desired results

essential for the student to learn.[18] The desired results are then used to plan the course backwards, ensuring those skills are developed. This is done to avoid course activities driven by a textbook, with little thought regarding ultimate student outcomes. Through this process, course goals were generated that were used to construct specific, observable, and measurable learning objectives (Table 2). Once the learning objectives were constructed, active-learning activities and didactic material were developed, directly mapped to, and refined based on specific learning objectives and course goals.

Students were given reading assignments that were anticipated to require approximately one hour per week. Each class session included a combination of lecture and discussion to introduce important concepts and active-learning activities to apply the concepts to patient care or practice development. Active-learning activities were used to increase concept retention, as students and faculty indicated that while many concepts in the elective course had been introduced to student pharmacists previously

Table 2. Elective Course Goals and Objectives Formulated through Backwards Design

Course Goals	Course Objectives
Understand the past, present, and future of pharmacist-provided patient care in community and ambulatory pharmacy settings	Analyze case studies and published literature describing patient care in community and ambulatory pharmacy settings
Appreciate diverse opportunities for patient care in community and ambulatory pharmacy	Connect the history of pharmacy practice to future opportunities in outpatient pharmacy settings
Understand the steps to building and maintaining collaborative relationships	Evaluate potential areas of growth for outpatient pharmacy practice
Encourage self-reflection and articulation of personal strengths and career goals	Explore options for entry-level and advanced pharmacy practice positions
Apply the elements of continuous practice improvement and demonstrating the value of that practice to key stakeholders	Compare and contrast types of postgraduate pharmacy training, advanced certification, and credentialing
	Identify relationship building skills important to establishing collaborative relationships with peers and other health care practitioners
	Apply communication principles to building collaborative relationships with other health care practitioners
	Prepare for interview opportunities through written and verbal articulation of personal strengths and career goals
	Peer review and provide constructive feedback to peers about interview skills
	Create a plan to improve a pharmacy service in an existing community or ambulatory pharmacy setting
	Choose outcomes that demonstrate the quality of a pharmacy service
	Present a proposal to improve an existing pharmacy service to garner buy-in/demonstrate value
	Discuss the importance of leadership and advocacy in the pharmacy profession

through required didactic courses, this information had not been retained because of a lack of application. Course topics and corresponding active-learning activities are listed in Table 3, and specific activities are described below.

Landmark Studies and Reports Activity

The goal of this assignment was to familiarize each student with the landmark studies in community and ambulatory pharmacy practice to connect the history of pharmacy practice to current and future opportunities. Students were contacted via e-mail and a web-based learning management system before the start of the course with this assignment.

They worked in groups of 4 before the first class meeting to review one assigned landmark study or report focusing on ambulatory or community pharmacy practice.[2,3,7,14,19-21] Landmark studies were chosen by the course instructors if the results of the study directly affected the growth of direct patient care in community or ambulatory pharmacy settings.[7,9,14,19]

Groups that reviewed a landmark study were prompted to consider the study objectives, intervention, results, conclusion, and impact on pharmacy practice. Students who reviewed a landmark report were prompted to consider the report's purpose, message, and impact on pharmacy

Table 3. Elective Course Topics and Corresponding Active-Learning Activity

Week	Topic	Activity
1	Historical Perspective on Today: How to apply the past to your future	Landmark Studies and Reports
2	Opportunities for Practice in an Evolving Health Care Environment	Current Practitioner Roundtable
3	Improving Practice and Establishing the Value of Pharmacy Services	Service Poster Project
4	Self-Advocacy: Preparing Yourself for the Future	Articulating Your Strengths
5	Expanding the Profession: Becoming patient care leaders and advocates	Service Poster Project
6	Building Collaborative Relationships	Standardized Colleague
7	Service Improvement Poster Presentations	

practice.[2,3,20] During the first class meeting, students were given a brief orientation. They were then given 15 minutes to discuss their assigned study or report with teammates. After this preparation time, each group gave a 5-minute to 7-minute presentation about the study or report to the rest of the class. These cooperative-learning presentations allowed the students in the course to become familiar with 7 landmark studies and reports. The first course session ended with a discussion detailing the evolution of patient care in community and ambulatory pharmacy settings. Topics included the characteristics of innovative pharmacists who envisioned this type of practice, the creation of these services, and the tracking of patient-care outcomes to establish the value pharmacists provide to patients.

