

PURPOSE

The purpose of our project was to examine the process and outcomes of a study designed to pilot the use of a simulation-based interprofessional education activity for students in nursing, medicine, physician assistant and social work.

BACKGROUND

Interprofessional education (IPE) enables the acquisition of knowledge and skills necessary for collaboration as well as a positive impact on patient care.¹ Exploring innovative ways to facilitate interprofessional student learning to positively influence patient care is paramount. One tenet of effective IPE is that it is most effective when learning methods reflect real-life practice experience such as that experienced by students in simulations.² Simulation places students in a life-like, safe environment representing the complex nature of situations they will find themselves in which promotes ready adoption and transfer to practice.³ Thus, simulation as a modality in IPE offers many of the educational benefits desirable in an IPE activity.

METHODS

- Designed a simulation-based IPE experience utilizing a high-fidelity simulator and standardized patients engaging students from nursing, physician assistant, social work, and medicine (Table 1).
- The IPEC⁴ core competencies framed the curriculum of the experience and elements of TeamSTEPPS guided the students in achieving the competencies. The objectives, methodologies and expected outcomes from each session were defined (Table 2).
- In addition to a student satisfaction questionnaire (Table 6), the Attitudes Toward Interprofessional Healthcare Education Scale (Table 3A), and the Attitudes Toward Interprofessional Healthcare Teams Scale (Table 3B), and the NLS Simulation Design Scale (Table 5), we were used to collect data measuring student perceptions of the experience. Each used a 5-point scale.
- Students also participated in a focus group session. The qualitative data from the focus group was analyzed using Colaizzi's phenomenological method to uncover the genuine experience of the students (Tables 4A and 4B).

Table 1: Demographics	
Profession	Nursing: 4
	Physician Assistant: 2
Social Work: 2	Medicine: 2
	Social Work: 2
Female/Male	3/1
Average Age (s.d)	24.2 ± 3.9 years (Min, max: 21, 34)
Race	White 50%
	Asian 20%
Prior IPE Experience	50% Yes
Prior Simulation Experience	40% Yes
Prior Healthcare Experience	70% Yes

Table 2: Simulation-Based Interprofessional Education Activity			
Session (IPE competency)	Objectives	Methodologies	Outcomes
1a: Independent study Introduction (VE4, RR1, CC4)	1. Gain an understanding of interprofessional collaboration 2. Think about who is on their team and how they will know if it is functioning 3. Explore the professions of the group members as well as those not represented in the group 4. TeamSTEPPS	1. Research roles of SW, Nursing, PA, and Med students 2. Watch UW TeamSTEPPS lesson	1. Understand that the team is comprised of individuals from multiple health professions disciplines 2. Recognize factors important in team-based patient outcomes
1b: Roles & Responsibilities & Effective Communication (VE4, VE5, RR1, RRA, CC4)	1. Summarize roles and responsibilities of all members of the team 2. Develop the teams 3. Explore the professions of the group members and opportunity and students critique 4. Plan their approach to dealing with acute asthma patient	1. Paper chain team-building exercise 2. Student assess team performance using TeamSTEPPS success and opportunity videos 3. Group work developing plan to treat patient	1. Be able to effectively communicate with others who may have a different communication style 2. Become comfortable with the TeamSTEPPS roles 3. Understand the roles and responsibilities of other participants in caring for an acutely ill patient.
2: Decision making and Simulation (VE5, VE7, VE10, RRR, RR5, RRR, CC5, CC6, CC9, T14, T16, T18)	1. Briefing of the plan 2. Become familiar with the simulator and its limitations, and introduce environment (drug location, equipment location, etc) 3. Care for 16-year-old patient with acute asthma 4. Explore interactions among members of the team	1. Simulation using simulator and standardized patients 2. Plan defining responsibilities of team members 3. Be comfortable with the simulator & environment 4. Team effectively treats family 5. Understand the roles and responsibilities of participants 6. Success and opportunities related to the simulation IPE pilot.	1. Outline of pertinent issues 2. Plan defining responsibilities of team members 3. Be comfortable with the simulator & environment 4. Team effectively treats family 5. Understand the roles and responsibilities of participants 6. Success and opportunities related to the simulation IPE pilot.

*The letters and numbers in parentheses correspond to the IPEC Expert Panel competency domain and specific competency, respectively.

Implementing Simulation-Based Interprofessional Education: Students' Evaluation of the Pilot Indicate a Very Successful Program

John L. Szarek, PhD, CHSE², Wendy Manetti, RN, MS³, Diane M. Shea, PhD, RN¹, Karen Arcsot, DO², Antonio Pellegrino, EMPT², Deirdre Spelman, ACSW, LSW¹, Debbie Zielinski, RN, MS³, Mary Triano, RN, MS²
Marywood University¹, The Commonwealth Medical College² and The University of Scranton³

Tables 3A and 3B: Attitudes Towards IPE and Teams Scales
Summary: Students attitudes were consistently positive with respect to interprofessional education and team work.

