An Innovative Approach to Interprofessional Education: Medical Student-Nurse Partnerships in the Clinical Setting

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ABSTRACT

INTRODUCTION: Effective interdisciplinary collaboration (IPC) between physicians and other healthcare professionals is critical for enhancing patient outcomes. However, achieving successful collaboration remains challenging. This study aimed to develop an interprofessional elective that explores its impact on medical students' understanding of nursing roles and enhances collaboration between medical students and registered nurse (RN) facilitators.

METHODS: In 2021, a clinical elective was offered to third- and fourth-year medical students at The Warren Alpert Medical School of Brown University. This 80-hour elective, delivered over two weeks, paired students with nurses on acute care units at Rhode Island Hospital. The program focused on improving the understanding of RN roles, communication skills, and developing collaborative partnerships. Surveys were administered to students and nurses before and after the elective to assess knowledge, skills, and attitudes regarding IPC.

RESULTS: Statistically significant improvements were observed in both students' and nurses' perceptions of nursing roles and interdisciplinary communication. Students demonstrated increased comfort in communicating with nurses and improved understanding of nursing duties. Nurses reported greater appreciation, with physicians placing importance in understanding their workflow. The majority of nurses agreed that the two-week duration was sufficient for students to gain meaningful insights into nursing practice.

DISCUSSION: This study is among the first to examine both medical students' and nurses' experiences during an interprofessional clinical elective. Findings suggest that such programs provide valuable insights into nursing workflows, improve communication, and foster mutual respect between disciplines. Despite some limitations, including a small sample size and single-site focus, the positive impact on both students and nurses supports the expansion of similar interprofessional electives. Future research should explore the long-term impact of these programs on collaborative behaviors.

KEYWORDS: Interprofessional education; Interprofessional communication; Professionalism; Teamwork; Interdisciplinary teams

INTRODUCTION

Healthcare's evolving complexity and nature demands improved teamwork and collaboration between physicians and other healthcare disciplines to enhance patient outcomes. Effective interdisciplinary collaboration (IPC) benefits both patients and healthcare professionals by reducing medical errors, improving communication, and fostering job satisfaction. However, achieving successful collaboration remains challenging, despite its well-established benefits.[1,2]

The relationship between physicians and nurses is central to successful IPC, requiring consistent practices that promote mutual understanding and coordination.[2] Evidence-based IPC programs have the potential to improve communication, reduce misunderstandings, and foster cohesive, high-performing teams. While much of the existing literature focuses on physicians' perspectives, viewpoints of other disciplines, particularly nursing, remain underexplored.

Recognizing the value of a multidisciplinary perspective in structuring interprofessional education (IPE), this study aimed to develop an interprofessional elective to explore its impact on the knowledge, skills, and attitudes of participating medical students and registered nurse (RN) facilitators.

BACKGROUND

Many healthcare and educational institutions utilize IPE to foster cross-disciplinary relationships that promote relationship-building across disciplines and prepare medical students for collaborative practice. IPE is effective in advancing appreciation for diverse disciplines and supporting unified care teams, but variability in its structure, timing, length, and continuity, poses challenges to its implementation.[3]

Key themes in designing effective IPE include the setting, which significantly impacts outcomes. Conducting IPE in clinical environments, like hospitals, offers distinct advantages over classroom-based learning.[1,4,5] It exposes students to real-world interactions with healthcare professionals, mirroring medical rotations and clinical practice, and enhances interdisciplinary communication, a concept central to IPE, across various specialties and patient populations.[1-3,6-9]

IPE programs benefit from a diverse pool of healthcare professionals, such as RNs, physiotherapists, social workers, and dietitians, to provide authentic practice-based learning

experiences.[4,9,10] While there is no consensus on the ideal number of disciplines students should engage with, focusing on one or two professions allows for more in-depth, interactive experiences.[1,2,5,8] For instance, collaborating with registered nurses specifically enables medical students to engage in multiple interprofessional interactions, fostering a more respectful understanding of holistic patient care. This deeper appreciation enhances IPC by overcoming barriers, reducing incivility, and fostering a culture of respect, ultimately improving the way physicians interact with nurses and other healthcare professionals.

