INSTRUCTIONAL DESIGN AND ASSESSMENT

Interprofessional Curbside Consults to Develop Team Communication and Improve Student Achievement of Learning Outcomes

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Objective. To design and implement a series of activities focused on developing interprofessional communication skills and to assess the impact of the activities on students' attitudes and achievement of educational goals.

Design. Prior to the first pharmacy practice skills laboratory session, pharmacy students listened to a classroom lecture about team communication and viewed short videos describing the roles, responsibilities, and usual work environments of four types of health care professionals. In each of four subsequent laboratory sessions, students interacted with a different standardized health care professional role-played by a pharmacy faculty member who asked them a medication-related question. Students responded in verbal and written formats.

Assessment. Student performance was assessed with a three-part rubric. The impact of the exercise was assessed by conducting pre- and post-intervention surveys and analyzing students' performance on relevant Center for the Advancement of Pharmacy Education (CAPE) outcomes. Survey results showed improvement in student attitudes related to team-delivered care. Students' performance on the problem solver and collaborator CAPE outcomes improved, while performance on the educator outcome worsened.

Conclusions. The addition of an interprofessional communication activity with standardized health care professionals provided the opportunity for students to develop skills related to team communication. Students felt the activity was valuable and realistic; however, analysis of outcome achievement from the exercise revealed a need for more exposure to team communication skills.

Keywords: interprofessional education, simulation, standardized colleagues

INTRODUCTION

Interprofessional education (IPE) has been defined by the World Health Organization (WHO) as education that takes place "When students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes."¹ The 2011 Interprofessional Education Collaborative Expert Panel subsequently identified four domains for collaborative practice, including values/ethics, roles and responsibilities, teamwork, and communication, that

should be integrated into health professions' curricula.² Evidence from the education of students in dentistry, physical therapy, pharmacy, and medicine demonstrates that use of IPE strategies leads to improved team function.³ The recognition that IPE and teamwork can also improve patient safety and quality of care have made IPE a top priority in health professions education, where leadership organizations and accrediting bodies support inclusion of IPE in student curricula.^{4,5} The Institute of Medicine 2011 report, "The Future of Nursing, Leading Change, Advancing Health," called for the identification of communication barriers impacting teamwork and for research in educational innovations to improve team work.⁶ The need for early interprofessional educational opportunities in nursing programs has been identified to

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enable students to become comfortable in their role as they begin to collaborate on a team.⁷ The importance of interprofessional collaboration was also noted by the Center for the Advancement of Pharmacy Education (CAPE) as one of the 15 attributes that entry-level pharmacists should possess upon graduation from a doctor of pharmacy program.⁸ The Accreditation Council for Pharmacy Education Standards 2016 require that pharmacy schools prepare students to provide care as part of an interprofessional team.⁹ Specifically, students should learn about team dynamics including roles and responsibilities, communication best practices, documentation, and conflict resolution, and should engage in IPE through simulations and experiential pharmacy practice.

Interprofessional simulation education is associated with increased self-reported confidence, improved understanding of team communication skills, and knowledge of roles in the health care team.¹⁰⁻¹² Simulation may also be used to teach communication techniques that improve the efficacy of conversations in the patient care environment. Communication problems are among the most frequently identified root causes of sentinel events and are an important target for improvement.¹³ One recommended communication technique, known as SBAR (Situation Background Assessment Recommendation), provides a structured format for communication of professional findings and recommendations, especially between various members of the health care team.¹⁴ A number of studies support the use of this technique in improving student and practitioner performance and confidence.¹⁵⁻¹⁷ The SBAR technique has been used extensively in nursing education.¹⁵ Ozekcin and colleagues studied critical care nurses using simulated patient scenarios and the SBAR communication technique and found improved ability to recognize trends indicating patient instability.¹⁶ Recently, the SBAR technique has also been used in pharmacy education.¹⁷ Using the SBAR communication process, pharmacy students collaborated with other health care professions students on simulated rounds and in an outpatient clinic setting. Students were found to have improved performance and increased self-confidence after the experience.