Table 3A: Attitudes Towards IPE Scale	
Statement	Means±SD
Interprofessional learning among health professionals will help them to communicate better with patients and other professionals.	5.0 ± 0.0
Interprofessional learning among health professionals will increase their ability to understand clinical problems.	4.6 ± 0.5
Learning between healthcare students before qualification would improve working relationships after qualification.	4.6 ± 0.6
Learning with students in other health professions helps students to become more effective members of a healthcare team.	4.9 ± 0.4
Students in my professional group would benefit from working on shared group projects with other healthcare students.	4.8 ± 0.6
Interprofessional learning will help to clarify the nature of patient problems for students.	4.8 ± 0.5
Interprofessional learning before qualification will help health professional students to become better team workers.	5.0 ± 0.0
Patients would ultimately benefit if healthcare students worked together to solve patient problems.	5.0 ± 0.0
Interprofessional learning will help students think positively about other healthcare professionals.	4.9 ± 0.4
Interprofessional learning will help students understand their own professional limitations.	4.9 ± 0.4
Communication skills should be learned with integrated classes of healthcare students.	4.9 ± 0.4
It is not necessary for undergraduate healthcare students to learn together.	4.8 ± 0.5
For small group learning to work, students need to trust and respect each other.	4.9 ± 0.4
Team-working skills are essential for all healthcare students to learn.	5.0 ± 0.0
Overall α = 0.85	

Table 3B: Attitudes Towards Teams Scale	
Statement	Means±SD
The interprofessional approach improves the quality of care to patients/clients.	5.0 ± 0.0
The interprofessional approach permits health professionals to meet the needs of family caregivers as well as patients.	5.0 ± 0.0
Having to report observations to a team helps team members better understand the work of other health professionals.	5.0 ± 0.0
The interprofessional approach makes the delivery of care more efficient.	5.0 ± 0.0
Hospital patients who receive interprofessional team care are better prepared for discharge than other patients.	5.0 ± 0.0
Team meetings foster communication among team members from different professions or disciplines.	5.0 ± 0.0
The give and take among team members helps them make better patients/client care decisions.	5.0 ± 0.0
Patients/clients receiving interprofessional care are more likely than others to be treated as whole persons.	5.0 ± 0.0
Health professionals working as teams are more responsive than others to the emotional and financial needs of patients/clients.	5.0 ± 0.0
Working in an interprofessional environment keeps most health professionals enthusiastic and interested in their jobs.	4.8 ± 0.4
Developing a patient/client care plan with other team members avoids errors in delivering care.	4.8 ± 0.4
Working in an interprofessional manner unnecessarily complicates things most of the time.	4.7 ± 0.5
In most instances, the time required for interprofessional consultations could be better spent in other ways.	4.2 ± 0.8
Developing an interprofessional patient/client care plan is excessively time consuming.	4.2 ± 0.8
Overall α = 0.85	

Tables 4A and 4B: Qualitative Analysis of Focus Group Transcripts
Summary: Two major themes were uncovered. 1) The simulation theater facilitated learning. 2) Participants gained a deeper understanding of interprofessional collaboration.

Table 4A: Themes and Illustrative Students' Comments	
Theme	Comments
Realistic practice setting	<ul style="list-style-type: none"> "One thing I really liked about this was [that] I thought it was a lot more realistic because when you do simulations at school, it's me and three other nursing students, which never is the case. So this was a lot more realistic as to what is seen in the real world." (N) "When we were in the planning phase we were discussing roles, whose going [in the room] first, but when you actually go in the room, you are like 'Oh, this is the real life setting, this is how you have to do it, this is how you have to handle the situation and talk to the other professionals.'" (SW) "It was a more relaxed atmosphere, than class, when you know you're being graded." (N) "... even though we are strangers you would think it would be more awkward, but I think it was actually less awkward because you know that you are not comparing each other and it's not a competition you are learning together." (M) "During the simulation[...], everyone worked as a team, everyone knew what was to be done and that we could easily talk. 'You know, I could go and ask the nurse or the physician how the patient was doing?' And then I could go and report back to the parents. So there was nothing to be afraid of. It helped. I think it helped." (SW) "So, yeah it's definitely more valuable this way and I mean the only other way that I really know that we've had interprofessional education so far was that seminar a year or two ago, and then we all kind of sat around and talked about what each discipline does, but you don't really like 'get to learn it' until you act it out." (M) "It showed what they act like in real life, like what they do in the room with the patient, instead of just sitting there and talking about this is what a PA can do, and this is what a social worker can do. It's just more concrete and understandable." (N)
Safe practice setting	
Active Engagement of Learners	

