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Attitude adjustments after global health inter-professional student team experiences

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Abstract

How medical inter-professional (IP) education should be introduced to students is still a matter of research. We evaluated IP student attitudes before and after a busy "hands-on" clinical experience.

During 3 separate trips, first/second year medical and physician assistant students and third/fourth year nursing students traveled to Central America to work together for 1 week in an underserved clinical setting. Student opinions on inter-professional education were obtained before and after Brigade-1 using the *Readiness for Inter-professional Learning Scale* validated questionnaire. From these results, a modified version of the survey was developed that included quantitative and qualitative responses. For brigades-2 and -3, students received this modified version of the survey pre and post brigade. Quantitative data was analyzed via paired student *t* test, and qualitative data was analyzed to identify emerging themes using constant comparative methodology by three separate investigators.

No significant quantitative differences between IP student groups were observed in their evaluation of the importance of inter-professional education either before or after the brigades. Qualitative data noted pre-brigade expectations of positive IP, experiential and patient-centered cultural learning. Pre- and post-brigade student perspectives maintained a strong belief that high functioning IP care benefited the patient. Post-brigade perspectives revealed a shift in attitude from purely positive expectations to more practical aspects of teamwork, respect, and interpersonal relationships.

Students believe that patient care benefits from IP collaboration. After a busy clinical experience requiring collaboration, students realized that functional teams require appropriate skills, roles, and respectful interpersonal relationships.

Abbreviations: IP = inter-professional, IPE = inter-professional education, PA = physician assistant, RIPLS = Readiness for Inter-professional Learning Scale.

Keywords: attitudes, global health, inter-professional students

1. Introduction

1.1. Background

Improving patient care is a primary goal for healthcare organizations. Studies show that inter-professional (IP) collaborations between healthcare professionals contribute to improved patient outcomes.[1–3] More recent literature suggests that starting these collaborations early in medical education may further improve patient care.[4,5] The Institute of Medicine has endorsed inter-professional education (IPE) as an important theme in medical education.[6]

Studies also report that IPE benefits student professional development.[7] However, these reports are based on educational models consisting of moderated cases or community service projects.[8,9] Limited research exists about student perceptions of IP medical experiences in a real world clinical setting where students of different professions such as medical, nursing and physician assistant (PA) students work together to treat patients.[10]

1.2. Objective

This study analyzes student responses to IPE during 3 separate IP clinical experiences on medical brigades to Central America in order to measure student perceptions of working in an IP clinical setting.

1.3. Methods

The College of Medicine Institutional Review Board approved this study. Beginning in 2014, during 3 separate annual trips, first/second year medical and PA students and third/fourth year nursing students traveled to Central America, Brigade-1 (n = 10, 0, 7, respectively) Brigade-2 (n = 10, 32, 8), and Brigade-3 (n = 25,

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1, 6), to work together for 1 week in an underserved clinical setting. The medical brigade is a temporary mobile outreach clinic established in a school building for one week, coordinated by local community and organizational members. For three months before the brigade, medical and nursing students prepared together. Two PA schools in different cities organized separately. Students from the different schools did not interact until the brigade. Under the supervision of attending physicians, PAs, dentists and pharmacists, the students provided medical care for 700 to 1200 patients per trip via a variety of team stations, which included triage, consultation with a physician, dental, laboratory, pharmacy and charla (health education for children and adults). Each station had a local interpreter. Every evening, all members participated in reflection-debriefing sessions and leaders of each school randomly assigned students to each of the following day's stations. Students changed groups and stations at midday, rotating through all stations with equal opportunity.

On Brigade-1, students received the validated *Readiness for Inter-professional Learning Scale (RIPLS) Questionnaire*[11] as a pre and post trip experience survey. Based on these results, the authors developed a survey that included questions with ordinal and free response. This survey was administered to students both pre and post brigades 2 and 3 on the plane flights to and from Central America, resulting in 100% response rate. The ordinal scale (strongly disagree, 1, to strongly agree, 5) contained 5 statements aimed towards the benefits of IPE in terms of professional identity, collaboration, teamwork, and patient centeredness. There were also 5 open ended questions asking about personal leadership roles, attributes that contribute to a well-functioning, effective team and team member and the most important aspects the students expected and took away from their IP experience. All survey results were anonymous and confidential.