Current Practitioner Roundtable

The goal of this assignment was to allow second-year and third-year PharmD students to explore the array of patient care provided in community and ambulatory pharmacy settings. Innovative pharmacy practitioners who were not faculty members at the college were invited to participate in the roundtable, which took place for approximately one of the two class hours during the second week of the course. Students were prompted to discuss the practitioner's practice setting, daily activities, interaction with other health care providers, opportunities for growth in the future, favorite part of practice, barriers to providing patient care, and funding/reimbursement. Students rotated to a new table every 10-15 minutes, meeting a total of 3 different practitioners. The session ended with a discussion led by the course instructors with students and practitioners focusing on the differences in practitioner roles, tasks, opportunities, barriers, and reimbursement.

Service Project Poster

This activity was designed to allow students to practice project improvement skills, to develop basic project management skills, and to learn how to demonstrate project value in a community or ambulatory setting. Prior to the activity, class time was devoted to a lecture and discussion detailing the basic components of business plans, continuous quality improvement, and pharmacist credentialing. Creation of scientific posters also was reviewed. Third-year PharmD students had completed a management course during the previous semester that covered principles of project management and business plans.

Students were divided into groups of 4, and each group was assigned one service vignette. These service vignettes were written by pharmacists throughout Columbus, Ohio. Each vignette outlined a problem or inefficiency in a real clinic or community pharmacy that interfered with the success of the service described. Students were challenged to take apart the service, identify the root cause of the problem, and develop a plan to implement changes to the service. Groups also were asked to identify outcomes that could be tracked to evaluate the success of the improved service.

Students were given approximately 2 hours of class time to work on the project. Any additional work was completed as a group outside of class. Plans for service improvement, including project overview, service improvement proposal, budget, and timeline for implementation were presented by each group as a scientific poster during the last course meeting of the semester. The area pharmacists providing the service vignettes attended the presentations and gave students feedback about their plans.

Finally, students were required to write a short reflection detailing their expectations during the service improvement process, whether their assumptions were correct, how the project changed their perceptions about patient care in a community or ambulatory pharmacy setting, and how this experience could affect their ability to provide patient care as a pharmacist in the future.

Preparing for Your Future Activity

This activity began with a post-it brainstorm in which students were divided into groups of 4 and were asked to generate as many ideas as possible for the following questions: (1) What do you need to know to decide if residency is right for you? (2) If you were going on a pharmacy residency interview, what questions would you want answered? (3) What can you do now and over the next 3-5 years to get the type of career you want? (4) What activities are considered networking? (5) What are ways to maximize classroom or experiential educational opportunities? (6) Think of a person who is a leader. What qualities make him or her an exceptional leader? (7) What professional behaviors are essential for success? and (8) How can you find a mentor?

Once brainstorming was complete, a class discussion was held to review the ideas and how they related to each student's future. The course concluded with students practicing their marketing skills by responding to the following scenarios: (1) "You are at an interview for an ambulatory pharmacy practice setting. You are currently talking with the lead physician at the practice and she asks you what a pharmacist would do in this setting. Please describe what you have to offer to patient care." (2) "You are pitching the service from your service improvement project to a major stakeholder who may refer patients. Explain what your service is, how it improves patient care, and why it is beneficial to the stakeholder's patients." (3) "You are a community pharmacist working in a free clinic with several

physicians, nurses, and students. One of the physicians reports that none of his patients understand their medications, and he commonly does not have enough time to educate them. You see this as an opportunity to offer your MTM services. What do you say to the physician?" Common difficulties and pitfalls were discussed as a class, and strategies for improvement were identified by students and course instructors.

Standardized Colleague Activity

This activity was adapted from previous literature describing an activity where student pharmacists interacted with medical faculty members who served as standardized colleagues.[21] It was designed to help students practice communication and relationship building with other health care providers. In the current course, students were broken into groups of 6. One student from each group was given a standardized colleague scenario that detailed a difficult conversation the student must have with the standardized health care practitioner, which included nurses, physicians, and pharmacists. Students had the opportunity to call a "time out" if they needed help from classmates to get the conversation back on track. Classmates and course instructors observed the interaction and provided feedback to improve communication and relationship-building skills.

