Exploring residents' perceptions of PA and NP roles and barriers to collaboration

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ABSTRACT

Objective: Developing competencies for interprofessional collaboration, including understanding other professionals' roles on interprofessional teams, is an essential component of medical education. This study explored resident physicians' perceptions of the clinical roles and responsibilities of physician assistants (PAs) and NPs in the clinical learning environment.

Methods: Using a constructivist grounded theory approach, semistructured interviews were conducted with 15 residents in one academic setting. Transcripts were analyzed using an iterative approach to inductive coding.

Results: Participants typically perceived PAs' and NPs' roles as being "like a resident," less commonly as independent clinicians, and rarely as collaborators. Barriers to understanding PA and NP roles and perceiving them as collaborators included the lack of preparatory instruction about PAs and NPs, the hierarchical structure of medical education, and inadequate role modeling of interprofessional collaboration.

Conclusions: This study suggests that barriers in the clinical learning environment and the structure of medical education itself may impede residents' learning about PAs and NPs and how to collaborate with them.

Keywords: interprofessional, residents, physician assistants, NPs, clinical learning environment, collaboration

Interprofessional collaboration has been deemed a cornerstone of safe, patient-centered care and essential to accomplishing the triple aims of improving health, enhancing patient satisfaction, and reducing costs.[1] Interprofessional collaboration occurs when multiple healthcare workers from different professional backgrounds work together and participate in shared decision-making to provide the highest quality patient care.[2] Although the medical education model is intended to ensure that all physicians develop the necessary competencies for successful clinical practice, studies have suggested that physicians often are ineffective in their interactions with other healthcare professionals and do not consistently engage with others in a manner leading to effective collaboration.[3]

One essential competency for interprofessional collaboration is understanding the roles and responsibilities of other healthcare professionals.[2] Research suggests that a potential cause of ineffective collaborative engagement by physicians may be the lack of understanding of other professionals' roles.[4] Among the most common healthcare professionals that physicians now encounter in clinical practice in the United States, and increasingly in other countries such as Canada, the United Kingdom, and the Netherlands, are physician assistants (PAs) and NPs.[5-7] Because of the abundance of PAs and NPs in healthcare settings, physicians must understand PA and NP roles to ensure effective engagement in interprofessional healthcare settings.

US medical schools are required to prepare students to "function collaboratively on healthcare teams that include health professionals from other disciplines as they provide coordinated services to patients."[8] Because PAs and NPs commonly are employed throughout academic healthcare centers, residents will likely encounter them in multiple clinical settings and across various specialties during their graduate medical education.[9] These encounters provide residents with opportunities to use their competencies in interprofessional collaboration gained in medical school

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Acknowledgment The authors would like recognize **Ilene B. Harris, PhD,** and her lasting effect on qualitative research. Her contribution to developing leaders and scholars in healthcare professions education is immeasurable. She is fondly remembered by so many in the field.

DOI:10.1097/01.JAA.0000742972.71042.72

and to expand these competencies by enhancing their understanding of PA and NP roles and responsibilities across specialties and clinical settings.[10] However, studies have not previously explored residents' understanding of PA and NP roles and responsibilities in clinical practice. This study sought to explore resident physicians' perceptions of PA and NP clinical roles in the clinical learning environment.

METHODS

The study used a constructivist grounded theory approach and consisted of semistructured interviews with resident physicians.[11]

Study setting and participants Residents recruited to participate in this study were identified from one large academic healthcare institution in the United States. The institution was selected because it trains hundreds of residents annually in hospital and outpatient practice settings and has a large number of PAs and NPs. Participants were expected to have encountered PAs and NPs in their own clinical departments as well as in other departments in the clinical learning environment.

Purposive sampling was used to recruit residents with varying backgrounds, including residents of both sexes from different disciplines and at different postgraduate year (PGY) levels. Potential participants were identified through program websites, program faculty, and snowball sampling. The primary investigator contacted them via email to invite them to participate in the study. Participants were provided a $50 gift card as an incentive for participation.