All quantitative ordinal scale results were analyzed with a paired student t test with significance defined as $P \leq .05$. Team member analyzed qualitative data, assigning codes to repetitive ideas. Using the codebook developed by team member, 2 other team members (WH, EH) each independently coded sections of relevant text. ATLAS.ti 8.0 software was used to manage the data.

Codes were grouped into themes according to similarities. The members separately identified emerging themes, agreed upon them and refined them, updating and changing the codebook until they achieved consensus and theoretical saturation was reached.

2. Results

The majority of students were women. The students had varying levels of clinical and IP experience. Nursing students were younger. PA students had the most prior clinical experience with 91% of the students reporting pre-trip clinical exposure. The majority of PA student exposure to IP interactions was through prior work experience. Medical students had the least prior clinical experience but the most IP exposure, which mostly came from public health, business graduate school classes and to a lesser extent prior work experiences. Nursing student cited their clinical rotations as their only IP experience.

The modified survey was administered both pre and post Brigade 2 and 3 groups, with 100% response rate. Although there was no statistical significance between the pre and post-brigade attitudes towards IPE, there was a decline in attitude towards professional identity, teamwork, and collaboration. Patient-centeredness attitudes remained consistently positive.

2.1. Thematic data

Pre and post brigade themes were extracted from the four open-ended questions. Themes were identified via coding in Atlas.ti software and refined into 3 major themes for each group. Each theme is briefly summarized and then supported with selected, representative quotes from the surveys.

3. Discussion

IPE is increasingly being implemented and evaluated in medical education with the belief that the IP collaboration is necessary for the delivery of quality patient-centered care.[12] Every year, more studies are added to the literature, most of which suggest positive outcomes in attitudes, collaboration and health care delivery with IPE.[5,13,14] However, there are still questions about when to implement IPE. Should IPE be early before professional identities have been ingrained or later when students have a better understanding of their discipline?[12,15] Or should IPE be introduced in a stepwise progression, with periodic exposure early on, followed by full emersion later when students have more of a sense of their own professional identity?[16] Hudson et al hypothesized that an early patient-centered experience in the preclinical years could be a unifying opportunity for IPE collaboration. Using an extended version of the RIPLS the authors unexpectedly discovered that following a 3-week IPE immersion, attitudes towards teamwork, collaboration, professional identity, and patient–centeredness declined.[17] We provided a one week intensive emersion of 1st and 2nd year medical, nursing and PA students into direct patient care under physician, PA faculty, pharmacist and dentist supervision. Unlike Hudson's immersion where student participation was intended to "assume responsibility for caring . . . .not for medical decision-making," our immersion was complete management of patient care. Every student was needed and busy, working triage, patient navigation, consultation, laboratory, pharmacy, dental and "charla" educational sessions. Every student was needed to take vital signs, elicit a chief complaint, and direct patients to the appropriate stations. Under the supervision of faculty, students performed physical exams, pondered diagnostic reasoning decisions, performed simple laboratory tests, and discussed treatments. Under the guidance of a pharmacist, students dispensed and counseled patients about their medication. Under the guidance of the dentists, students applied fluoride treatments.

Although we did not find any statistical significance between the pre and post brigade RIPLS abbreviated survey results, we did find a consistent decline in attitudes towards teamwork, collaboration, and professional identity. But unlike Hudson's results, we did not see a change in the students' very positive attitudes towards patient centeredness. When evaluating the free responses, we found that patient-centeredness was the one unifying reason students felt that they needed to work through team conflicts and to quickly learn how to collaborate to best perform the tasks needed to care for the patient.

The free responses helped clarify the root causes of the attitude changes towards IPE before and after the IP clinical experience. All the students' pre-brigade attitudes were very positive and idealistic. The students were excited to learn about and to learn from different professional students. They were excited to

Table 1

Student demographics.

