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Research

Constructive contact: Design of a successful introductory interprofessional education experience

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Abstract

Background: Interprofessional education (IPE) programs have been endorsed for health professions students to improve team function in health care delivery and optimize patient outcomes. Educators have had mixed success with IPE for entry-level health professions students, with some observing exacerbated interprofessional tension. This report describes an IPE mini-course for medical, nursing, and pharmacy students structured to meet the criteria of Allport's Contact Hypothesis.

Methods: Interprofessional education planners designed and implemented a constructivist exercise for medical, nursing, and pharmacy students examining scope of practice and team behavior. Assigned readings connected improved role knowledge and team behavior with the ultimate goal of enhanced patient safety. Role knowledge prior to the event was measured with a pre-test. Knowledge and attitudes were measured with a post-event survey.

Results: Prior knowledge was the highest for the physician role and the lowest for the pharmacist role. Following the mini-course, knowledge of professional roles and behaviors increased. Student groups expressed strong appreciation for IPE, with pharmacy students responding most positively.

Conclusions: Students emerge strongly affirming the importance of IPE in achieving quality care and patient safety. Positive outcomes are discussed in relation to predictions of the Contact Hypothesis and Social Identity Theory.

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Keywords: Contact theory; Interprofessional education; Stereotyping; Curriculum development; Teamwork

Introduction

Interprofessional education (IPE) is included in many health professions curricula and is increasingly required by

accreditation standards.¹ Within pharmacy, the most recent Accreditation Council for Pharmacy Education Standards and Guidelines (Standards 2016) has 46 mentions of interprofessional,² and includes Standard 11 -Interprofessional Education, with key elements such as interprofessional (IP) team dynamics, IP team education, and IP team practice.³ As IPE programs gain momentum in response to strong national and international drivers,⁴ questions remain about how best to achieve interprofessional practice competencies and meet these standards. Among these are the following questions: how early in professional education should IPE begin and

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what is the appropriate content for IPE directed at entry-level students.

Early IPE affords the important possibility of forging a culture of IP partnership before territorialism develops.⁵ It is important to note, however, that although several early IP interventions have reported positive outcomes,^{6–8} early IPE is not without risk. Students enter professional training with both positive and negative stereotypes about health professionals,⁸ and in some settings negative stereotypes may be exacerbated by IP training experiences.^{9,10} Concerns about aggravating IP tensions have prompted some educators to recommend that IPE wait until students have developed intraprofessional identities and/or have had clinical experience.⁹

The purpose of this study is to examine the response of medicine, nursing, and pharmacy students early in training to an intervention that first does no harm. Rather, the intervention emphasizes knowledge of professional roles and collaborative team communication, with the understanding that role knowledge and communication skills contribute to patient safety.¹¹ Parameters indicating success are that students achieve increased knowledge of roles and team behaviors, and emerge with positive attitudes toward IP learning and practice without exacerbation of IP tension. Success of the mini-course, titled *Interprofessionalism for Patient Safety* (hereafter *Interprofessionalism*), is discussed in relation to predictions of contact theory. This theory describes key conditions for achieving positive social contact, whereas social identity theory suggests that negative stereotypes can arise as individuals or groups seek to establish their own identity.^{12–16}

Background

The exercise described here has evolved through eight iterations since 2006, bringing students from medicine, nursing, and pharmacy together as early as possible in their professional training to begin learning with and from each other about their professional roles, and to teach attitudes and behaviors that contribute to effective health care team functioning.

In the first two years, the exercise engaged small IP groups in a team-building activity and discussion of professional stereotypes, and included a presentation and large group discussion of the elements of effective communication. Student feedback was very positive regarding bringing students from the different professions together to build social connections; however, the discussion of stereotypes proved contentious, eliciting strong negative emotions as indicated in student and facilitator feedback (unpublished). The tension around professional stereotypes was sufficiently pronounced that one year we gathered students in separate professional groups so that they would not be offended by discussion of stereotypes of their own profession.