Student performance on the previously described activities was assessed using a pass/fail grading scale. Each active-learning activity was assigned a percentage of the course grade. No traditional examinations were given during the course as instructors felt the objectives could be more reasonably assessed using project activities. Activities were assessed using rubrics to ensure consistency. Course attendance and participation accounted for 10% of the overall grade as active participation was essential to student success.

All students enrolled in the course were invited to take an 18-item presurvey that collected demographic information and assessed baseline perception of the opportunities and their preparedness for patient care in community and ambulatory pharmacy settings. Survey questions focused on students' perception of how prepared they were to provide patient care, develop and improve clinical services, and communicate with other health care providers in a community or ambulatory pharmacy setting. Upon course completion, students were invited to take a 29-item postsurvey, which contained the 18 items from the presurvey and an additional 11 items assessing the impact of the course activities on student perception of opportunities and their preparedness for patient care.

Completion of the survey was voluntary and anonymous. However students were asked to input a 6-digit code so precourse and postcourse answers could be matched.

A 5-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree or completely prepared, very prepared, moderately prepared, slightly prepared, not prepared, where appropriate) was used to assess student agreement or disagreement with each statement. The instrument was reviewed by 3 pharmacy faculty members prior to distribution to ensure each item evaluated the perception of skills outlined in the course goals and objectives. The survey was distributed to the 29 students enrolled in the elective course using Qualtrics survey software (Qualtrics, Provo, Utah). Students were sent the link to complete the precourse survey prior to the first course meeting. They were sent the postcourse survey link immediately after the last course in week 7.

Descriptive statistics were used to assess responses on both surveys, and Wilcoxon signed-rank tests were used to analyze the improvement in student responses, with an alpha level set at 0.05. Student responses were analyzed using SAS/STATv9.2 (SAS Institute, Inc., Cary, NC). The study was reviewed by the Ohio State University Institutional Review Board and deemed exempt from full board review.

EVALUATION AND ASSESSMENT

Twenty-six (90%) students completed the precourse survey, and 20 (70%) students completed the postcourse survey. There were results from both surveys for 16 (55%) students. Fourteen (88%) students either agreed or strongly agreed that they planned to pursue a position providing direct patient care in an ambulatory or community pharmacy setting before and after course completion. Similarly, the majority of students strongly agreed there were opportunities for patient care in the ambulatory setting before and after course completion. Student perception of opportunities for patient care in community pharmacy settings significantly increased after course completion, with 7 (44%) students who strongly agreed to the statement "I feel there are opportunities for patient care in community pharmacy settings" prior to the course, and 13 (81%) who strongly agreed to the same statement after course completion ($p<0.05$, Table 4).

Similarly, student perception of preparedness for patient care in community and ambulatory pharmacy settings increased significantly. Specifically, 10 (63%) students reported feeling moderately prepared, and 1 (6%) student reported feeling very prepared to provide patient care prior to the course. This increased to 9 (56%) students reporting they felt moderately prepared and 6 (38%) students reporting they felt very prepared after course completion ($p<0.05$, Table 5). Similarly, no students reported feeling very prepared, and 4 (25%) students reported feeling moderately prepared to develop or improve a clinical

Table 4. Student Perception of Patient Care in Ambulatory and Community Pharmacy Settings

Question	Prior to Elective Course					After Elective Course					
	SD	D	A	SA	N	SD	D	A	SA	N	*p* value
I am planning to pursue a position providing direct patient care in an ambulatory care or community pharmacy setting.	0	0	7	7	2	0	1	5	9	1	>0.2
I feel there are opportunities for patient care in ambulatory care pharmacy settings.	0	0	5	11	0	0	0	3	12	1	>0.2
I feel there are opportunities for patient care in community pharmacy settings.	0	0	9	7	0	0	0	3	13	0	<0.05

SD=strongly disagree, D=disagree, A=agree, SA=strongly agree, N=neutral

service in a community or ambulatory pharmacy setting prior to the course. Whereas, seven (44%) students reported feeling very prepared and 8 (50%) students reported feeling moderately prepared after course completion ($p<0.05$, Table 5). Students also indicated they felt more prepared to effectively communicate patient care recommendations and outcomes with other health care providers, with 9 (56%) students reporting they felt moderately or very prepared prior to the course, and 14 (88%) students reporting they felt moderately to completely prepared after course completion ($p=0.05$, Table 5).