Student Demographics	Medical n = 45	Nursing n = 21	PA n = 33
Average age (years)	24.1	20.6	24.5
Prior healthcare experience	33%	38%	91%
Prior inter-professional experience	67%	40%	60%
Gender (% female)	60%	95%	88%

immerse themselves into a clinical experience where they could apply their previous learning. The students were excited to connect with a community that needed their services and to learn about a life and culture different from their own. After the brigade, the students all felt that they had connected with the community and performed a valuable service. The communities showed their appreciation with music and dance exhibitions and certificates of appreciation from the town mayor. Students wrote essays describing a "life changing" experience.

However, students discovered that interpersonal relationships and team collaboration are not always easy and simple. They discovered that teams need structure and essential elements to function. Each team required basic skills. Possession of skills defined the roles of each of the members. Poor understanding of roles and capabilities of team members have been shown to be significant factors interfering with team function.[18,19] Those students who were most comfortable with their role, stepped-up to lead the group. Some students were more comfortable in the lab, others in pharmacy, others in triage, etc. However, the students learned that if a key skill was missing from the group, the group did not function well.

Most notable however was the difficulty in interpersonal dynamics. Poor communication has been a noted difficulty in IPE.[20] We feel that much of the tension was related to misunderstanding, misconceptions, and misinterpretations between people who had no prior interaction before coming together on a team. Many of the attitudes that arose about respect, interpersonal relationships and professional identity arose during the 2nd brigade when 3 different schools merged on the day of the brigade. The medical/nursing school and 2 different PA schools prepared separately before the brigade, meeting the day of the brigade. We had nightly reflection sessions to discuss events of the day in attempts to "iron out" daily logistics. But what we found was that groups preferred to work with familiar teammates. Even the PA students preferred to work with classmates from their own school rather than with PA students from the other school. We found that students came in with preset attitudes about how their profession was viewed by others and how they viewed other professions. It would be ideal for team members to know each other on an interpersonal level before expecting them to work as a cohesive team. But this does not always happen in the medical field. Members of code teams and rapid response teams frequently meet each other at a critical high-pressure moment. Operating room teams frequently meet at the start of an operation. Inpatient teams frequently rotate attendings, residents, and students. Interpersonal communication is core to teamwork and central to patient safety.[21,22] It has been shown that consistent teams, with members who know their respective roles perform better and more efficiently than unacquainted teams.[23] But when that is not possible, team members need to quickly work through interpersonal conflict for the benefit of the patient.

Experiences that provide service oriented, IP clinical immersion are effective methods for students to quickly learn how to collaborate and form a functioning team for the benefit of the patients.[24,25,26] Interpersonal conflict resolution is part of that experience. But patient-centeredness remains at the core of what all medical professions must work towards together (Tables 1–3).

Addressing the possible biases and limitations inherent to surveys, we began with a validated RIPLS Inter-professional survey that we then piloted and modified with the first brigade group. Distributing the survey on the plane before and after the brigades gave us 100% response rate. The limitations to our study are that the qualitative responses were received from only 2 brigades and a total of 82 students. Because each brigade had different proportions of medical, PA and nursing students, disproportionate professional bias could have influenced responses. A more optimal, but not achievable scenario, would have been to have an equal number of students in each category in each brigade.

In conclusion, both before and after the brigades, students agreed that organized IP healthcare teams benefited the care of the patient. This study adds to the literature by analyzing medical, nursing and PA students' pre-brigade expectations and post-trip perspectives. There was a shift in attitude post-trip compared to pre-trip. The students began the brigade with unanimously positive, hopeful, idealistic expectations; the students returned from the trip with realistic perspectives. The experience made them realize that IP teamwork was not as easy as anticipated.

Table 2

Modified quantitative survey pre and post brigades 2 and 3.

Brigades 2 and 3 data	Pre-brigade				Post-brigade			
Medical students (M) n = 20 *P < .05 Nursing students (N) n = 15 PA students (PA) n = 32 Total Average (T) n = 67	**M**	**N**	**PA**	**T**	**M**	**N**	**PA**	**T**
Q1 Learning with other professions helps me become a more effective member of a healthcare team.	4.5	4.7	4.6	**4.6**	4.3	4.8	4.5	**4.5**
Q2 Patients ultimately benefit from interprofessional healthcare teams.	4.6	5.0	4.6	**4.7**	4.7	4.7	4.6	**4.7**
Q3 Shared learning with other professions increases my ability to understand clinical problems.	4.4	4.7	4.6	**4.6**	4.1	4.5	4.4	**4.3**
Q4 Learning in interprofessional healthcare teams helps me appreciate other professionals.	4.4	4.4	4.7	**4.5**	4.3	4.4	4.3	**4.3**
Q5 Learning in an interprofessional team helps me understand the roles of the various professions.	4.6	4.6	4.6	**4.6**	4.4	4.4	4.4	**4.4**

PA = physician assistant.