Table 4B: Themes and Illustrative Students' Comments	
Theme	Comments
Role clarification	<ul style="list-style-type: none"> "I think I knew what the nurses do, and the med student, but the simulation it was more clear what her role is." (SW) "I learned a lot about myself, about if I am the leader in a situation and how to be a better leader." (PA)
Appreciation of a support system	<ul style="list-style-type: none"> "... it's just remembering that you have other resources if you're ever stuck; you know you can call the PA or the physician, social work. As a nursing student, you don't just have to depend on yourself if you're confused." (N) "... remembering that there are team members with different strengths available that can be used as resources." (SW) "I think it has a lot to do with respect to, like each position, title, respecting decisions and giving opinions, and if you think something needs to be done and the physician has something else they want to be done then you can collaborate together, and just respect each other in that aspect." (N) "... working together as a team means that the leader has to make sure that his teammates feel valuable, and making sure that there is a proper relationship between everyone." (M) "... the impact of having a buddy and like SBAR, we learn that in class, but in clinical I never see a nurse or anyone really report off like that. So, to see it used and correctly used was useful." (N) "Cause to be effectively collaborating you need to have a good relationship, and good communication with all the people on the team, caring for the patient because you all have the same goal." (PA) "I think it's vital for each member of the team to be empowered to speak freely with the other team members to improve the care of the patients." (SW)
Respect for others	
Need for good communication	

Table 5: NLS Simulation Design Scale
Summary: Students believe that the main themes of objectives, support, problem-solving, feedback and fidelity of the simulation were achieved.

Table 5: NLS Simulation Design Scale			
Statement	Means±SD	Statement	Means±SD
Enough information provided at start	4.4 ± 0.5	Explored all possibilities of the simulation	4.2 ± 0.7
Purpose and objectives were clear	4.6 ± 0.7	Appropriate knowledge and skill level	4.7 ± 0.5
Enough information to problem-solve	4.7 ± 0.5	Prioritize assessments and care	4.3 ± 0.7
Enough information provided during	4.7 ± 0.5	Opportunity to goal set	3.9 ± 0.8
Appropriate cues	4.6 ± 0.8	Constructive feedback provided	4.8 ± 0.4
Timely support	4.7 ± 0.5	Timely feedback	4.8 ± 0.4
Need for help recognized	4.6 ± 0.8	Self-analysis of behavior and actions	4.9 ± 0.3
Supported by the facilitators	4.2 ± 0.8	Realistic	4.6 ± 0.4
Supported in the learning process	4.6 ± 0.7	Resembled a real-life situation	4.9 ± 0.3
Problem-solving was facilitated	4.6 ± 0.5	Real life factors, situations, and variables	4.8 ± 0.4
Overall α = 0.81			

Table 6: Students' evaluation of the program
Summary: Except for orientation, students believe they learned how to achieve patient outcomes collaboratively and that simulation is an effective means of IPE.

Table 6: Students' Evaluation of Program			
Statement	Means±SD	Statement	Means±SD
Greater understanding of others' roles	4.5 ± 0.5	Orientation was sufficient	2.8 ± 0.8
Developed communication skills	4.5 ± 0.5	Environment conducive to learning	4.6 ± 0.5
Work more efficiently as IP team member	4.8 ± 0.5	Realistic experience of the IP challenges	4.4 ± 0.5
Work collaboratively planning care	4.7 ± 0.5	Appropriate to level of experience	4.3 ± 0.5
Work collaboratively implementing care	4.7 ± 0.5	Valuable team skills training	4.6 ± 0.5
Work collaboratively in patient care	4.7 ± 0.5	Recommend experience to others	4.6 ± 0.4
Effective way to teach IP concepts	4.8 ± 0.5	Overall, the program was effective	4.6 ± 0.4
Debriefing session was valuable	4.6 ± 0.5		
Overall α = 0.90			

RESULTS: SUMMARY

- Students' reactions to the program and simulation were very favorable
- The question receiving least favorable responses pertained to the orientation to the mannequin and equipment.
- Students' attitudes to IPE and teamwork were very positive
- Analysis of focus group transcripts revealed two major themes: (1) Simulation facilitates learning through a realistic, safe practice setting that promotes active engagement of the learners, (2) Participants gained a deeper understanding of interprofessional collaboration in terms of role clarification, appreciation of a support system, respect for others, and the need for good communication.

CONCLUSIONS

- The planning team believe the program was successful and is ready to scale up for whole classes.
- The orientation session to the mannequin and environment needs to be extended.
- Simulation is an effective modality for placing students from different health professions in a safe, patient-centered environment to learn about, from and with each other.

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Contact Information
John L. Szarek, PhD, CHSE
Professor and Director Clinical Pharmacology
Education Director for Simulation
The Commonwealth Medical College
Department of Basic Science
525 Pine Street, suite 3053
Scranton PA 18502
Email: jszarek@medco.org