In response to these early experiences, planners sought a theoretical framework for *Interprofessionalism* that would foster constructive interactions and avoid deleterious ones. Program improvements were informed by Allport's Contact Hypothesis and Social Identity Theory. The former describes parameters that promote positive social contact, including equal status, common goals, intergroup cooperation, and institutional support.^{12,15} The latter proposes that negative stereotypes arise from the need to establish an individual or group identity (the ingroup) that is defined positively relative to closely related outgroups.¹⁶ The resulting exercise reported here avoids pitfalls of early IPE, focusing away from directly addressing stereotypes to a guided exploration of professional roles and team behaviors. Learning objectives, including the expectation that students will gain better understanding of professional roles and recognize specific disruptive and constructive behaviors, are aligned with established Interprofessional Education Collaborative (IPEC) competency domains of "Roles & Responsibilities," "IP Communication," and "Teams & Teamwork."¹⁷

Methods

The Human Subjects Protection Internal Review Board approved this study.

Participants

Students from the University of Arizona Colleges of Medicine, Nursing, and Pharmacy participated in the *Interprofessionalism* mini-course. Medicine and pharmacy students were in their first semester of training. Nursing students came from two groups: the Bachelor of Science in Nursing students were in their second year of a 2-year program. Masters' Entry to the Profession of Nursing students were four months into their 15-month program. Participation was required for all students, with credit attached to a specified course in each program. Faculty facilitators were recruited from the three professions with an IP facilitator team guiding activities in each classroom. Of the 351 students who attended the live event, 341 completed the required online survey (97.2% response rate).

Mini-course design

Interprofessionalism takes place over four weeks in the fall semester. It includes online preparatory activities, a live event, and an online follow-up exercise and survey. Students prepare for the live event by reading the following: (1) the exercise learning objectives matched to IPEC Core Competencies, (2) a summary of scope of practice for their own profession, (3) a description of disruptive and constructive team behaviors, and (4) The Joint Commission Sentinel Event Alert describing behaviors that undermine patient safety.¹⁸ Preparatory activities also include an online

Table 1
Interprofessionalism for Patient Safety Mini-course: Online and Live Event Activities

Mini-Course Element	Activity (minutes of live event)	Participants
<u>Pre-Event Online:</u>		
	Icebreaker and Discussion	Student teams
	Learning Objectives	Individuals
	Readings and Videos	Individuals
<u>Live Event:</u>		
<i>Introduction</i>	Welcome, introductions & overview (5)	Large group
<u>Part I: Professional Roles</u>		
<i>Scope Of Practice Checklist</i>	Checklist completion (5)	Individuals
	Discussion (10)	Student teams
	Debrief (10)	Large group
<i>Case Studies</i>	Rural Setting (5)	Large group
	Urban Academic Medical Center (5)	
	Wrap-up Part I (5)	
<u>Part II: Team Behaviors</u>		
<i>Patient Feedback</i>	Positive: letter (5)	Large group
	Negative: voicemail message (5)	
<i>Team Behavior Scripts</i>	Scripts 1&2; Behaviors Table (30)	Student teams
	Large group debrief (10)	Large group
<i>Wrap Up</i>	Wrap-up Part II (5)	Large group
	Positive patient feedback: letter (5)	
<i>Overall Wrap-Up</i>	Reminder re: online post-activities (5)	Large group
<u>Post-Event Online:</u>		
	Team Behaviors follow-up activity	Individuals
	Mini-course evaluation	Individuals

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icebreaker in which students introduce themselves to their pre-assigned six-member IP group by stating why they chose their profession, and one additional thing about themselves.

The principal component of the mini-course is a 2-hour live event (Table 1). Part I focuses on professional roles and responsibilities. Students complete a checklist of 18 health care tasks to indicate which among newly licensed physicians (MD), nurses (RN), and/or pharmacists (PharmD) would perform each task in an academic medical center. Students complete the checklist individually, discuss responses in their small IP groups, and then report consensus and areas of ambiguity in a large group discussion. Students are asked not to change their original answers based on discussions, so that the individually completed checklists can serve as a pre-test of role knowledge. Next, two brief, narrated slideshows show roles in a rural setting and in a well-resourced academic health center illustrating role expansion or specialization with setting and post-licensure training.