Results from the 20 students who completed the postcourse survey indicated all of them agreed or strongly agreed that the elective course increased their understanding of the current and future roles of pharmacists in community and ambulatory settings (n=20, 100%). Seventeen (85%) agreed they understood the steps to building and maintaining collaborative relationships, and again 100% (n=20) agreed they felt more prepared and confident in their ability to provide patient care in a community and ambulatory pharmacy setting (Table 6). Students also agreed or strongly agreed that they felt better prepared to use research and poster presentations to explain the value of a pharmacist (n=17, 85%) and that their confidence in their ability to articulate personal strengths and career goals increased (n=19, 95%, Table 6).

Nineteen students (95%) reported that they agreed or strongly agreed they would suggest this course to their peers who were interested in community and ambulatory pharmacy practice, with one (5%) student responding "neutral" to this statement (Table 6). Finally, students were asked to rank each of the active-learning activities as not beneficial, minimally beneficial, or extremely beneficial. The majority of students ranked all of the course activities as extremely beneficial, with the exception of the preparing for your future activity, where only 7 (35%) students ranked the activity as extremely beneficial. Nineteen (95%) of the 20 students

Table 5. Student Self-Perceived Preparedness for Patient Care in Ambulatory and Community Pharmacy Settings

Level of Preparedness	Precourse (n)	Postcourse (n)	*p* value[a]
Ability to provide patient care in an ambulatory or community pharmacy setting			
Not prepared	1	0	<0.05
Slightly prepared	4	1	
Moderately prepared	10	9	
Very prepared	1	6	
Completely prepared	0	0	
Ability to develop and improve a clinical service in an ambulatory or community pharmacy setting			
Not prepared	4	0	<0.05
Slightly prepared	8	1	
Moderately prepared	4	8	
Very prepared	0	7	
Completely prepared	0	0	
Ability to effectively communicate patient care recommendations and outcomes with other health care providers			
Not prepared	1	0	0.05
Slightly prepared	6	2	
Moderately prepared	7	6	
Very prepared	2	7	
Completely prepared	0	1	

[a]Wilcoxon signed-rank test significant difference between precourse and postcourse responses

Table 6. Student Perception of Elective Course in Community and Ambulatory Care

Question	SD	D	A	SA	N
This course increased my understanding of the current role of ambulatory care and community pharmacists in patient care.	0	0	4	16	0
This course increased my understanding of pharmacists' roles in future health care models.	0	0	3	16	1
I feel better prepared to use research and poster presentations to explain the value of ambulatory and community pharmacists in patient care.	0	0	4	13	2
This course increased my understanding of the steps to building and maintaining collaborative relationships with other health care providers.	0	0	5	12	3
This course increased my confidence to effectively articulate my personal strengths and career goals.	0	0	10	9	1
The knowledge and skills developed through this course prepared me to successfully provide patient care in an ambulatory or community pharmacy setting.	0	0	9	11	0
The activities in this course increased my confidence to provide patient care in an ambulatory or community pharmacy setting.	0	0	5	15	0
I would suggest this course to my peers who are interested in ambulatory and community pharmacy.	0	0	4	15	1

SD=strongly disagree, D=disagree, A=agree, SA=strongly agree, N=neutral

ranked the standardized colleague activity as extremely beneficial.

DISCUSSION

The elective course was designed to provide students with an understanding of the past, present, and future of patient care in community and ambulatory pharmacy settings and to introduce and apply the necessary skills for students to be successful in these areas of practice prior to their advanced pharmacy practice experiences. Survey results indicated the course was successful at achieving the anticipated goals and improved student perception of their ability to practice in these 2 settings.

The method for design of the course—through use of student and faculty focus groups, and backwards design—allowed instructors to understand how this course could fit into the curriculum at the college and add to, without duplicating, student experiences. The faculty focus group yielded discussions on whether activities such as the standardized colleague and the landmark studies activity should be offered as a part of the required curriculum to ensure all students would be exposed to these learning experiences. This remains an ongoing discussion within the college as curricular revision is under way.