Table 3

Pre-brigade and post-brigade themes.

Pre-brigade themes	Representative quotes
Explore professional identity	"Better understanding of the skillset that PA's possess and how a MD collaboration could complement/add to that skillset."
	"I expect to better understand the perspectives of different professions and their individual goals for patients."
	"How to work well with and build relationships with other healthcare professionals because that is not something we learn or practice in clinicals."
	"I hope to learn more about each profession that makes up the team."
Experiential Learning	"Different perspectives, knowledge, and experiences will open me to new ways of practicing and studying medicine."
	"Better understanding of how to apply my medical knowledge to clinical problems."
	"Experiencing what it's like to treat patients."
	"Being able to help the underserved and to put what I learned into practice."
Cultural awareness	"Learn with my peers about a new culture."
	"Connection to the community and local healthcare."
	"Better sense of other cultures and how that affects the patients' needs in care."
	"Appreciation for underserved communities and their need for healthcare."
Post-brigade themes	**Representative quotes**
Patient care is the unifying goal for inter-professional collaboration	"All disciplines have one common goal and that is providing the best care possible to our patients and I feel as though this care is best delivered when we all work together as one unit."
	"The importance of working with new people and working together for the good of the patient."
	"It is important to work together and utilize each other's skills to provide the best care possible."
	"This is potentially the only time I will get to work closely with nursing students and PA students. At this point in our educations I am far outpaced by my counterparts in practical medicine. The other members of my teams often provided a perspective that I had not considered."
Effective teamwork revolves around having the necessary skills that then define the roles	"This was an opportunity to teach med student about PAs scope of practice, showed me how other health professional students view PA students, made me better prepared to work with other health professionals, it gave me a peak into the kind of situations I will see in the future. Working as part of a healthcare team is an essential component of becoming a PA, and this trip better helped me understand those roles."
	"The most effective team was one where each person had a clear role and was needed and valued for their efforts."
	"It is imperative that every team member understands to the full extent the capabilities and knowledge of the other team members and encourages each member to perform to their full potential."
	"I was most comfortable on the team where I had prior experience, was able to utilize my skills best, knew how to perform my role, could offer insight."
Respect and interpersonal relationships	"Working with nursing students helped me to appreciate their skills and perspectives and elucidated their value not only as team players in the health care setting, but in many cases, leaders. I grew in respect for the profession and am eager to continue working with them in the future."
	"The teams where the students already knew each other and had some sort of relationship were more receptive, respectful and appreciative to each others' input and thoughts. These teams had more open communication and better problem solving skills."
	"I learned that I will need to pick a doctor who will respect me and my skill level so that we can work together."
	"Cooperation and respect for other professions goes a long way. We all add something to the table."
	"I realized that there needs to be more communication about the PA role and what we can do. Working with the med students sometimes made me feel inferior."
	"Working with strangers is harder than I expected. Not everyone knows how to work well in team."
	"Inter-professional education should occur more often and earlier in healthcare training to help dispel inaccurate assumptions about other professions and students can learn to address possible problems that may arise."

PA = physician assistant.

Conflicts and misunderstandings arose. They realized that teams require appropriate skills, roles, and respectful interpersonal relationships. Having hundreds of patients waiting for care every day forced the students to adapt, adjust and work out their difficulties quickly and in real time to accomplish the work that was required. We learned that pre-trip development of interpersonal relationships and defining of roles could relieve some of the tensions that arose during the brigade. These lessons can be implemented in IPE, teaching students how best to adapt and respectfully establish roles and responsibilities for the care of the patient.

Author contributions

WLH and EFH contributed from inception to finish, developing and administering the surveys, interpreting results and writing and editing the manuscript. MS and MK contributed to data collection, interpretation and editing the manuscript.

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