The realism of a simulation is an important element in helping students learn from the experience and as pharmacists, an important and frequent contribution is providing medication-related information in response to questions from other health care professionals in a patient care setting.^{18,19} In order to provide a comprehensive response, pharmacists should use established best practices, including anticipating the needs of the requestor; acquiring a comprehensive understanding of the query and situation (including patient information when appropriate);

using a systematic approach to find and evaluate relevant literature on the topic; and communicating the response to the requestor in an appropriate fashion.¹⁹ Such a request for information may be done in the course of a formal referral or as an informal or “curbside” request where it becomes especially important for the pharmacist to be able to obtain comprehensive background information as part of the conversation in order to provide accurate information.^{20,21} These informal requests are often called “curbside consults” within medicine and pharmacy because they often occur when two health care professionals pass each other in the hallway and are looking for some quick, informal feedback to guide their decision making. This brief interaction requires students to use skills related to interprofessional collaboration, drug information, problem solving, and effective communication.

The purpose of this report is to describe the process, methods, and outcomes of implementation of this interprofessional curbside consult activity, a four-session interprofessional simulation experience in a Pharmacy Skills Laboratory course. Prior to the addition of this experience, pharmacy students participated in simulated patient laboratory sessions and cooperative education/introductory pharmacy practice experiences to develop their professional communication skills. However, these experiences did not provide students with opportunities to address patient care issues with a variety of other health care professionals on the team. We hypothesized that this interprofessional curbside consult activity would provide opportunities for students to practice skills needed to respond to medication-related questions from other professionals and expand training in a standardized interprofessional communication technique.

DESIGN

When a pharmacist receives a medication-related question, he or she must be able to obtain additional information and provide a timely, accurate response in a way that can be understood and applied by the inquiring health care provider. To develop these skills, we sought to create a realistic activity that enabled students to achieve the educational outcomes outlined in Table 1 in the context of an interprofessional health care team.

Northeastern University is a private, urban, research-oriented institution. The school of pharmacy is part of the Bouvé College of Health Sciences and enrolls about 145 students annually in each of the professional years of the program. Other programs of study in the college include nursing (graduate and undergraduate programs), physical therapy, speech, language pathology and audiology, and health sciences. The university does not have a dental or medical school or medical center on campus. The

Table 1. Interprofessional Curbside Consults (ICC) Educational Outcomes

Outcome	Relevant IPEC ^a Competency ²	Relevant CAPE ^b competency ⁸
For each health professional encountered: communicate key aims, typical roles, potential for role overlap, and usual environments of practice clearly to other health professionals	RR ^c 1. Communicate one's roles and responsibilities clearly to patients, families, and other professionals. RR4. Explain the roles and responsibilities of other care providers and how the team works together to provide care. RR6. Communicate with team members to clarify each member's responsibility in executing components of a treatment plan or public health intervention.	3.4. Interprofessional collaboration (Collaborator) – Actively participate and engage as a health care team member by demonstrating mutual respect, understanding, and values to meet patient care needs.
Use the SBAR ^e technique to compose an effective and accurate response to a drug information request from a variety of health care providers that addresses the needs of the professional in a form that is understandable, avoiding discipline-specific terminology when possible;	CC ^d 1. Choose effective communication tools and techniques, including information systems and communication technologies, to facilitate discussions and interactions that enhance team function. CC2. Organize and communicate information with patients, families, and health care team members in a form that is understandable, avoiding discipline-specific terminology when possible. CC6. Use respectful language appropriate for a given difficult situation, crucial conversation, or interprofessional conflict.	3.6. Communication (Communicator) – Effectively communicate verbally and nonverbally when interacting with an individual, group, or organization.
Express one's knowledge and opinions to team members involved in patient care with confidence, clarity, and respect, working to ensure common understanding of information and treatment and care decisions	CC3. Express one's knowledge and opinions to team members involved in patient care with confidence, clarity, and respect, working to ensure common understanding of information and treatment and care decisions.	3.2. Educator (Educator) – Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding

^aIPEC=Interprofessional Collaborative Practice Competencies; ^bCAPE=Center for Advancement of Pharmacy Education; ^cRR=Roles and Responsibilities; ^dCC=Interprofessional Communication; ^eSBAR = Situation Background Assessment Recommendation

hallmark of the Northeastern University education is cooperative education, where students alternate semesters in class with semesters working full time in their fields of study, providing early professional socialization and interprofessional experiences. For pharmacy students, these cooperative education experiences occur over the first and second professional years (P1 and P2) of pharmacy school and serve as their introductory pharmacy practice experiences. Pharmacy students complete three four-month IPPEs in community pharmacy, institutional pharmacy, and an elective setting. In recent years expansion of IPE has been a focus within the Bouvé College.

The Comprehensive Disease Management Skills Laboratory course is a required course taught in three semesters over the second and third professional years (P2 and P3), running concurrently with the Comprehensive Disease Management course series, an integrated course series covering pathophysiology, self-care, and

pharmacotherapeutics. Each laboratory section seats 26 students and is directed by a faculty coordinator. Breakout activities and individual student assessments are conducted by laboratory instructors who are pharmacists from the local community that work in a given laboratory section for the entire semester.

The interprofessional curbside consult activity was added to the last semester of the Comprehensive Disease Management Skills Laboratory course sequence in spring 2015 (at the end of the P3 year). Specifically, the activity was designed in response to analysis of outcomes achievement data from the first two semesters of the course series. Those data showed that students were not performing adequately on the problem solver competency and that we were not assessing the collaborator competency (even though the content was included in the course series). The interprofessional curbside consult activity also served to review and apply content previously taught

in our communication, Research Methods, Drug Information and Literature Evaluation and Comprehensive Disease Management courses.

In preparation for the laboratory activity, students listened to a short lecture in the classroom about the SBAR communication technique. Students then were instructed to review four brief video interviews that described the values, roles, and usual practice models of other health professions: registered nurses, physical therapists, nurse practitioners, and dentists. After completion of these activities, students participated in the simulated interprofessional curbside consult sessions as part of the Skills Laboratory course. For each consult, a student was approached by a health care professional as role-played by a pharmacist laboratory instructor. The instructor played the role of a standardized colleague, acting as a registered nurse, dentist, nurse practitioner, or physical therapist, who asked the pharmacy student a drug-related question. The drug information questions were selected from a pool of questions and answers created for the activity. All questions were reviewed for realism and relevance to patient care by project collaborators from each profession. The question topics varied, but all reflected common medication-related situations that the given professional would encounter. For example, the questions asked by the registered nurse were about medication administration and monitoring, while the questions asked by the physical therapist were about timing of medications for musculoskeletal conditions for best effect or to avoid adverse effects. Questions from the dentist were about the need for antibiotic prophylaxis or oral effects of medications, and questions by the nurse practitioner focused on appropriate medication prescribing. After hearing the question and making plans for a follow up conversation, the pharmacy student had 30 minutes to research and respond to the question using the SBAR communication format. Students researched questions using the online drug information databases available through the university library or other professional resources (eg, prescribing information approved by the Food and Drug Administration or current practice guidelines) available on the Internet. After providing a verbal answer to the drug information question, a standard drug information request form was completed and submitted for grading. There was no time limit for completion of the written documentation form. The form summarized the requestors' contact information, question asked and answer given, as well as references used to find the information. Pharmacy students met with each type of standardized colleague once over the course of the four laboratory sessions.

The interprofessional team of faculty collaborators worked together to design and implement this activity in

the course. All content, including videos and the drug information questions were created by collaborators representing their disciplines.