Course goals were achieved as students' perceptions of their preparedness for practice in community and ambulatory pharmacy settings improved significantly during the elective course. Student perception of the opportunities for patient care in a community pharmacy also significantly improved during the course. These improvements are likely attributable to the active-learning activities used during the course. Most students rated all course activities as "extremely beneficial," with the exception of the preparing for your future activity. The statement "This course increased my confidence to effectively articulate my personal strengths and career goals," which highly correlates to the preparing for your future activity, also had the fewest number of students strongly agree compared with other survey statements. Instructors attribute students' low perceived value of this activity to the short amount of time spent on this area and lack of adequate professional experience to speak to their specific strengths. The activity may need to be omitted from the course given the significant time spent on similar concepts in other areas of the college, namely through required courses and professional student organizations.

Nearly every student reported they felt the standardized colleague activity was extremely beneficial and made them feel more comfortable with and confident interacting with other health care providers. Students also said this activity should be required for all student pharmacists in the curriculum. The results from the activity were similar to the increase in comfort and confidence previously obtained by Day and colleagues.[21] Interdisciplinary teamwork and collaboration are critical skills pharmacists must obtain to be successful in evolving models of health care. This activity, along with the associated class lecture and discussion, increased student pharmacists' confidence in making recommendations to other health care providers and increased their understanding of the steps to build and maintain collaborative relationships with other health care providers.

The largest unanticipated hurdle encountered during the 7-week course was the large number of intuitive questions students had regarding the practice site to which they were assigned for the service project poster. Students were engaged in this activity and put significant thought and consideration into their strategies for service improvement. Based on the number of questions obtained about practice sites for this project, a pharmacist from each site wrote a practice site description and was available through e-mail for questions. In future course offerings, the goal will be to set up times for each group to visit their practice site and learn more about the workflow and operations prior to the poster project. This also will give students the opportunity to shadow pharmacists in a community or ambulatory pharmacy setting.

One limitation of this study was the small number of students who completed the course and the resulting small sample from which survey data were collected. Despite the small sample size, however, all students reported an improvement in perception of their preparedness for patient care in community and ambulatory settings. To ensure the course retains its value over time, course activities will be updated. The landmark studies activity will need to be updated with new relevant, significant contributions to pharmacy literature. The practitioners invited to sit at the current practitioner roundtable will need to be innovative providers showcasing the cutting edge of pharmacy practice.

The services provided to students for improvement in the service project poster will need to stay current and relevant as students reported they enjoyed working to improve a real service and presenting their service improvement plan to a pharmacist from the site. Finally, the standardized colleague activity vignettes must be updated to stay current. However, much of the content revolves around communication principles and relationship building that will stay consistent from year to year.

Another improvement would be to give the students an opportunity to see their work in action. Specifically, students could be allowed to implement their service improvement strategies or interact with other health care providers in an interdisciplinary setting. While students in the elective course indicated the active learning improved their confidence and ability to provide patient care in a community or ambulatory pharmacy setting, they also reported that they desired even more real-life experience in those settings. Providing students with opportunities to gain real patient-care experience in a community or ambulatory setting would require a significant time commitment from faculty members or other practitioners and could limit the enrollment numbers. A second area for consideration is transitioning this course to an interprofessional course, allowing student pharmacists to interact with medical, nursing, social work, and other health professions students. Breakout sessions could cover the past, present, and future of each health discipline, followed by team work to complete the active-learning activities throughout the semester. This would allow students to practice communication skills in the classroom before participating in advanced clinical experiences. It also would allow students to learn about the education and expertise of each health profession and ways to maximize these strengths in a community or ambulatory setting. Expanding the course to an interprofessional educational opportunity would require course scheduling that allowed students from different curricula to participate, which could hinder some PharmD students from taking the course. Moreover, it could overlap with aspects of other interprofessional courses taught at the university. These potential barriers will need to be explored before another course offering.

SUMMARY

The Patient Care Services in Community and Ambulatory Pharmacy Practice elective course exposed student pharmacists to the skills necessary to provide patient care in community and ambulatory pharmacy settings. Skills included providing patient care, developing and improving clinical services, and communicating with other health care providers. Through diverse active-learning activities, students were able to apply critical-thinking and problem-solving skills to increase confidence in providing patient care in outpatient settings. Course activities were perceived as beneficial, likely leading to the increase in confidence. Implementing similar elective courses focused on specific areas of pharmacy practice at schools of pharmacy may be beneficial, as student pharmacists desire earlier exposure to patient-care opportunities and gain confidence and enthusiasm through such offerings.

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