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An Interprofessional Curriculum to Advance Relational Coordination and Professionalism in Early-Career Practitioners

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Abstract

Introduction: We created a curriculum to help new physicians and nurses develop skills in interprofessional collaboration. This modular, team-based curriculum for early practitioners delivered training in the five following skill areas: listening for meaning, soliciting another's perspective, negotiating a transparent plan of care, attending to nonverbal communication and microaggression, and speaking up the hierarchy. **Methods:** We brought first-year medical and surgical residents and new nurses together for a 2-hour session monthly for 5 months. Each session began with an interactive large-group presentation, followed by small-group activities covering one of the five skill areas above, which had been identified as critical to interprofessional collaboration by national organizations. We measured relational coordination (RC), a validated measure of how well teams work together, before and after the curriculum was administered. We also obtained qualitative data from participant interviews and end-of-session evaluations. **Results:** Participants reported that the program helped them gain an understanding of each other's roles and workflow challenges. They felt that the curriculum allowed for the cultivation of professional relationships outside the clinical environment, which improved collegiality via gains in rapport and empathy towards each other. Nurses noted increased approachability of their physician colleagues after participation. RC scores improved for the entire cohort ($p = .0232$). Nurses had statistically higher RC gains than interns did ($p = .0055$). **Discussion:** Curriculum participants demonstrated improved RC scores and reported increased rapport with and empathy for each other. Curriculum development in this area is important because it may lead to better team-based patient care.

Keywords

Interprofessional Education, Teamwork, Communication Skills, Interprofessional Collaboration, Team-Based Care, Editor's Choice, Relational Coordination, Collaborative Competencies

Educational Objectives

Upon completion of this educational program, participants will be able to:

1. Demonstrate higher levels of relational coordination.
2. Cultivate inter- and intraprofessional relationships outside of the work environment.
3. Gain insight into the workflow of other professions.

Introduction

It has long been recognized that medical and nursing education frequently occurs in silos, emphasizing individual knowledge and skills, which results in a hierarchical framework that often portrays the physician as captain of the ship. However, substantial data exist to support the idea that all practitioners need to function as part of an interdependent and interprofessional team in which good patient care depends upon collaboration, teamwork, and communication.^{1,2} To change the culture of health care from silos of expertise to teamwork, new and creative models of health care education that emphasize team-based competencies are critical.³

Appendices

- A. Entry Ticket.docx
- B. Individual Session Evaluation.docx
- C. Introduction Scripted Slide Deck.pptx
- D. Module 1 Active Listening for Meaning Scripted Slide Deck.pptx
- E. Module 1 Practice Activities Instructions.docx
- F. Module 2 Soliciting Another's Perspective Scripted Slide Deck.pptx
- G. Module 2 Practice Activities Instructions.docx
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- J. Module 3 Handout Scenario for Role-Play.docx
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- L. Module 4 Practice Activities Instructions.docx
- M. Module 5 Speaking Up the Hierarchy Scripted Slide Deck.pptx
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- O. Module 5 Practice Activities Instructions.docx
- P. Semistructured Interview Guide.docx

All appendices are peer reviewed as integral parts of the Original

We developed and implemented a five-module curriculum with the goal of enhancing the collaboration skills of first-year nurses and PGY 1 physicians. We chose module topics to align with the team-based communication and relational subcompetencies identified by the Accreditation Council for Graduate Medical Education⁴ and the core competencies for interprofessional collaborative practice developed by the Interprofessional Education Collaborative Expert Panel⁵ as critical components of teaming.⁶ Within each topic area, we identified practical skills that would help participants function as effective members of interprofessional patient care teams. We deliberately targeted new practitioners who, by learning to frame patient care decisions as collegial conversations, might project a less hierarchical culture than is currently perceived to exist in some areas of health care.

We identified relational coordination (RC) as an outcome measure to gauge the efficacy of the curriculum. RC is a validated measure of how well teams work together.⁷ It is a reflection of team members' shared goals, shared knowledge, and mutual respect for one another and utilizes communication that is timely, accurate, frequent, and focused on problem solving rather than blame.⁷ A critical synthesis package containing a copy of the Relational Coordination Survey,⁸ as well as supplementary material to support its use, has previously been published in *MedEdPORTAL*.⁹ High levels of RC have been associated with better outcomes across many industries, including health care.^{7,10-14} Few curricula that impact RC have been developed; however, there is some evidence that RC can be taught. The TeamSTEPPS team-building program developed in partnership with the U.S. Department of Defense¹⁵ has been proposed as a method for improving RC scores¹⁶ and has been associated in one small study with an increase in RC within a health care team.¹⁷

Our curriculum makes several unique contributions to the field of interprofessional education and collaboration. Our program validated a connection between interprofessional education and RC set forth by Gittell, Beswick, Goldmann, and Wallack.¹⁶ We measured RC before and after our curriculum, providing statistically significant evidence that the curriculum improved RC scores between physicians and nurses, thus adding needed evidence to the body of interprofessional education and collaboration literature. From an educational standpoint, our resource allowed learners from both professions to hone communication skills in tandem, created space and time for peer feedback between professions, and was embedded at a point in time when both professions were undergoing active clinical training.

Methods

Curriculum Overview

Eight surgical nurses and 15 surgical interns met for 2 hours, one morning a month, for 5 months from August to December. Seven medical nurses and an average of 24 medical interns (their numbers varied because of off-site clinical rotations) also convened for the same duration. The session topics were (1) listening for meaning, (2) soliciting another's perspective, (3) negotiating a transparent plan of care, (4) attending to nonverbal communication and microaggression, and (5) speaking up the hierarchy. Although the session topics could be administered in any order, we chose to arrange them in this way because we felt it allowed for a natural progression of building skills developed during previous sessions. We made a conscious choice to allow time (in this case, a month) between sessions in order to give participants the opportunity to practice a specific skill in the clinical setting before adding a new skill. We were deliberate in the addition of downtime during each session to permit nonstructured social interaction and rapport building among participants.