The duration of IPE programs also influences outcomes, with experiences ranging from a few hours to several weeks.[1,8,9] While program length does not alter the overall trend of improved understanding, communication, and comfort working with nurses, students in shorter programs (single day or less) felt that extending the experience would enhance benefits. For example, a Dutch study found that a four-week clinical IPE program was a "powerful learning experience" and recommended it for all medical students early in their education (p. 681).[11]

The Institute of Medicine (IOM) has called for mixed-methods research that combines both qualitative and quantitative research, involving both health profession educators and system leaders to assess IPE's effects.[12] Core competencies for interprofessional collaboration underscore the importance of these initiatives.[6,12] This study aimed to answer that call by developing an interprofessional elective to evaluate its impact medical students' understanding of RN roles, nursing expertise, communication in the nurse-provider relationship, and collaborative partnerships. It also explored RN facilitators' perspectives, focusing whether their involvement benefitted not only student learning, but also their own professional growth and collaboration skills.

METHODS

In 2021, we offered a clinical elective at The Warren Alpert Medical School of Brown University, to promote interprofessional interaction between third- and fourth-year medical students and nurses on inpatient acute care medical/surgical units at Rhode Island Hospital. The elective's learning objectives were: (1) gaining a deeper understanding of RN roles and responsibilities, (2) recognizing and valuing nurses' expertise, knowledge, skills, and contributions to the interdisciplinary team, (3) developing critical communication skills within the nurse-provider relationship, and (4) establishing collaborative partnerships with nurse colleagues.

Interprofessional Practice: Nursing Perspective Elective

The elective, "Interprofessional Practice: Nursing Perspective", was developed by an interdisciplinary team of physicians and nurses. This 80-hour elective was offered to medical students throughout the academic year, delivered over two consecutive weeks. Each student shadowed up to two nurses on the nurses' home unit across multiple shifts to ensure continuity of their experience. This structure allowed researchers to adequately prepare nurse facilitators by outlining the elective's objectives and integrating the students into nursing workflows. The two-week format balanced the benefits of extended immersive experiences, as suggested in the literature, with the availability of nurse facilitators, particularly given the high demand on nurses to train new staff during peak periods without overwhelming the clinical team's resources.

This partnership allowed medical students to observe nurse facilitators performing patient care tasks and medical record documentation. In addition to observation, students actively engaged in hands-on skills (e.g., medical equipment use, dressing changes) and patient care (e.g., education, activities of daily living) under the nurses' guidance, offering a more experiential learning approach compared to a traditional curriculum. Exposure to skills was contingent upon the tasks that arose during the nurses' shifts. When possible, additional time was arranged for students to gain hands-on experience with intravenous (IV) insertion by working with a member of the hospital's vascular access team.

All medical students and their assigned nurse facilitators were invited to participate in the study assessing the impact of this elective, which was approved and deemed exempt by the Lifespan Institutional Review Board (IRB). Participants completed pre- and post-elective surveys to assess knowledge, skills, and attitudes. Student surveys focused on nurse roles and responsibilities, while nurse surveys addressed interdisciplinary collaboration. Demographic information was not collected. Surveys were administered via REDCap,[13] with unique identification (ID) codes linking responses to ensure anonymity. At the conclusion of the elective, students submitted a written reflective piece on their observations, highlighting insights into nursing expertise and opportunities for improved communication between disciplines.

Participants

All 22 third- and fourth-year medical students who enrolled in this elective between January 2021 to June 2022 participated in the study, completing both the pre- and post-elective surveys. Forty-two nurses also participated in the study; however, eight did not complete the post-elective survey and were excluded from analysis. Nurses reported a mean of 7.12 years of nursing experience (SD = 7.91) and a mean of 4.52 years of experience precepting (SD = 5.88).