Part II explores subtle and overt disruptive interpersonal behaviors illustrated in two scenarios that are based on real examples and crafted to distribute disruptive behaviors, so that no single profession stands out. The scenarios are presented as scripts, and students are pre-assigned to read a specific role different from their own profession. This is

framed with authentic patient feedback to illustrate actual disruptive behavior by health care personnel and actual desirable outcomes with a well-functioning team.

Evaluation

The Scope of Practice Checklist is designed to serve two purposes: (1) to engage learners in a discussion of role knowledge and (2) to provide the pre-test portion of a pre–post-assessment of role knowledge. Checklist items were generated by a panel of health care professionals representing medicine, nursing, and pharmacy, and validation took place over four years via student, facilitator, and expert feedback to improve content validity, construct validity, and readability. To limit length of the post-exercise survey (described below), a subset of five items was selected for post-assessment, representing tasks that could be performed across the three professions. Scores were calculated based on assignment of tasks to professions compared with the answer key. The item, “remove an inflamed appendix” was discarded from analysis because of an error in the facilitator key for this item.

The five checklist items measured in the post-test were part of a larger student survey developed for comprehensive outcomes assessment administered after the IPE exercise. This survey underwent validation over several years of

piloting, data collection, and feedback from planners with expertise in IPE and/or evaluation, to improve content validity and readability. Construct validity was enhanced by aligning the survey with an *Interprofessionalism* logic model based on IP competencies and learning theories.¹⁷

The student survey measured student attitudes, self-reported knowledge, and content knowledge with quantitative questions. These included Likert scale items to capture student attitudes toward IPE and its value for patients and providers (strongly disagree, disagree, agree, strongly agree, and not sure), the effectiveness of individual learning activities (not at all effective, slightly effective, effective, and extremely effective), student self-reported knowledge of content before and after the exercise (very low, somewhat low, somewhat high, and very high), the five checklist items to assess role knowledge, and three objective questions to assess knowledge of team behaviors. In addition, qualitative data were collected via open-ended student comments; these were sorted into loosely assigned categories, counted, and coded as positive, neutral, or negative.

The Kruskal–Wallis test was used to evaluate differences among attitudes followed by Mann–Whitney *U* tests to locate the differences. The Wilcoxon signed-rank test was used to determine differences in the retrospective student self-assessments of knowledge. SPSS IBM version 22 was used for these analyses. To compare role knowledge from the checklist we used analysis of variance followed by the Tukey method of multiple means comparisons using SAS[®] version 9.3. *t*-Tests comparing percents were used to measure differences in pre–post-objective knowledge of roles using StatPac Version 4.0. A $p = 0.05$ was chosen as an appropriate level for significance. The exercise has been run in similar format with similar results for four years; because of modifications year to year, only data from the most recent year are reported.

Results

Participants

Table 2 summarizes participation in the *Interprofessionalism* mini-course.

Perceptions of mini-course components

All students perceived live event activities to be effective or extremely effective. Pharmacy students were the most positive about all learning activities; medical students were the least positive (data not shown). Student comments in open-ended survey questions reinforced and informed quantitative findings. Most were very positive about the overall mini-course, and 28% of suggestions for improvement stated that none was needed and/or requested more activities of this sort. In all, 61% expressed appreciation for the opportunity to meet students from other professions.

Among the 301 students who provided open-ended comments, only three highlighted IP tensions within the live

event, while 110 expressed value for learning about professional roles. This was in contrast to our earlier experience, where direct discussion of negative stereotyping appeared to exacerbate IP tension (unpublished). Students also expressed value for learning about disruptive and constructive team behaviors. Although disruptive examples were taken from actual clinical situations, ten students commented that some were exaggerated and should be more realistic.