Session structures varied slightly based on their content. A general session structure overview is included below. There was no required preparation on behalf of the learners. At the beginning of each session (other than the first), participants were asked to complete an entry ticket (Appendix A), which asked them to describe how much they had practiced the skill learned at the previous session (~10 minutes). This was followed by a large-group interactive presentation, during which two interprofessional facilitators defined the skill that was the focus of the session, related its value to collaborative team-based care and quality of care outcomes, and demonstrated how to operationalize it (~50 minutes). Next came a 15-minute break,

after which the participants were divided into small groups and provided with practice activities that allowed them to apply the new skill to simulated patient care activities (~45 minutes). We asked participants to ensure that both professions were represented in each small group. The large group then reconvened for a debriefing and homework assignment that encouraged participants to continue to practice the skill on the clinical unit. At the conclusion of each session, participants were given instruction and a tagline or phrase to help them continue practicing the skill on the clinical unit and completed a session evaluation (Appendix B).

In order to create some consistency between facilitated sessions, we asked facilitators to follow an ask, say, do format when developing facilitation guides. In this format, facilitators are requested to say something to or ask something of learners or do something (such as distribute materials). This model is adapted from a behavioral model used in the Positive Parenting Program (a.k.a. Triple P).¹⁸

Introduction and Module 1: Listening for Meaning

The Introduction was designed to introduce learners to the concept of RC and team-based care, as well as to provide an overview of the curriculum. Learners were taught the definition of RC and its requisites. They were instructed on how to identify interactions between interprofessional roles and appreciate the perspective each brings to collaborative patient-centered care. The Introduction also described the significance of silos and hierarchies (perceived power gradients) with regard to RC. The goal of Module 1 was to provide learners with an opportunity to identify and mitigate communication pitfalls related to failure to listen attentively for meaning (interrupting or reacting before the speaker finishes, losing focus, ignoring the speaker's feelings, neglecting to demonstrate acknowledgment of content) and to demonstrate mechanisms for closing the loop of communication. Participants developed a virtual toolbox of ways to augment their listening. As a homework assignment, participants were asked to purposely practice these new listening tools on the clinical unit and to track their effectiveness.

Brief session structure overview: We recommend 120 minutes for the Introduction and Module 1.

- 0-10 minutes: Present Introduction slide deck (Appendix C).
- 10-60 minutes: large group. Guided by the PowerPoint slide deck in Appendix D, facilitators and participants share stories where communication breaks down as a result of poor listening. An exercise is offered during which participants utilize storytelling to highlight common pitfalls in listening.
- 60-75 minutes: break. Downtime with snacks is an excellent way to encourage unstructured relationship building between professions.
- 75-110 minutes: small-group exercises. Participants share in small groups a past experience during which active listening did not occur, and the group attempts to devise strategies that would have improved the outcome. Additionally, participants create a toolbox to enhance their listening skills.
- 110-120 minutes: Reconvene the large group to debrief the exercises, review the homework assignment, and allow participants to complete the session evaluation (see Appendix B; insert "active listening for meaning" for the session being evaluated).

Included in Module 1 are scripted PowerPoint slides (Appendices C & D) and practice activities instructions (Appendix E).

Module 2: Soliciting Another's Perspective

This session was designed to enhance learners' understanding of the value of tapping into other team members' unique perspectives that reflect their particular sets of knowledge. The goals for this session included acclimating learners to specific wording that would be effective in soliciting another's perspective. Taglines equipped participants with some initial wording to assist them in gathering data from others until they found their own wording (see Appendix F). The module included a simulation practice activity that showcased the unique information multiple team members bring to the discussion of designing and implementing a patient-centered discharge plan. Another goal of this module was to allow

learners to practice soliciting critical information from a variety of care providers and encourage them to continue practicing on the clinical units. As a homework assignment, participants were encouraged to use the taglines learned in class to practice soliciting the perspectives of others on the clinical unit.

Brief session structure overview: We recommend 120 minutes for this module.

- 0-10 minutes: Have participants complete the entry ticket, which assesses their memory of the previous session and how much they have practiced the preceding communication skill (see Appendix A).
- 10-50 minutes: large group. The scripted PowerPoint slide deck (Appendix F) provides an overview of the necessity for obtaining all perspectives from team members before comprehensive collaborative care can be delivered. It emphasizes the necessity of balancing advocating one's own viewpoint with inquiring into the viewpoints of others.
- 50-65 minutes: break. Downtime with snacks is an excellent way to encourage unstructured relationship building between professions.
- 65-100 minutes: small groups. Equipped with some tools for soliciting another's perspective, participants are split up into small groups to complete a puzzle activity (see Appendix G). Each group member has a puzzle piece containing unique information necessary to complete a patient discharge plan. Participants must solicit information from others in the group who, when successful, are able to fit their puzzle pieces together.
- 100-120 minutes: Reconvene the large group to debrief the exercises, review the homework assignment, and allow participants to complete the session evaluation (see Appendix B; insert "soliciting another's perspective" for the session being evaluated).

Included in Module 2 are scripted PowerPoint slides (Appendix F) and practice activities instructions (Appendix G).

Module 3: Negotiating a Transparent Plan of Care

This module was designed to give participants tools to negotiate patient care plans. Practitioners need to balance advocating for their preferred plan of action with being open to the perspectives of others. At times, a person needs to find out the driving force behind another's chosen course of action and understand that both parties want the same outcome but disagree on how to get there. The goals for this module included participants demonstrating effective tactics to enter into effective negotiation, articulating factors and tactics that could impact the process of negotiation, and, finally, summarizing important steps to follow after negotiations have concluded. As a homework assignment, participants were encouraged to practice the skills they had learned to elevate their negotiations of treatment plans on the clinical unit.