EVALUATION AND ASSESSMENT

The curricular impact of the interprofessional curbside consult activity was assessed by reviewing student responses on a pre- and post-intervention survey, student grades, and student performance on CAPE 2013 outcomes addressed by the assignment (Table 1). The pre- and post-intervention survey instrument included the validated TeamSTEPPS Teamwork Attitudes Questionnaire,²² chosen in part to learn which, if any, subscales would be most impacted by the activity. This project was approved by the Northeastern University Institutional Review Board.

Student performance was assessed using a three-part rubric (Appendix 1) created by the authors for this project. The rubric was scored by the pharmacist laboratory instructors who participated in the role-play exercise with the students. The rubric was completed using the ExamSoft rubrics tool (ExamSoft Worldwide, Inc), Web-based software. The rows of the rubric were weighted differently, with the largest portion of the score based on the student's performance on the following items: "Appropriate request for additional information," "Demonstrates understanding of roles and responsibilities," and "Accuracy of response provided." Dimensions of the rubric were mapped to the relevant CAPE outcomes, with the majority of rows mapped to collaborator, communicator, educator, and problem solver.

One hundred thirty students were enrolled in the skills laboratory course in spring 2015. In a given week, different disciplines were represented in the simulation rooms, but student interactions were guided by a schedule to ensure they met with one type of practitioner each week to achieve the goal of having all pharmacy students interact with each of the four disciplines. Student performance on each interprofessional curbside consult simulation is shown in Table 2. There was a small but persistent increase in average scores over time and there were no students who did not achieve a passing ($\geq 73\%$) score on at least one of the attempts.

Achievement on CAPE outcomes is available in Table 3. Overall, students performed well on the communicator, collaborator, and problem solver competencies with an average score of 88.8%, 88.6%, and 91.5%, respectively. Nearly all students achieved acceptable levels of competency on these outcomes. Performance on the educator competency was markedly lower, with an average score of 78.5%, but a concerning number of students ($n=39$, 30%) did not achieve our passing threshold

Table 2. Overall Student Performance on Each of the Four Interprofessional Curbside Consults (N=130)

	ICC ^a 1	ICC 2	ICC 3	ICC 4	All ICC Sessions
Average score, %	88.4	90.1	90.2	91.1	90.0
Score range, %	57.4-100	72-100	63-100	67.8-100	57.4-100
Students with score <73% N, %	13 (10)	3 (2.3)	6 (4.6)	4 (3.1)	0 ^b

^aICC = Interprofessional Curbside Consult

^bAll students passed at least one ICC session with a score >73%

(≥73%) for this competency. The other two CAPE competencies covered by the rubric were not the focus of this assignment, with only one row devoted to each, and therefore was not sufficient data to draw meaningful conclusions.

Matched pre- and post-intervention survey data were available for 113 students (87%). Survey results revealed positive attitudes towards team-delivered care at baseline across all subscales, and significant improvement on 17 out of 30 items ($p<.05$, Wilcoxon signed rank test) after completing the interprofessional curbside consult assignment (Table 4). Additionally, improvement was seen on two items related to communication: "I prefer to work with team members who ask questions about information I provide" and "It is important to have a standardized method for sharing information when handing off patients."

A follow-up survey was administered to the same cohort of students during a required on-campus meeting day midway through the fourth professional (P4) year. One hundred eight students completed the survey (83.1%). At the time of the survey was administered, 57% of students had completed a required general medicine advanced pharmacy practice experience (APPE), 54%, a required ambulatory care APPE, 68%, a required community APPE, and 58%, a required health care systems APPE. Eighty seven percent of respondents agreed or strongly agreed that the simulated interprofessional curbside consult was realistic and 86% agreed or strongly agreed that the activities were valuable in preparation for advanced pharmacy practice experiences. A majority of respondents agreed or strongly agreed that the interprofessional curbside consult prepared them to communicate

with another health care professional (90%) and helped them understand the roles and responsibilities of other members of the health care team (81%).