Student perceptions of IPE

Considering students from all professions, 86–97% agreed or strongly agreed that students and faculty support IPE (Fig. 1). Among pharmacy students, 87% felt that their profession is often misunderstood, in contrast to 57% of nursing and 45% of medical students ($p < 0.005$). In all, 83% agreed or strongly agreed that requiring the mini-course of all health professions students is appropriate.

Figure 2 illustrates students' perceptions regarding the impact of IPE on patient care and professional job satisfaction. Pharmacy students consistently expressed more appreciation than medicine or nursing students did for all items in Figure 2 ($p < 0.01$). Medicine and nursing students did not differ from each other. At least 85% in all professions agreed or strongly agreed that IPE, including the *Interprofessionalism* mini-course, has the potential to improve all parameters measured.

Students' self-assessed understanding of scope of practice and team behavior

Student's self-reported learning was consistent across professions and is summarized in Table 3. For all questions, there was an increase in perceived knowledge or understanding "after" compared with "before" the mini-course ($p < 0.001$ for all items). Of the parameters assessed, knowledge of the roles of health care professionals was rated lowest before the mini-course.

Students' objectively measured knowledge

Scope of practice

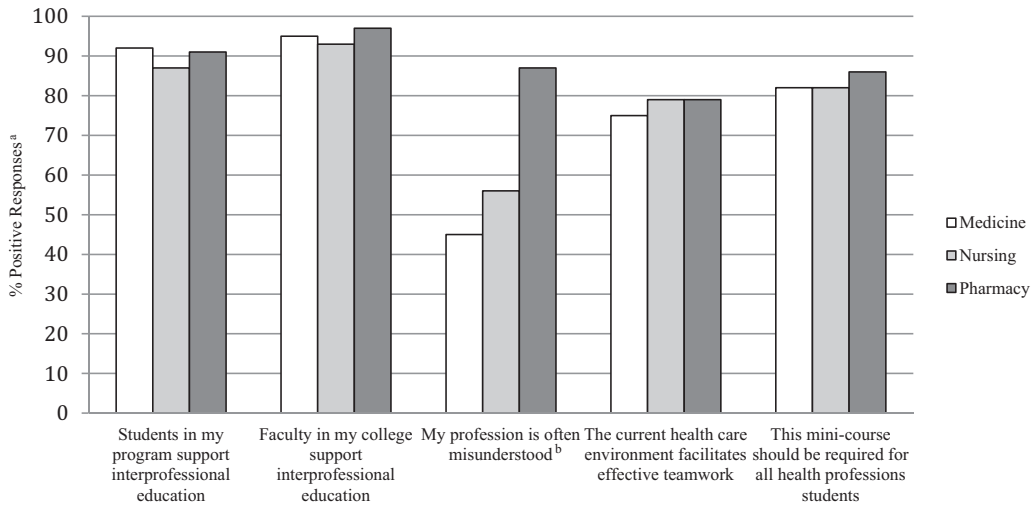
During the live event, 339 students completed the 18-item Scope of Practice Checklist prior to any small group discussion. Students scored 81% overall on knowledge of the physician role, 77% on the nurse role, and 57% on the pharmacist role (difference between nurse and physician

Table 2

Numbers of participants in the interprofessionalism for patient safety mini-course

Role/college	Medicine	Pharmacy	Nursing	Total
Facilitators	6	7	8	21
Students	120	100	131	351

Note: Medical and pharmacy students were in year 1 of their programs. Nursing students were in year 1 (Masters Program) or early year 2 (Bachelor of Science in Nursing).



^a % Positive Responses = Combined percent of “agree” + “strongly agree”

^b Pharmacy vs. Nursing or Medicine ($p < 0.001$)

Fig. 1. Student perceptions regarding interprofessional education. ^a% Positive responses = combined percent of “agree” + “strongly agree.” ^bPharmacy versus nursing or medicine ($p < 0.001$).

role: $p < 0.03$; difference between nurse or physician, and pharmacist role: $p < 0.0001$). As shown in Figure 3, pharmacy students displayed a better understanding of the pharmacist’s role than did medical or nursing students ($p < 0.0001$), and nursing students displayed a better understanding of the nursing role ($p < 0.002$). There were no significant

differences among student groups in understanding of the physician’s role.