Brief session structure overview: We recommend 120 minutes for this module.

- 0-10 minutes: Have participants completed the entry ticket, which assesses their memory of the previous session and how much they have practiced the preceding communication skill (see Appendix A).
- 10-60 minutes: large group. Following along with a scripted PowerPoint presentation (see Appendix H), participants engage in learning effective tactics for entering into a successful negotiation. Participants discuss how influencing factors such as culture, position, and past experiences affect the negotiation process. A case example is provided in which participants propose advice to assist a subject in negotiating work duties.
- 60-75 minutes: break. Downtime with snacks is an excellent way to encourage unstructured relationship building between professions.
- 75-110 minutes: small groups. Small-group participants engage in a role-play exercise in which each plays the role of a family member or health care team member. Each is tasked with proceeding

through the three steps of negotiation to come up with an agreeable treatment plan for a critically ill young man who does not have an advanced directive (see Appendices I & J).

- 110-120 minutes: Reconvene the large group to debrief the exercises, review the homework assignment, and allow participants to complete the session evaluation (see Appendix B; insert “negotiating a transparent plan of care” for the session being evaluated).

Included in Module 3 are scripted PowerPoint slides (Appendix H), practice activities instructions (Appendix I), and a handout scenario for role-play (Appendix J).

Module 4: Attending to Nonverbal Communication and Microaggression

This module was designed to highlight how people say so much without ever uttering a word. Participants learned to be cognizant of what their body language or nonverbal cues conveyed to others. The goals for this module were to identify micro and macro nonverbal communication behaviors that enhanced or detracted from collaborative communication, as well as positive and negative nonverbal behaviors in oneself and peers. Likewise, the module provided an opportunity for learners to recognize the use of these techniques through observation. Finally, learners employed positive nonverbal techniques in simulated patient scenarios. As a homework assignment, participants were encouraged to note their own nonverbal communication cues and those of their colleagues on the clinical unit and to purposefully employ more positive nonverbal communication cues learned in class.

Brief session structure overview: We recommend 120 minutes for this module.

- 0-10 minutes: Have participants complete the entry ticket, which assesses their memory of the previous session and how much they have practiced the preceding communication skill (see Appendix A).
- 10-50 minutes: large group. Following along with a scripted PowerPoint slide deck (Appendix K), participants learn valuable nonverbal techniques that enhance communication and empathy. Pitfalls of microaggression are also explored.
- 50-65 minutes: break. Downtime with snacks is an excellent way to encourage unstructured relationship building between professions.
- 65-110 minutes: small groups. Break participants up into small groups for a role-play activity. Participants play interprofessional team members and family members who must attend to their nonverbal communications as they develop a discharge plan for a patient (see Appendix L).
- 110-120 minutes: Reconvene the large group to debrief the exercises, review the homework assignment, and allow participants to complete the session evaluation (see Appendix B; insert “attending to nonverbal communication” for the session being evaluated).

Included in Module 4 are scripted PowerPoint slides (Appendix K) and practice activities instructions (Appendix L).

Module 5: Speaking Up the Hierarchy

This module was designed to help learners understand why it is so difficult to speak up the hierarchy in the clinical setting, why some issues are easier to speak up about than others, and why it is so important to do so. Participants reflected on their own unique fear response and developed tools to combat the physiological responses to stress that impede speaking up. The goals of this module were to help learners identify barriers and facilitators to speaking up, as well as to analyze the role of fear in the process of speaking up or remaining silent. Likewise, this module allowed learners to evaluate their own personal fear response and enact strategies for productive action in its presence. Finally, this module provided learners with an opportunity to create an action plan to try out new skills in clinical practice. As a homework assignment, participants were encouraged to take an index card and on one side write down something they had learned about themselves that they wanted to remember from this session. On the other side, they were asked to write down a concrete plan for how they wanted to practice their communication skills

with their colleagues. They were also requested to integrate insights from this session with the four communication skills of the previous sessions, thus linking the five sessions.

Brief session structure overview: We recommend 120 minutes for this module.

- 0-10 minutes: Have participants complete the entry ticket, which assesses their memory of the previous session and how much they have practiced the preceding communication skill (see Appendix A).
- 10-15 minutes: Review the skills gained from the previous sessions and the objectives for this module.
- 15-45 minutes: large group. Following along with the scripted PowerPoint slide deck (Appendix M), participants reflect on a quote from a medical student in which nothing was said following an inappropriate conversation between an attending and a patient. In pairs, participants then explore their own experiences with speaking up in different situations.
- 45-60 minutes: break. Downtime with snacks is an excellent way to encourage unstructured relationship building between professions.
- 60-100 minutes: small groups. Participants explore their individual fear responses to understand that each person has his/her unique fear response regardless of the situation. Participants then practice some concrete tactics to assist them in overcoming their unique fear response so they may be successful in speaking up in difficult situations (see Appendices N & O).
- 100-120 minutes: Reconvene the large group to debrief the exercises, review the homework assignment, and allow participants to complete the session evaluation (see Appendix B; insert “speaking up” for the session being evaluated). If desired, this is an appropriate time to summarize the curriculum and obtain curricular feedback.

Included in Module 5 are scripted PowerPoint slides (Appendix M), a handout to guide discussion (Appendix N), and practice activities instructions (Appendix O).