DISCUSSION

The addition of interprofessional curbside consult exercises to the curriculum of the Comprehensive Disease Management Skills Laboratory course in the P2 and P3 years provided opportunities for pharmacy students to engage in realistic, structured conversations that prepared them for interprofessional team practice on APPEs. Specifically, students felt the activities enhanced team communication skills and their understanding of roles and responsibilities of other health care providers. These impacts are consistent with published literature describing the benefit of IPE in health professions education, which have been shown to address misconception of roles, provide clarification of roles, demonstrate the importance of communication, and increase confidence.²³ Chan and colleagues found undergraduate nursing students in IPE training experienced increased awareness of other disciplines' values and knowledge and appreciation for their role on the team.²⁴ Buckley and colleagues found similar results when examining students from a variety of professions (eg, medicine, nursing, physical therapy) who participated in an interprofessional simulation experience.²⁵ Balogan and colleagues focused on geriatric care transitions and IPE, noting improved communication and understanding of the issues related to teamwork when discharging frail elders to the community following hospitalization.²⁶

Standardized patient colleagues have been used to further IPE in pharmacy education in recent projects.^{17,27,28}

Table 3. Learning Outcomes Achievement for Four Interprofessional Curbside Consult^a Assignments (N=130)

CAPE ⁸ outcome	2.1 Caregiver	2.2 Manager	3.1 Problem-solver	3.2 Educator	3.4 Collaborator	3.6 Communicator
# dimensions in rubric	1	1	3	4	6	13
Average score (%)	73.5	99.0	91.5	78.5	86.9	88.9
N (%) of students <73%	70 (53.8)	1 (0.8)	1 (0.8)	39 (30)	3 (2.3)	0 (0)
Score range (%)	14.2-100	70.5-100	72.3-100	38.9-100	71.9-99.1	75.2-97.3

^aICC = Interprofessional Curbside Consult

Table 4. Pre- and Post-intervention Survey Results of TEAM STEPPS Teamwork Attitudes Questionnaire²²

Question	Pre-Intervention mean ^a	Post-Intervention mean ^a	P value ^b
Team structure			
1. It is important to ask patients and their families for feedback regarding patient care.	4.5	4.7	0.01
2. Patients are a critical component of the care team.	4.5	4.6	0.19
3. This facility's administration influences the success of direct care teams.	4.0	4.2	0.03
4. A team's mission is of greater value than the goals of individual team members.	3.9	4.3	<0.01
5. Effective team members can anticipate the needs of other team members	4.1	4.4	0.02
6. High-performing teams in health care share common characteristics with high-performing teams in other industries	4.0	4.2	<0.01
Leadership			
7. It is important for leaders to share information with team members.	4.6	4.7	0.09
8. Leaders should create informal opportunities for team members to share information.	4.2	4.4	<0.01
9. Effective leaders view honest mistakes as meaningful learning opportunities.	4.4	4.6	0.01
10. It is a leader's responsibility to model appropriate team behavior.	4.5	4.6	<0.01
11. It is important for leaders to take time to discuss with their team members plans for each patient.	4.4	4.5	0.07
12. Team leaders should ensure that team members help each other out when necessary.	4.3	4.4	0.06
Situation monitoring			
13. Individuals can be taught how to scan the environment for important situational cues.	4.1	4.3	0.01
14. Monitoring patients provides an important contribution to effective team performance.	4.3	4.5	<0.01
15. Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.	4.2	4.3	0.01
16. It is important to monitor the emotional and physical status of other team members.	4.1	4.3	0.01
17. It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.	4.2	4.3	0.14
18. Team members who monitor their emotional and physical status on the job are more effective.	4.1	4.4	<0.01
Mutual support			
19. To be effective, team members should understand the work of their fellow team members.	4.3	4.5	0.01
20. Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.	1.9	2.0	0.87

(Continued)