For the subset of items selected for the post-test, there were no statistically significant differences among responses of medical, nursing, and pharmacy students; therefore, response rates were pooled for all students. For “serve as

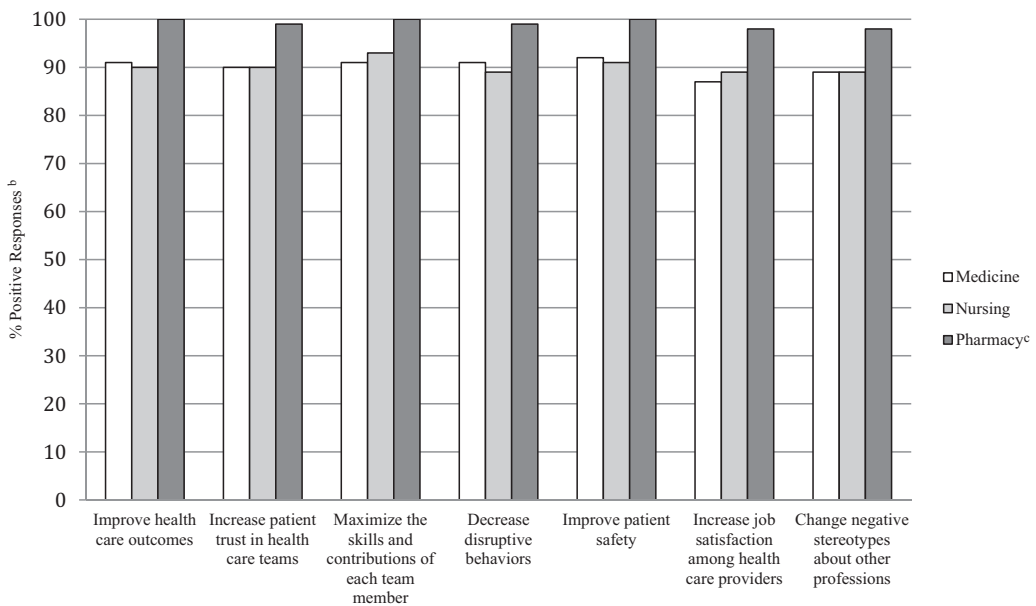


Fig. 2. Student perceptions of the value of interprofessional education (IPE) for patients and providers^a—comparison by students’ professions. ^aStudents were asked to rate the degree to which IPE can accomplish each item. ^b% Positive responses is the combined percents of “somewhat” and “a great deal” items. ^cFor all items, pharmacy students responded more positively than medicine or nursing students did ($p < 0.01$).

Table 3
Student self-assessment of knowledge pre- and post-mini-course, evaluated retrospectively

Survey item	Pre (%)	Post ^a (%)
My understanding of the barriers to effective communication among health care professionals.	57	94
My knowledge of professional scope of practice and roles of health care professionals.	42	94
My awareness of the existence of stereotypes among health care professional groups.	70	95
My understanding of disruptive behaviors and the impact on teamwork.	67	97
My appreciation for the potentially adverse impact of disruptive behaviors on patient care and safety.	72	97
My ability to identify the broad range of disruptive behaviors from subtle/passive to overt/aggressive.	60	95

Note: all professions are combined; percent somewhat high and very high responses are reported.

^a Differences between before versus after: $p < 0.001$ for all items.

the team leader,” results revealed increases in task assignment to pharmacist and nurse ($p < 0.001$), while assignment to physician approached 100% both before and after the exercise. For “coach patients about integrating self-care into daily living,” the expected response—that this would be a nursing task—approached 100%. Assignment of the task to physician decreased after discussion ($p < 0.0001$). The expectation for “prescribe medications” was physicians only; although nearly 100% of students chose physicians, there was an increase in students who selected pharmacists for this task ($p < 0.001$). For “research complex drug–drug interactions for the team,” pharmacist responses approached 100% before and after. These findings suggest that facilitators needed clarification that responses apply to newly licensed professionals in an academic health setting.