Data Collection

To gain qualitative feedback on the curriculum, we recruited eight participants for semistructured interviews. These occurred 1 month after the program ended. An email was sent to all participants describing the purpose of the interviews, the time commitment, and compensation in the form of Starbucks gift cards. Of our group of eight recruits, the first six responded to this email. A verbal request to interns by a member of the research team was used to recruit the last two participants. Ultimately, two medicine MD interns, two surgical MD interns, two medicine RNs, and two surgical RNs participated in these one-on-one interviews with a member of the research team. Interview questions were open-ended, permitting greater breadth and depth of responses (see Appendix P for the interview guide). Interviewees were labeled with a subject and number to link their responses to their profession, but they were not linked to the RC survey. Each interview was voice-recorded with the interviewee’s knowledge, and the audio recordings were transcribed verbatim into approximately 2-3 pages of text.

One week prior to the beginning of the course, participants, in their own professional groups, received a 10-minute orientation to the program including logistics and expectations. At this time, learners completed the Relational Coordination Survey.⁸ The Relational Coordination Survey is a seven-question Likert-scale survey that measures four aspects of communication—frequency, timeliness, accuracy, and problem-solving nature—and three dimensions of interdisciplinary relationships—sharing knowledge, sharing goals, and demonstrating mutual respect. It has been validated in the airline industry and in health care to measure the degree of coordination among team members.⁷ The Relational Coordination Survey is a proprietary instrument. It is not necessary for implementation of this curriculum, but those wishing to use the survey must obtain permission from RC Analytics.

We also investigated the impact of our program on patients' perceptions of RC. Five days prior to the start of the educational program and again 1 month after the conclusion of the program, patients on the medical and surgical units completed a version of the Relational Coordination Survey,⁸ developed for us by RC Analytics, to assess for an atmosphere of change on those units in conjunction with our curriculum. Additional data collected to evaluate the curriculum included entry tickets, which used self-reporting from participants to determine how much they had practiced each new skill between sessions; evaluations completed by participants at the conclusion of each session; and participant interviews 1 month postcurriculum.

Data Analysis

Quantitative analysis: Paired *t* tests were used to compare the 41-participant cohort's RC pre- and postcurriculum. The Wilcoxon signed rank test was used to compare subsets of the cohort.

Qualitative analysis: Two members of the research team independently reviewed the transcripts line by line, then hand-coded for salient issues. These issues were categorized by relevance. Next, two researchers compared their groupings and identified four overarching themes and several subthemes. These groupings were then passed along to a third researcher, who validated the categories and selection of categories into thematic groupings. Rich quotations were selected to support each of the themes and subthemes across the database.

Results

Quantitative Results

The paired *t* test comparing the overall cohort's pre- and postintervention measures of RC determined that participation in the interprofessional curriculum was associated with increased RC ($p = .0232$). The Wilcoxon signed rank test comparing physicians' and nurses' RC pre- and postintervention revealed that nurses achieved a greater rise in RC postintervention than physicians ($p = .0055$). Furthermore, we compared pre- and postintervention RC of medicine and surgery, combining nurses and physicians within each discipline, and found medicine had greater gains in RC than surgery ($p = .0286$). There was a stronger correlation between our curriculum and RC for medicine over surgery and for nurses over interns. While not statistically significant, RC increased more for medical nurses than surgical nurses, as well as for participants who attended three or more sessions (Table 1).

Table 1. Relational Coordination

Comparison	Variable	N	M	p
Paired <i>t</i> test	Overall preintervention	41	44.46341	.0232
	Overall postintervention	41	46.51220	
Wilcoxon signed rank test Within profession	Physician preintervention	25	45.96	.6357
	Physician postintervention	25	46.44	
	Nurse preintervention	16	42.125	
	Nurse postintervention	16	46.625	
Within discipline	Surgery preintervention	21	44.95238	.3261
	Surgery postintervention	21	45.80952	
	Medicine preintervention	20	43.95	
	Medicine postintervention	20	47.25	
No. of sessions attended	Two or fewer preintervention	22	46.04545	.1221
	Two or fewer postintervention	22	47.50000	
	Three or more preintervention	19	42.63158	
	Three or more postintervention	19	45.36842	

Qualitative Results

The following themes emerged from the transcripts: relationship building, gaining insight into workflow issues, surgical culture as a barrier to engagement in the curriculum, and curricular feedback (Table 2).

Table 2. Interview-Elicited Themes

Theme	Subcategory
Relationship building	Rapport Empathy Collegiality Approachability
Gaining insight into workflow	Pager burden Interdisciplinary narratives Rounding Understanding each other's roles
Surgical culture as a barrier	Attendance of senior providers
Curricular feedback	Role-playing Content less valuable than social interactions Spacing of sessions Interference with daily schedule Timing of program during career

Relationship Building

Interviewees stated that the strength of the curriculum was that it allowed them to cultivate outside of the work environment both inter- and intraprofessional relationships that impacted team dynamics on the clinical unit. Subcategories within relationship building that came to light included rapport, empathy, collegiality, and approachability.

Rapport: All participants, without interviewer prompting, brought up building rapport as a benefit of the curriculum.

- Medical RN: “I think the most helpful was when we had time to break down into groups for each session. They would split us up a few nurses and a few residents into groups. I thought that was most beneficial because that was when you kind of get that one on one or three on one type of rapport build up and really discuss things and talk about things.”

Empathy: Empathy grew out of rapport. Seven out of eight participants voiced a new understanding and empathy for the challenges faced by other disciplines. They spoke of the value of each other's roles, knowledge, and skills.

- Surgical MD: “It was nice getting to know a little bit more about the nurses and to hear about their perspectives, that they've been in similar situations. . . . I think the nurses probably gained the most out of it, to be honest, because there were some activities where they would hold our pager, in a simulation, and they didn't really get how much we were paged. And I think it was helpful; they're like ‘Oh wow, now I understand why when I page you for a glucose check, why there's going to be a delayed response.’”

Collegiality: Nurses stated that the program helped them feel less intimidated by physicians. They stated that getting to know physicians outside the clinical unit facilitated the development of collegial relationships.