Measures

Pre- and post-elective surveys were developed before the start of the elective by the interdisciplinary team of physicians and nurses who designed the elective. The surveys for medical students and nurses differed, with questions informed by team discussions, lived experiences in IPC,

and a review of relevant literature. All participants completed the same discipline-based surveys, regardless of clinical location/specialty. Participants rated their agreement with statements regarding (1) knowledge of nurse roles and responsibilities, (2) self-assessment of communication skills between the roles, and (3) attitudes towards interprofessional collaboration between medical students and nurses, using a five-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree; see **Tables 1** and **2** for details). To assess the elective's utility, nurses were asked an additional question in the post-elective survey: "Do you think a two-week (80-hour) elective is an appropriate amount of time to provide medical students insight into the nursing profession?"

Table 1. Comparisons of Pre- and Post- Knowledge, Skills, and Attitude Items Among Nurses

Item	Pre	Post	Significance
Knowledge – To what degree do you agree medical students in acute care, inpatient hospital settings understand:			
The registered nurse's (RN) role in admitting a patient	3.00	3.88	.000[a]
How RNs administer medication	2.91	4.56	.000[a]
The RN's patient assessment responsibilities throughout the day	2.82	4.44	.000[a]
What RNs document throughout the day	2.53	4.15	.000[a]
Common challenges RNs face in day-to-day patient care	2.12	4.26	.000[a]
RN involvement in the psychosocial needs of a patient	2.71	4.38	.000[a]
The expertise (training/experience) RNs "bring to the table"	2.85	4.35	.000[a]
How to partner with RNs as members of the interdisciplinary care team	3.06	4.45	.000[a]
This two-week (80-hour) interprofessional education clinical elective experience will support medical students to increase their understanding of the above-listed items. Indicate the level to which you agree	4.09	4.34	.092
Skills – I am comfortable communicating with medical students about:			
Major concerns (decompensating patient, medication error)	4.33	4.48	.304
Minor concerns (need for assistance in tasks, routine/non-urgent changes in plans of care)	4.38	4.53	.257
Attitudes – Please indicate the extent you agree or disagree with the following statements:			
It is important that physicians understand the roles and responsibilities of an RN	4.55	4.97	.021[b]
It is helpful for patient care if physicians understand the roles and responsibilities of an RN	4.58	4.97	.030

[a] $p < .006$ [b] $p < .025$

Analysis

Paired samples t-tests were used to compare survey responses pre- and post-elective. Significance levels were adjusted for multiple comparisons. The results from the analyses of pre- and post-survey items of nurses and students are presented in **Table 1** and **Table 2**, respectively.

RESULTS

Nurse Surveys

Statistically significant differences were observed between pre- and post-survey results regarding nurses' perceptions of medical students' knowledge of nursing roles and responsibilities. Across almost all items, the average level of agreement increased significantly, particularly in areas related to nurse duties, such as medication administration, patient assessment, documentation, and overall awareness of nursing training and expertise [**Table 1**]. This suggests that the elective experience improved nurses' perceptions of students' familiarity with nursing workflows. However, there were no significant changes in nurses' ease with communicating care-based concerns to medical students as they already expressed high comfort levels [**Table 1**]. Post-elective, nurses also placed significantly more importance on

Table 2. Comparisons of Pre- and Post- Knowledge, Skills, and Attitude Items Among Medical Students

Item	Pre	Post	Significance
Knowledge – Please select the response option you most agree with for each of the following statements. I am confident that I can describe:			
The initial intake of a patient performed by a nurse	2.23	4.36	.000[a]
How a nurse administers a medication.	2.36	4.86	.000[a]
How a nurse assesses a patient throughout the day.	2.36	4.82	.000[a]
What a nurse needs to document throughout the day.	2.36	4.55	.000[a]
A common challenge that nurses face.	2.72	4.91	.000[a]
A nurse's involvement in the psychosocial needs of a patient.	2.95	4.82	.000[a]
Skills – I am comfortable communicating with a nurse about:			
Major concerns (decompensating patients, medication error)	3.36	4.68	.000[b]
Minor concerns (need for assistance in tasks, routine/non-urgent changes in plans of care)	3.72	4.50	.000[b]
Attitudes			
It is important that physicians understand the roles and responsibilities of a RN	5.00	5.00	N/A
It is helpful for patient care if physicians understand the roles and responsibilities of a RN	5.00	5.00	N/A

[a] $p<0.008$ [b] $p<0.025$

physicians understanding of nursing roles. After adjusting for multiple comparisons, a non-significant increase was found concerning perceptions of helpfulness in achieving this understanding (**Table 1**].