Recognizing behaviors

The student survey included three objective questions that asked students to identify (i.e., name) constructive and disruptive behaviors in a given scenario. Medical students, at 72% correct, scored higher than pharmacy at 64% or nursing at 59% ($p < 0.05$).

Discussion

This report describes a mini-course designed for entry-level medical, nursing, and pharmacy students that introduces a subset of core IP competencies. It uses a novel approach, combining exploration of professional roles with examination of disruptive team behaviors and constructive alternatives, thereby addressing twin essentials in IP practice of role knowledge and respect.¹¹ The mini-course is delivered over a month, with a two hour, two-part live event supplemented by online components before and after.

Professional roles and stereotyping

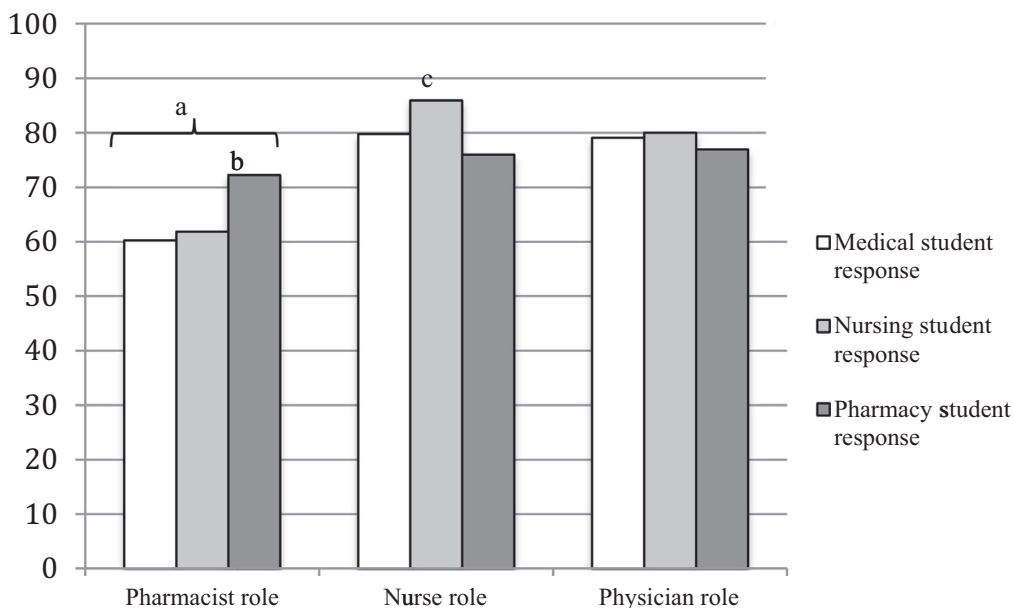
The face-to-face live IP event constitutes the core of the *Interprofessionalism* mini-course. Part I involves exploration of professional roles of physicians, nurses, and pharmacists. Accurate role knowledge is poor in early health

professions students, who are instead burdened with stereotyped views of their own and other professions.^{9,10,19,20} Moreover, early IPE training can exacerbate existing IP tensions.^{9,10} Our earlier experience with IPE was similar: deliberate discussion of stereotypes was counterproductive and generated tension (unpublished). To avoid this problem, *Interprofessionalism* is designed without direct discussion of stereotypes, and instead addresses actual role knowledge.

In generating the Scope of Practice Checklist, the panel sought to emphasize overlapping roles but also include a unique task for each profession and a relatively common procedure that no profession would perform immediately post-licensure. Scope of practice was chosen as the most objective statement of roles. While it proved challenging to find tasks unique to each profession, the checklist effectively served its purpose of stimulating exploration of roles and expansion of role knowledge.

Several findings emerged from the checklist evaluation. None of the professions scored better than 85%, even when identifying tasks that could be performed by their own profession. While students in all three programs scored equally well (ca. 80%) in identifying tasks that physicians could perform, students understood the nursing role slightly less well (77%) and the pharmacist role much less well (57%). This was consistent with pharmacy students’ higher agreement rate for the statement, “My profession is often misunderstood.” It may also account for the fact that pharmacy students expressed the strongest appreciation for IPE in general.