- Surgical RN: “There have been nights where it was a little bit slow, and this resident needed to catch up on his charting and I didn't need to be in my patient's room at that time, and he came over and did his charting next to me and we talked a little bit. And I think that was because of this class. I don't think that would have just happened. Cause I wouldn't have just had the courage to talk about regular non-medical things with a resident who I previously viewed as a superior. Now I view them as a different discipline, not necessarily as an equal cause a nurse can't do the same thing as a doctor can. I don't view them as my boss, I see them as a colleague, just in a different discipline.”

Approachability: Nurses shared feeling scared of and intimidated by engaging with physicians at the outset of the curriculum, but three of four nurses interviewed stated this program helped them overcome these insecurities.

- Surgical RN: “I was kind of intimidated by the doctors at first because I was new and talking to them was kind of hard for me. I don’t know, I was kind of nervous. But this really helped! Because it developed a rapport with them, the residents who I talk to every single day; I still see the ones that were in the class. It helped me feel more comfortable communicating with not only the residents, but the care coordinators, therapists.”
- Surgical RN: “You get off of orientation and they kind of drop you off in the wild and you’re there by yourself. It’s a little bit intimidating to have to address a doctor. It’s just kind of your judgment call and you’re a little bit afraid that you’re calling them for something stupid. So it’s just a lot of intimidating as a new nurse to call a doctor. This program helped show that they’re just people too. And they’re new too. And they’re probably just as nervous from a nurse saying that there’s something wrong with their patient. It kind of humanizes doctors in a way.”

Gaining Insight Into Workflow Issues

Both MDs and RNs found value in gaining understanding of each other’s roles and workflow issues. Specific topics of interest were pager burden, interdisciplinary narratives, rounding, and understanding each other’s roles.

Pager burden: Nurses and physicians brought up paging as a workflow issue that needed attention. Nurses found value in gaining better understanding of text paging, and physicians were gratified by nurses gaining firsthand experience with pager burden during a simulated role-play where nurses played the physician and experienced the number of times they were summoned by beeper.

- Surgical RN: “The content itself was interesting because it gave me an opportunity to convey my perspective of some sort of instance on the floor and the residents were able to convey their feelings about the same issue. The one example that sticks out in my mind, the one resident said that she hates it when she gets a page that just has a phone number on it. ‘Just call this phone number.’ It doesn’t give any backstory for what you’re calling for. That stuck with me because I never thought about it. Cause if I never text-page you and just give you my phone number and you don’t get back to me right away, then I get really mad.”
- Surgical MD: [Any specific topic you wanted them to address?] “The pager burden. I think understanding our round times, when we usually round, our access to computers. Some of the pager burden, like when they ask for something and they don’t get something and an hour later, they page you again, but you’re on rounds. Understanding our processing a little more.”

Interdisciplinary narratives: Physicians found addressing the purpose of the interdisciplinary narrative to be helpful in mitigating some of their defensiveness over nurses’ entries.

- Medical MD: “And the sessions we had talking about things like the pager and getting paged, and things we talked about with respect to interdisciplinary narratives. All those things kind of happened on their own without any involvement. I found those brief moments to be quite helpful. Hearing about why they’re putting in what they’re putting in into the interdisciplinary narrative, I think it helps everyone understand what it’s there for, so we’re more understanding when we see the notes.”
- Medical MD: “It was nice to talk to people from a different discipline. Sometimes they would make comments that we don’t really think of. Sometimes, if you get a call from a nurse and they say something you don’t think is really important, and you’ll say, ‘Okay, we’ll just watch it.’ But sometimes they’ll get snarky on the interdisciplinary narrative, and say, ‘I called the resident and she’s not doing anything; she’s ignoring my calls.’ And we don’t have a way to defend ourselves. And this was brought up a lot, and the nurses would say, ‘It’s our way of covering ourselves. Cause we’re liable for

the patient. So if the patient crashes and there's nothing documented, I was at least aware they're getting hypoxic and I tried to do something about it.' That, I think was helpful."

Rounding: Nurses reported that being included in the rounding made them feel they were valued members of the team and made their workflow more efficient.

- Medical RN: "I'm actually really surprised by the residents. I didn't really think that they would acknowledge how much nursing does but I realize that they do and I really appreciate that. A lot of the residents, when they do their pre-rounds in the morning, they'll come by and ask nursing, 'What were your concerns overnight? And what happened?' I feel like that's a great way to communicate in the morning."
- Surgical RN: "I think I always make sure now I round with them in the morning because that kind of just sets up my whole day. I don't think I really saw how important it was before this class to round and get all my questions answered in the beginning of the day because that sets where I go from there and that prioritizes everything."

Understanding each other's roles: Social interaction and small-group activities promoted understanding of physicians' and nurses' roles, responsibilities, and challenges.

- Medical RN: "I definitely think the residents got an understanding of nursing. Because a lot of the times during sessions, they would be like, 'Oh, I didn't know you did that.' And there was even one resident who said that 'I didn't understand that if I don't make a decision, my indecision impacts you, because you have to still deal with the issue.' And I thought it was really enlightening for some of the residents."

Surgical Culture as a Barrier to Engagement in the Curriculum

Surgical interns perceived a disconnect between ideal communication behaviors and those modeled by their attendings and chief residents on the clinical unit. The strict hierarchical culture impeded interns' engagement in the curriculum because they believed these learned competencies clashed with the surgical culture on the clinical unit. While they approved of the premise of the program, its application was challenged. They desired the attendance of their superiors as well as other senior clinicians at the educational sessions.

Attendance of senior providers: There were repeated wishes that senior providers would also attend these sessions to promote continuity of competencies on the clinical units.