Table 4. (Continued)

Question	Pre-Intervention mean ^a	Post-Intervention mean ^a	P value ^b
21. Providing assistance to team members is a sign that an individual does not have enough work to do.	1.8	1.9	0.39
22. Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.	4.0	4.2	0.07
23. It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.	4.2	4.3	0.04
24. Personal conflicts between team members do not affect patient safety.	1.8	1.9	0.38
Communication			
25. Teams that do not communicate effectively significantly increase their risk of committing errors.	4.6	4.6	0.87
26. Poor communication is the most common cause of reported errors.	4.1	4.2	0.19
27. Adverse events may be reduced by maintaining an information exchange with patients and their families.	4.2	4.4	0.06
28. I prefer to work with team members who ask questions about information I provide.	3.8	4.0	<0.01
29. It is important to have a standardized method for sharing information when handing off patients.	4.4	4.6	<0.01
30. It is nearly impossible to train individuals how to be better communicators.	1.8	1.9	0.40

^aLikert scale used with 1=strongly disagree to 5=strongly agree

^bRelated samples Wilcoxon signed rank test

In each instance, the standardized colleagues portrayed different types of medical doctors with variation in level of training (from medical student to seasoned attending) and specialty. In our project, we did not collaborate with physicians or medical students, but instead included a broad range of the disciplines that would be found in a larger care team. Students gained experience with pharmacist-prescriber interactions when interacting with our pharmacist laboratory instructors as they acted as nurse practitioners or dentists, but also gained experience responding to questions typical of those asked by nurses and physical therapists looking for more information about the effects of medications on their patients.

This activity also provided context for discussion on structured communication methods (eg, the SBAR framework) and the roles and responsibilities of various health care team members, and allowed us to introduce our students to aspects of the TeamSTEPPS training program.²⁹ While our students had robust interprofessional exposure in their experiential activities, our didactic IPE opportunities were not as developed. The current educational experience was a response to a need to expand didactic IPE in the P1, P2, and P3 curriculum.

This assignment was primarily focused on interprofessional roles and communication, and we found significant differences on items within all five areas of the Teamwork Attitudes Questionnaire.²² In particular, attitudes significantly improved on five out of six items in the Team Structure subscale, which can be attributed to the activity's focus on better understanding the roles and responsibilities of other health care professionals in the delivery of team-based care. This suggests that even focused interprofessional education activities have broad impact on students. It is also notable that the Teamwork Attitudes Questionnaire survey results were relatively high at baseline, possibly as a result of students' early interprofessional exposure during IPPEs. Attitudinal scales are inherently limited and a self-efficacy scale may be more useful to supplement learning outcomes achievement data.

Overall student performance on the activity was satisfactory, with a mean grade of 90% for the activity. In addition to overall grades, student performance on specific competency areas can provide insight for programmatic assessment purposes. If an electronic rubric is used, each rubric item can be mapped to one or more

competencies. This assignment was primarily designed to achieve four CAPE learning outcomes: communication, education, interprofessional collaboration, and problem solving.⁸ Achievement on the communicator, collaborator and problem solver competencies were satisfactory, but student performance on the educator competency was concerning. The educator competency refers to the ability to “educate all audiences by determining the most effective and enduring ways to impart information and assess understanding.”⁸ This same cohort of students completed several simulated patient education activities in the previous fall semester, all graded using electronic rubrics mapped to competencies. In those 6 assessments, average score on the 22 items mapped to the educator competency was 82.1% (range 63.4%-97.3%) with 10% of students below 73% passing. We did not expect performance on this competency to worsen with additional exposure. Upon analysis and discussion, we hypothesized that while our students have strong preparation to counsel patients, we have not similarly emphasized the skills needed to provide education to other health care professionals. With this hypothesis in mind, we should consider the need to teach and reinforce skills used when providing education to colleagues and health care professionals in other parts of the curriculum.