Based on findings from the pre–post-checklist assessment and students’ self-reported pre–post-knowledge, students in all professions increased their knowledge of professional roles as a result of the mini-course. In all, 70% of students rated their knowledge of professional stereotypes prior to the exercise as being somewhat high to very high. Interestingly, although the activities avoided direct focus on stereotypes, this number increased to 95% after the mini-course (Table 3). Students expressed strong appreciation for the opportunity to enhance role knowledge and correct stereotypes, and only three students expressed concern about IP tension. Hence, it appears that in the course of learning about professional roles, students became



^a Pharmacist role vs nurse and physician role ($P < 0.0001$).

^b Pharmacy students' knowledge of Pharmacist versus other students' ($P < 0.0001$).

^c Nursing students' knowledge of Nurse versus other students' ($P < 0.002$).

Fig. 3. Knowledge of pharmacist, nurse, and physician roles among pharmacy, nursing, and medical students.

more aware of their own stereotypes, even as those stereotypes were being corrected.

Given that the exercise was designed to avoid addressing stereotypes and IP tension directly, objective changes in these parameters after versus before could not be measured; however, the near complete absence of any expression of IP tension in student and facilitator feedback, together with students' very strong agreement that the exercise helps address stereotypes, strongly suggests that the exercise successfully avoided triggering negative attitudes around professional roles.

Team behavior

In addition to understanding professional roles, successful IP practice requires collaborative skills that support effective teamwork.¹¹ The Institute of Medicine has highlighted the connection between poor communication in health care teams and medical errors,²¹ and stimulated a greater emphasis on teaching team skills.²² Much of this effort has been directed at effective means of information transfer within the team and tools to deliver information clearly.²³

Interprofessionalism takes a unique approach and combines the scope of practice activity with a team skills exercise focused on interpersonal behavior. The latter raises awareness of disruptive behaviors commonly seen in health care teams and identifies constructive alternatives. Although based in clinical scenarios, it is not clinical content specific;

rather, it is immediately relevant to students, as they work in various team settings during their training and observe faculty working in teams to deliver curriculum.

The rationale for having students associate specific terms with specific behaviors is rooted in the understanding that language itself can be a potent driver of behavior, and naming behaviors makes them more recognizable—and therefore more manageable.²⁴ Although a majority of students after the exercise were able to recognize disruptive and constructive behaviors in clinical vignettes, scores on these questions were not high. Medical students achieved higher scores than did nursing or pharmacy students, possibly because a course within their curriculum incorporated the terms on a high-stakes exam, while students in other professions were not tested outside the student survey. In spite of the modest scores on objective questions, students' self-assessed ratings of ability to recognize disruptive and constructive behaviors increased after the exercise, as did their understanding of the importance of interpersonal skills for the well-functioning team. Moreover, in open-ended comments, they expressed appreciation for this learning.

Contact and identification theories

Educators have had mixed success with IPE interventions directed at entry-level health professions students. The Contact Hypothesis has been invoked as a useful framework

to guide development of IPE and explain how it impacts student attitudes toward IP colleagues.²⁵ According to the hypothesis as stated by Allport,¹² contact between different social groups will result in improved relations among intergroup members provided group members experience equal status, common goals, intergroup cooperation, and institutional support.

This presents a fundamental problem in IPE because status among physicians, nurses, and pharmacists is inherently unequal in our current system.²⁶ This inequality may fuel the IP tension apparent in some IPE experiences. However, relative equality is achieved within the context of the mini-course described here by choosing scope of practice content in which each student profession has unique knowledge to share, and by designing team behavior cases such that students from all professions are enabled to contribute equally to discussion. Additionally, addressing scope of practice with an emphasis on common responsibilities and the occasional need for shifting leadership may help reduce the potential negative impact of unequal status, as students look beyond training to the practice setting.