- Surgical MD: "All the interns wanted to have the chief residents and attendings and the fellows there. We all wanted really badly to have the attendings listen to these things, but it never happened. So after a while, we were just like this is pointless."
- Surgical MD: "Nursing doesn't have to go through the hierarchy that we have to. So there's been several occasions where an older nurse will interrupt an attending during rounds for something. Or they'll be very rude to residents. And the new nurses, they pick this up. They're not going to emulate the older nurses, but it's the older nurses who tend to be the most abrasive. So maybe getting them involved."

Curricular Feedback

Participants related several barriers to full engagement in the program. Nurses stated that the timing of the sessions was a challenge: Those working nights had to come directly to the 8:00 a.m. session after a 12-hour night shift or return 4 hours later for the noon session. The medical interns reported workflow challenges on the clinical unit despite the fact that educational sessions occurred during their education time.

While some participants liked the lectures, most appreciated breaking up into small groups of MDs with RNs to explore the concepts further. Participants stated that the unstructured social opportunities for the different disciplines to mingle and discuss common workflow issues were as beneficial as the competencies content.

- Medical RN: "I found the lectures not helpful, kind of a waste of time. But when you're talking with each other, that was beneficial."
- Surgical RN: "I think that it would have been really helpful to substitute some of the sessions or have one or so additional sessions that have absolutely nothing to do with the medical profession at all. So just like a social gathering. Because the one thing that really helped, was at the beginning of the session, since we had to sit kind of mixed together, if you were sitting next to someone who was more of a social butterfly, you guys got to talking and to know each other and they were more approachable, and then when you see them on the floor, then all of sudden it's easier to talk to that person because you already have that social set up. Maybe for the first session, stick residents and nurses in a room and set up food. . . . I would say to go in with an open mind because I definitely came in with a closed mind. It's definitely going to be worth your time even if you don't necessarily think the material is the best material or that you don't really need to know it. At least take advantage of the social opportunity to talk with the residents and other nurses. . . . I walked away not necessarily having the content making any sort of change in me, as much as communication with the residents."
- Medical MD: "I felt like the problem with our communication is that we have issues which we don't have time to address. So the most beneficial things that happened were before the sessions started when we were just talking to nurses."

Physicians complained that the role-play activities were frustrating when members of the actual discipline were not present to play their authentic roles. One nurse responded very positively to the role-play activities.

- Medical MD: "We're asked to take on the role of someone we have no idea what their viewpoint is. So even those interactions became pointless. So if I asked you to pretend to be a surgical resident that if I make a request that would be unreasonable to a surgical resident, you may or may not know. So that interaction to me is void because if I say to you, 'Hey, I feel like this is a surgical patient,' you're likely to say okay. Whereas in a real situation, a surgical resident may say, 'Well, we don't feel like we should because of this, this and this.' But because we're playing roles and have no idea what their real functions are, it's hard to get a view point of the interaction."
- Surgical MD: "The group activities, them giving us scenarios to work through and we played different roles. It'd be nicer if we had representatives from those different groups—social worker, physical therapist—then they could play the different roles. I think it was helpful for the nurse to hold the MD role because they got to see how difficult it was. But we didn't have much insight into social work or physical therapy."
- Surgical RN: "I think the role-playing was really helpful cause we got to see kind of what they do each day and how this communication affects them and the patient as a whole."

Weekly session evaluations by participants provided valuable feedback, including the following:

- Two hours is a reasonable amount of time for each session.
- Practice scenarios should include actual members of each function portrayed in the scenario. (We had asked interns to play pharmacists and therapists, but they felt they did not have enough knowledge about the values and responsibilities of those other roles.)
- More time just to talk freely with members of the other profession about their roles, responsibilities, and challenges would be helpful.
- More relatable scenarios for practice activities, including text paging and call escalation, should be created.

Discussion

Our goal was to design a curriculum that improved RC between learners from different disciplines through a combination of interactive sessions that focused on skills necessary for team collaboration, as well as opportunities for social interaction outside of the clinical environment. We chose participants who were advanced enough to have differentiated into career identities but novice enough in their careers to not yet have developed set practice patterns. We capitalized on protected education time for both physicians and nurses still in orientation in order to minimize conflicts with clinical workflow.

We designed our five-module curriculum to reflect competencies and subcompetencies identified by the Accreditation Council for Graduate Medical Education⁴ and the Interprofessional Education Collaborative Expert Panel⁵ as critical components of RC and teaming,⁶ and presented the sessions in the order described here, as we believe that each skill builds upon the preceding one. We began with an introduction to the concept of RC and its impact on patient-centered care. We then honed in on listening skills and soliciting other perspectives before engaging in negotiations. Attending to nonverbal communication brought in a more subtle but impactful communication skill, leading up to the final communication hurdle, speaking up the hierarchy. We chose to present this at the end of the curriculum because practitioners, by then having other communication skills under their belts, might feel more empowered to speak up. Surgical interns did not feel that a class on speaking up was enough to buck the current hierarchical culture in surgery. We were deliberate in choosing interprofessional and, when possible, mixed-gender teams of facilitators to model interprofessional communication. Our evaluation tools, however, did not reveal participants' perceived value of a mixed-team faculty.

Future work with this curriculum may include changing the order of modules, the time frame in the careers of physicians and nurses in which the curriculum is offered, and the time of day sessions are presented. We attempted to capitalize on protected education time for the interns (Thursday mornings for surgical interns and Thursday afternoons for medical interns), but both nurses and physicians found conflicts with their schedules. Despite the program being mandatory for participants, more than half completed only two or fewer of the five sessions.