Lastly, this project could serve as a model for the future design of IPE activities, especially when limited by large class sizes, disparate schedules, and other logistical factors. Though we are early in the development of robust IPE, we used a hybrid design and technology to create videos that introduced roles and responsibilities of the various health professions. We used simulated colleagues (as role played by pharmacist laboratory instructors) and our existing skills laboratory structure to help quickly integrate this activity into our course. A strength of our project was collaboration from a variety of professions in order to create video content and realistic drug information questions and scenarios.

A limitation of this project is the fact that only pharmacy students were actually involved in the simulated interactions. This could have created experiences that were less realistic as the actual health professionals (or students) would have a deeper understanding of their disciplines and could potentially adapt the conversation and provide detailed feedback to the pharmacy student in a way that the pharmacist laboratory instructor could not. Also, it is possible that the pharmacy students would perform differently when they do not recognize the actors in the rooms. Additionally, the other health professions students could benefit from directly interacting with pharmacy students.

Another limitation is that we did not capture the quality of drug information responses beyond assessing the accuracy of the responses using a standardized but not validated rubric. Debrief conversations with laboratory instructors identified that the most common reason for low scores was the pharmacy students not sufficiently clarifying the original question and therefore reporting an inaccurate answer based on assumptions about patient characteristics. For example, the pharmacy student would provide a recommendation for care appropriate for an adult patient when the question was about a young child. We did not capture information that would have helped us understand why students did not ask more clarifying questions. This finding underscores the need for students to continue to practice gathering background information when asked questions and provides us with an opportunity to further modify our instruction.

In an attempt to better represent the healthcare disciplines, work to expand this project is already underway. When the activity is conducted in the future, we plan to use actual professionals (or students) from each discipline rather than pharmacy laboratory instructors as actors. The pharmacy students probably will not know these collaborators from other disciplines, thus allowing for a more realistic conversation.

SUMMARY

The interprofessional curbside consult activity provided additional opportunities for students to practice responding to drug information questions from nonpharmacist clinicians and improved performance on problem solver and collaborator CAPE competencies.⁸ When asked to compare the activity to experiences on advanced pharmacy practice experiences, more than three-quarters of responding P4 students found the activity realistic and valuable, and felt that it helped prepare them to interact with members of the interprofessional healthcare team. Our initial approach involved other health care professionals in an indirect way to create simulation content. This may be considered by programs that do not have other health care disciplines on campus or are limited by the logistics of having multiple health professions in the same learning environment. Plans are underway to build on this foundation and engage other health professions students from our college and the region in future simulations.

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Appendix 1. ICC Assessment Rubric

First encounter (Receiving the Question)					Total Points
Criteria	Omission (0)	Novice (3)	Intermediate (4)	Expert (5)	Weight
Introduction	Student omits introduction	Student intro is poor (a simple hello without name and title or too informal)	Student introduction can be improved (e.g. only name or only title is given)	Student appropriately introduces him/herself as a pharmacist (e.g. Hello, I am _____, I am one of the pharmacists)	1
Communication and rapport	Do not select	Does not listen to the health care professional (evident by excessive follow up or asking to repeat info)	Appears uncomfortable when interacting with the health care professional	Establishes rapport by demonstrating open and approachable body language, demonstrates active listening skills	1
Appropriate request for additional info	Student does not ask any of the questions necessary to provide accurate response	Student asks some, but not all pertinent follow up questions	Student asks all appropriate follow-up questions but also asks for some excessive additional info	Student asks appropriate follow-up questions to gather additional information necessary to provide appropriate information/ answer	3
Demonstrates understanding of roles and responsibilities	Unable to assess due to absence of communication from the pharmacist	Follow up questions and overall conversation does not demonstrate student's understanding of professional's roles and responsibilities	Do not select	Follow up questions and overall conversation demonstrate student's understanding of professional's roles and responsibilities	3
Summary of question and closing	Student does not summarize/restates the question asked	Student summary is inaccurate/wrong	Student does not restate <u>complete</u> summary of the question asked	Student finishes the first encounter by accurately summarizing/restating the question asked (and pertinent other info as needed)	2