The focus of the exercise on patient safety satisfies the requirement that groups share a common goal. This theme is reinforced throughout with required readings, facilitator guidance, real patient feedback, analysis of team behavior scripts, and questions on the survey. Results reveal that students understand and appreciate patient safety as a common goal and connect it with mutual respect and teamwork. The requirement for cooperation is included in the constructivist design of the mini-course, whereby students build knowledge as an IP team by sharing experience with, and knowledge of, professional roles and team behaviors. Lastly, institutional support is exemplified by faculty and administration investing significant financial and other resources into mini-course delivery, and by the IP facilitator teams leading the live event.

Beyond these proximate conditions, results indicate that students emerge from the exercise strongly affirming the importance of IPE in achieving quality care and patient safety. Thus, they are in a position to contribute to an emerging social norm in which IP respect and partnership are highly valued.

In a meta-analysis, Pettigrew and Tropp determined that although the four conditions outlined by Allport facilitate favorable outcomes from intergroup contact, they are not required.^{15,27} They emphasize the importance of negative factors in *preventing* favorable outcomes, particularly affective parameters such as social anxiety, as may arise from fear of losing social identity, fear of domination, or fear of rejection.^{27,28} Social anxiety generated through evoking negative stereotypes via surveys may contribute to the negative IPE outcomes reported by some investigators.^{9,10} Seen through this lens, the conditions outlined by Allport,¹² and sought in the mini-course described here as well as in other exercises, may have their positive effect indirectly, by minimizing social anxiety.²⁹

Social identity theory has also been invoked to explain the formation of professional stereotypes from which people derive their individual and social identities, including attitudes toward others.^{16,30,31} Identity boundary formation drives a tendency to view one's ingroup and oneself more positively than the outgroup and others.

More recently, both contact and social identity theories have been expanded and integrated, emphasizing the need for IP socialization and development of a dual identity—professional and interprofessional—to overcome ingroup versus outgroup forces in health care teams.^{13,14,32,33} The *Interprofessionalism* mini-course accords with the first two stages of the socialization process described by Khalili et al.¹⁴ The Scope of Practice Checklist activity contributes to breaking down myths and barriers to collaboration by increasing accurate role knowledge. The team behaviors activity involves IP collaboration on analysis of scenarios to identify disruptive behaviors that impact the patient experience. Based on student feedback expressing the importance of the learning experience and of IP collaboration, the exercise contributes to preparation of fertile ground for eventual development of an interprofessional identity.

There are several limitations to the study. Although the Scope of Practice Checklist was effective in stimulating exploration of professional roles, measurement of gains in role knowledge was weakened by ambiguity in the checklist answer key for some items. We are in the process of revising the checklist to clarify the ambiguous items. Students in the participating nursing programs are further along than the pharmacy and medical students. Also, objective testing of content knowledge outside the exercise occurs for medical students and not for nursing or pharmacy. These inconsistencies arise from the challenges of bringing together students with different curricula, governance structures, and timetables, and can be addressed as the IPE program continues to evolve. Pre-intervention data on attitudes or knowledge were not collected, because of the experience-based concern that surveying attitudes may itself have a negative effect. In addition, the outcomes of knowledge and attitudes measured are of short-term duration. *Interprofessionalism* is the first in a series of four mini-courses that constitute an overall pre-clinical IPE curriculum; it is expected that longer term and behavior-related outcomes will develop from this curriculum as a whole.

Conclusion

This report describes an IPE experience for nursing, pharmacy, and medical students early in training that combines exploration of professional roles, and analysis of disruptive and collaborative behaviors, thus targeting two critical aspects of IP practice. All student groups were receptive to IPE in this format, with pharmacy students being the most receptive, correlated with the relatively poor understanding of the pharmacist role. The results suggest a generalized applicability for developing IPE curricula: by

structuring early IPE learning activities using a common, important theme (here, patient safety), focusing on role knowledge, and promoting respect-engendering behaviors, IPE curricula can avoid negative stereotyping and poor social integration known to hamper IP experiences for health professions students. Curricula developed using these critical elements can lay a positive foundation for further IP socialization.

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