Regarding the elective's duration, 70.6% of nurses felt the two-week (80-hour) elective was sufficient to provide medical students with insight into nursing, while 29.4% felt it was too short; none indicated it was too long.

Student Surveys

Statistically significant differences were found between pre- and post-survey results regarding students' self-perception of nursing knowledge. Across all areas, the average agreement increased, particularly in understanding nursing assessments, tasks, and daily challenges suggesting improved familiarity with nursing workflows. Students also demonstrated increased comfort in communicating with nurses about both minor and major care concerns. No differences were observed in attitude items, as all respondents strongly agreed on the importance and helpfulness of understanding nursing roles and responsibilities both pre- and post-survey [**Table 2**].

DISCUSSION

This study is among the first to examine the experiences of both medical students and nurses during an interprofessional clinical elective, an area unexplored in existing literature. Results indicate that students gained valuable insights into nursing workflows and communication strategies, while nurses expressed satisfaction with the students' growth in these areas and its potential impact on future practice. Notably, many medical students reported low confidence in articulating the basic nursing functions before the elective, highlighting the importance of such programs in bridging the knowledge gap and fostering a deeper understanding of the nursing role. These findings suggest that both nurses and students benefited from the experience, promoting interprofessional collaboration and underscoring the value of parallel perspectives in shaping clinical rotations led by experienced nurse facilitators.

At the start of this study, it was uncertain whether nurses would view the experience as solely beneficial to the students or if it might contribute to additional stress or burnout. Surprisingly, nurses expressed satisfaction with the experience, often highlighting the value of "feeling seen" and appreciated for the expertise they contribute to patient care. This raises an interesting point about why some students chose this elective. Anecdotally, several students were initially drawn to the elective through encouragement from a nurse friend or family member. However, after completing the elective, many students expressed the belief that all medical students should participate, recognizing its significant value in enhancing their understanding of nursing roles and interprofessional collaboration.

Many medical students shadowing experiences with nurses are brief, often lasting one or two shifts, and typically involve first- or second-year students. What distinguishes this elective is its extended duration, designed for third- and fourth-year medical students. As students advance in their training, their perspectives on IPC evolve significantly. It is reasonable to assume that clinical experiences and observations of interprofessional communication at this later stage of their education play a crucial role in shaping their perspectives in meaningful ways.

LIMITATIONS

Despite a high response rate, the transferability of this study is limited by its small sample size and single hospital site. The study benefitted from established physician and nurse leader partnerships and active involvement throughout planning, implementation, and evaluation. Institutions without these relationships may need to foster them before conducting similar studies or electives. These limitations may affect the generalizability of implementing such experiences at other academic and acute care institutions.

Recommendation

It is recommended that medical schools, including The Warren Alpert Medical School of Brown University, continue offering immersive clinical interprofessional experiences for medical students. The authors also advocate for extending these experiences to physicians-in-training (residents) in Graduate Medical Education programs. Future studies should investigate whether these changed perspectives lead to long-term adoption of collaborative practice behaviors and explore qualitative aspects for deeper context of findings. Additionally, institutions should explore resources to support making interprofessional electives a required component of medical education.

CONCLUSION

In conclusion, this study highlights the potential advantages of immersive, interprofessional clinical electives that pair medical students with experienced nurse facilitators. These experiences enhance understanding of nursing roles, improve communication between disciplines, and foster mutual respect and collaboration. Findings suggest that extending such electives could strengthen interprofessional relationships within healthcare teams. Despite some limitations, the positive impact on both student and nurse perspectives supports further investigation and expansion of similar programs.

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