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Second encounter (Answering the Question)					
Criteria	Omission (0)	Novice (3)	Intermediate (4)	Expert (5)	Total Points
Situation – Introduction	Student omits introduction	Student intro is poor (a simple hello without name and title or too informal)	Student introduction can be improved (e.g. only name or only title is given)	Student appropriately introduces him/herself as a pharmacist (e.g. Hello, I am _____, I am one of the pharmacists here to give you the information you asked for)	1
Interpersonal rapport	Do not select	Does not listen to the health care professional (evident by excessive follow up or asking to repeat info)	Appears uncomfortable when interacting with the health care professional	Establishes rapport by demonstrating open and approachable body language, demonstrates active listening skills	1
Background: Restate the question and factors or additional information that were taken into consideration	Student does not provide background information summary	Background summary inaccurate/wrong	Background summary incomplete	Background information accurately and professionally summarized including the question asked and pertinent other info/factors as needed	1
Assessment- Summarize your approach to answering the question and/or what options were considered. Please note: this may be omitted/minimized if a rapid response is necessary.	Student does not provide assessment/approach to answering question	Do not select	Assessment information unclear, vague or incomplete	Assessment information accurately and professionally summarized	2

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Second encounter (Answering the Question)					Total Points
Criteria	Omission (0)	Novice (3)	Intermediate (4)	Expert (5)	Weight
Recommendation – content of the answer	Student provides response that is not accurate/appropriate	Student's response does not answer the question asked (i.e. provides correct info but not relevant because they misunderstood the question)	Response is incomplete but generally accurate	Student identified and answered all parts of question correctly	3
Recommendation – appropriateness of response for a given health provider	Do not select	Response is too general in nature to be helpful to this particular type of health care professional OR contains elements unlikely of interest to this professional	Do not select	Response is appropriately geared towards the health care professional. Student demonstrates excellent understanding of this persons job/team roles and responsibilities	2
Verify Understanding	Student does not ask if the provider understands the answer/recommendation	Student asks if the provider understands the answer/recommendation (as a simple yes/no question)	Do not select	Student ensures that the provider understands the information by asking them to restate the answer/recommendation	2
Offer Follow Up	Student does NOT ask if the provider would like further follow up	Do not select	Do not select	Student asks if the provider would like further follow up	1
Overall communication (2 nd encounter)	Do not select	Communication is poor (i.e. hard to follow/understand; does not maintain eye contact, seems unsure; excessive use of notes)	Communication is good but can be improved (i.e. shows hesitation OR does not provide a clear and succinct response; excessive use of notes)	Excellent communication skills (i.e. Proper re-introduction/ exit; Maintains good eye contact, speech is clear and concise, displays appropriate level of confidence)	2

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Written Response					
Criteria	Omission (0)	Novice (3)	Intermediate (4)	Expert (5)	Weight
Drug information request classification Resources	No classifications selected	All classifications are incorrect	Some classifications correctly selected	All classifications correctly selected	1
	Not indicated on the form	Resources not appropriate OR lay resources are used	Excessive number of resources checked or only one resource checked	Appropriate resources used	2
Response	Incorrect response (i.e. wrong)	Student provides correct response but not to a question posed (i.e. student mis-interpreted the answer)	Part of question answered correctly, some information is left out or response is too long	Student identified and answered all parts of question correctly and concisely	3
Written communication skills	Do Not Select	Poor Written response (unclear and many errors in spelling, grammar)	Written response can be improved (somewhat unclear, with some errors in grammar, spelling)	Well - written response (no spelling, grammar problems; clear)	2
Uses appropriate title for provider	Do Not Select	Student does not identify or use the title of provider	Do Not Select	Student identifies the role and uses the title of provider	2