We evaluated this curriculum qualitatively and quantitatively using entry tickets (a self-report of practice), individual session evaluations, the Relational Coordination Survey,⁸ and semistructured one-on-one interviews. These tools gave us both quantitative and qualitative data. Entry tickets and session evaluations provided immediate feedback on content and format of the program. Participants had difficulty stating the topic of the preceding session on the entry ticket, often citing "communication." Despite not knowing the topic, some participants said they had practiced its skill on the clinical unit.

Session evaluations highlighted requests for relatable scenarios such as text paging and call escalation and for inclusion of more professions so that members of each profession could play their own roles in the role-play activities. This feedback was brought up in the semistructured interviews as well. We set up role-plays of discharge planning and changing goals of care, which we believed provided opportunities for disciplines to share their unique perspectives. This was perceived as beneficial; however, some of the aha moments that boosted interprofessional empathy stemmed from situations in which nurses held physician pagers and experienced firsthand the burden that accompanied carrying a pager. Likewise, participants requested the incorporation of text paging into scenarios, as some nurses learned of its value over numeric paging for the first time during the sessions. To early-career participants, simulation exercises with representatives from relevant disciplines may be more helpful in gaining confidence as equal members of an interprofessional team than attempting to play roles with which they cannot identify.

RC significantly improved following our curriculum. As a measure of relationship and communication, it is not surprising that educational activities that utilized shared space and shared reflections were associated with elevating RC. Practicing relational and communication skills in a neutral setting prior to practice on the clinical unit helped frame communications in a collegial setting. Empathy toward each other, acquired over

weeks of sharing experiences, cultivated an atmosphere of mutual respect, which in turn facilitated the exchange of shared goals and knowledge. We provided concrete tools to help maximize these exchanges. Some weeks, we provided participants with taglines to assist with wording until they found their own words to check for understanding of what a speaker said, to solicit another's perspective, and to find common ground. These taglines included the following:

- "Let me make sure I understand you correctly."
- "What is your perspective on this?"
- "What is it that we both agree on?"
- "Your body language does not match what your words are saying."

The educational content was augmented by the provision of unstructured social time. Thus, the rise in RC may be attributed to the combination of both content and socialization. Our analyses did not allow us to extract the influence of one aspect of the curriculum over another. Many positive remarks were made about the benefits of the social opportunities allotted.

Session evaluations and interviews revealed a desire for more unstructured time to allow participants from various professions to talk freely about roles, responsibilities, and workflow challenges. Opportunities to socialize off the work unit and build social relationships that preceded work relationships may have been as valuable to the participants as the content of the curriculum. While nurses voiced their feelings of intimidation in regard to physicians at the beginning of the curriculum, they gained comfort in speaking with physicians and thus gained perceived legitimacy as vital team members. This has implications for flattening the traditional hierarchy, which has been cited as the largest barrier to interprofessional collaborative practice.¹⁹ All participants emphasized the benefit of the rapport they developed within and between professions as they progressed through the curriculum. Relationships that are grounded in empathy for one another and that stimulate approachability can augment the teaming required by today's modes of health care delivery. High levels of RC cannot be achieved without the relational component. Our curriculum provided participants with tools to enhance interprofessional communication and also with a safe space for mutual exploration of each other's roles and workflow challenges.

Participant narratives disclosed not only the value of interprofessional education and socialization but also the pervasiveness of the unspoken hierarchy within the surgical culture. Our bottom-up curriculum needs the fortification of collaboration and communication incentives for senior practitioners. Educating early-career professionals provides a level starting place for instilling collaborative practice, but the perceived hierarchy within professions may pose challenges when these new practitioners return to their units to practice. Additional oversight and coaching by receptive senior practitioners may help novice practitioners retain their collaborative goals.

There were several aspects of our program that went well, and some that did not. First and foremost, champion support is critical to the success of the program. We learned that the degree of buy-in from educational and departmental leadership of various learner groups played an important role in learner buy-in. We suggest that formal introduction of the curriculum and its role within the institution by educational leadership will be important to those wishing to replicate this program.

Providing a diverse, enthusiastic faculty with learning objectives and allowing them the independence and creativity to design their own sessions offered students weekly variety. Sessions followed a standard format but reflected presenters' unique points of view. Incorporating break time with food into each session encouraged unstructured interprofessional conversations. Employing real-life scenarios was particularly helpful for building empathy across professions, especially when nurses carried physician papers and were able to experience firsthand the burden of being responsible for them.

Aspects of the program that did not go as well as anticipated included transferring practice of the learned skills back to the clinical unit. Some learners perceived that established staff members would push back

when novice practitioners attempted some of the skills, hinting at the persistent hierarchical culture of the clinical unit. Role-play scenarios could be improved upon by including participants from other professions such as pharmacy and therapies, so that students could play themselves in staged clinical situations. Students felt unknowledgeable about the values and responsibilities of other roles. Finally, educators may find logistical challenges, especially in scheduling, when attempting to congregate multiple professions in the same room at the same time.

Limitations

It was our original goal to host the entire cohort together for each of these educational sessions, but this proved extremely challenging due to scheduling constraints on the individual learner groups. We were able to pair surgery PGY 1 residents with surgical floor nurses and medicine PGY 1 residents with medicine floor nurses. These were the groups who would be working together in the future. We did not use a control group to measure natural development of RC without an educational intervention. We also did not control for the impact of the downtime embedded in each session by using comparison groups that included time for socialization but no education. These alternative groups might have helped us differentiate the value of socialization versus education in elevating RC.

A larger sample size for one-on-one interviews would have represented the attitudes of the RNs and MDs more reliably. However, only eight out of 41 participants volunteered to be interviewed. We interviewed two participants representing each category of nurses and interns, but with a small sample size, not all perspectives may have been voiced. Compensation for the interviews was in the form of a gift card, which may have motivated some participants to be more willing to be interviewed than others.

Moving Forward

We will continue our efforts to improve collaborative relationships of our early-career physicians and nurses. As part of boot camp for incoming surgical residents, they receive a brief introduction to RC and the structural and work-process interventions already in place. Then, we assemble as many of the nurses, social workers, clerical staff, and interns as possible for a social lunch and activity to learn interesting facts about other people on the unit. Nurses and physicians can look forward to shadowing each other for 2 hours three times during the year. We have begun a new pilot study for which the five categorical general surgery interns are paired with five nurses. They receive an overview of the five collaborative skills used for the preceding study and enjoy a chili party. The five intern-nurse pairs then meet for lunch five times over the course of the year during which time they check in with each other about how their skills are evolving and any other relational issues that come up organically. Conversation ground rules apply. We hypothesize that periodic semistructured conversations within the context of relationship building and RC will have a positive effect on both RC and attitudes toward interprofessional collaboration.

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Prior Presentations

Belser A, Valenziano KB. Speaking up the hierarchy. Workshop presented at: American Academy on Communication in Healthcare Research Forum; June 16-19, 2016; New Haven, CT.

Dillon PW, Phillips J, Wolpaw D, et al. Interprofessional education of collaborative competencies: advancing relational coordination and professionalism. Poster presented at: 4th Annual Conference of the Academy for Professionalism in Health Care; April 28-30, 2016; Philadelphia, PA.

Ethical Approval

Penn State University Institutional Review Board approved this study.

References

1. Fraher EP, Ricketts TC, Lefebvre A, Newton WP. The role of academic health centers and their partners in reconfiguring and retooling the existing workforce to practice in a transformed health system. *Acad Med*. 2013;88(12):1812-1816. <https://doi.org/10.1097/ACM.0000000000000024>
2. Ricketts TC, Fraher EP. Reconfiguring health workforce policy so that education, training, and actual delivery of care are closely connected. *Health Affairs (Millwood)*. 2013;32(11):1874-1880. <https://doi.org/10.1377/hlthaff.2013.0531>
3. Thibault GE. Reforming health professions education will require culture change and closer ties between classroom and practice. *Health Affairs (Millwood)*. 2013;32(11):1928-1932. <https://doi.org/10.1377/hlthaff.2013.0827>
4. *The General Surgery Milestone Project: A Joint Initiative of the Accreditation Council for Graduate Education and the American Board of Surgery*. Chicago, IL: Accreditation Council for Graduate Education; 2015. <http://www.acgme.org/portals/0/pdfs/milestones/surgery/milestones.pdf>. Accessed September 8, 2016.
5. Interprofessional Education Collaborative Expert Panel. *Core Competencies for Interprofessional Collaborative Practice: Report of an Expert Panel*. Washington, DC: Interprofessional Education Collaborative; 2011.
6. Edmondson AC. *Teaming: How Organizations Learn, Innovate, and Compete in the Knowledge Economy*. San Francisco, CA: Jossey-Bass; 2012.
7. Gittel JH. *High Performance Healthcare: Using the Power of Relationships to Achieve Quality, Efficiency and Resilience*. New York, NY: McGraw-Hill; 2009.
8. RC Survey 2.0. Relational Coordination Analytics website. <http://rcanalytic.com/rc-survey/>. Updated 2018.
9. Fogh S. Critical Synthesis Package: the Relational Coordination Survey. *MedEdPORTAL*. 2014;10:9831. https://doi.org/10.15766/mep_2374-8265.9831
10. Gittel JH. Paradox of coordination and control. *Calif Manage Rev*. 2000;42(3):101-117. <https://doi.org/10.2307/41166044>
11. Gittel JH, Fairfield KM, Bierbaum B, et al. Impact of relational coordination on quality of care, postoperative pain and functioning, and length of stay: a nine-hospital study of surgical patients. *Med Care*. 2000;38(8):807-819. <https://doi.org/10.1097/00005650-200008000-00005>
12. Gittel JH. Coordinating mechanisms in care provider groups: relational coordination as a mediator and input uncertainty as a moderator of performance effects. *Manage Sci*. 2002;48(11):1408-1422. <https://doi.org/10.1287/mnsc.48.11.1408.268>
13. Gittel JH. *The Southwest Airlines Way: Using the Power of Relationships to Achieve High Performance*. New York, NY: McGraw-Hill; 2003.

14. Havens DS, Vasey J, Gittel JH, Lin W-T. Relational coordination among nurses and other providers: impact on the quality of patient care. *J Nurs Manag.* 2010;18(8):926-937. <https://doi.org/10.1111/j.1365-2834.2010.01138.x>
 15. King HB, Battles J, Baker DP, et al. TeamSTEPPS: team strategies and tools to enhance performance and patient safety. In: Henriksen K, Battles JB, Keyes MA, Grady ML, eds. *Performance and Tools*. Rockville, MD: Agency for Healthcare Research and Quality; 2008. *Advances in Patient Safety: New Directions and Alternative Approaches*, vol 3.
 16. Gittel JH, Beswick J, Goldmann D, Wallack SS. Teamwork methods for accountable care: relational coordination and TeamSTEPPS. *Health Care Manage Rev.* 2015;40(2):116-125. <https://doi.org/10.1097/HMR.000000000000021>
 17. Ross DV. *In Pursuit of High Performing Health Care Teams: A Test of TeamSTEPPS as a Model to Improve Relational Coordination in Ambulatory Care Teams* [dissertation]. Los Angeles, CA: California School of Professional Psychology; 2015.
 18. Turner KMT, Markie-Dadds C, Sanders MR. *Facilitator's Manual for Group Triple P*. Rev. ed. Brisbane, Queensland, Australia: Triple P International; 2002.
 19. Fewster-Thuente L. Working together toward a common goal: a grounded theory of nurse-physician collaboration. *Medsurg Nurs.* 2015;24(5):356-362.
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