Data collection A semistructured interview guide was developed by the research team and included interview questions as well as probes. The probes could be used to obtain rich descriptions of the participants' experiences with PAs and NPs to gain an understanding of residents' perceptions of PA and NP roles and responsibilities. Although the terms *understanding* and *perception* often are used interchangeably, for the purpose of this study, *perception* is used to mean the views, experiences, and opinions held by residents.[12] Minor changes to the interview guide were made during the study so that new concepts identified from earlier interviews could be explored with subsequent participants.[13]

Interviews were conducted by one researcher (MP) from November 2018 through March 2019. Interviews were audio recorded and transcribed verbatim by a professional transcription service. A research assistant reviewed each transcript to ensure the accuracy of the transcript and to remove any identifying information.

Data analysis An inductive approach of data analysis was conducted by the researchers and informed by principles underlying constructivist grounded theory, including simultaneous data collection and analysis and constant comparison while acknowledging existing findings from the literature.[11,13,14] Transcripts were coded by two members of the research team (MP, DH) with input from other members of the team. Initial line-by-line, open coding of the transcripts was performed to analyze the data for concepts related to the research question. Axial coding of all transcripts was then conducted using the technique of constant comparison to identify and explore key themes. Finally, theoretical coding was performed as the data were analyzed in consideration of the literature regarding interprofessional collaboration and learning.[11] Memo writing was used throughout the analysis as a key approach to support the development of ideas and to identify concepts to be explored further through theoretical sampling.[11] Data analysis continued until theoretical saturation was achieved by consensus of the research team.[11] MAXQDA software was used to store and manage the data.

Research triangulation and reflexivity Researcher triangulation was used to enhance trustworthiness.[14] The research team consisted of PAs (MP, DH), physicians (MG, JB), educational scientists (RS, DD, MG), and a social scientist (UK). Each member of the research team brought a valuable perspective by which to examine the interview data. Reflexivity was conducted by the research team throughout this study. Reflexivity has been defined as "the process of examining both oneself as researcher, and the research relationship" and consists of exploring one's assumptions and preconceptions and considering how these may affect research decisions, including the selection of interview questions.[15] Reflexivity was conducted through discussions among the research team about their viewpoints and to challenge potential biases as they emerged throughout the study. Reflexivity also was conducted by memos and field note writing by the primary investigator (MP).

ETHICAL CONSIDERATIONS

The study was deemed exempt by the George Washington University Institutional Review Board. Informed consent was obtained from each participant and their participation was completely voluntary.

RESULTS

The 15 participants interviewed were men and women residents at various PGY levels and in different disciplines; they had attended 13 different medical schools (**Table 1**). All participants indicated that they had PAs and NPs in their primary clinical department, and most had interacted with or were aware of PAs and NPs in other clinical departments and services. Participants described a variety of ways they interacted with PAs and NPs in the clinical learning environment. The most commonly described interactions between PAs and NPs and participants in the same service included evaluating patients or performing procedures together, conducting morning rounds, performing handoffs and sign-outs, providing clinical updates, and communicating about patient-care decisions. Across services, interactions were described as typically occurring during requests for patient consultations, when transferring patients between services, and when inter-

TABLE 1. Participant characteristics

Percentages were rounded to the nearest whole number.

Sex
- Male: 9 (60%)
- Female: 6 (40%)

Specialty
- Surgical: 6 (40%)
- Medical: 6 (40%)
- Emergency medicine/critical care: 3 (20%)

PGY
- PGY 1: 1 (7%)
- PGY 2: 3 (20%)
- PGY 3: 3 (20%)
- PGY 4: 3 (20%)
- PGY 5: 4 (27%)
- PGY 6: 1 (7%)

disciplinary patient-care decisions were being made. Although many opportunities existed for PAs, NPs, and residents to interact, how they interacted was influenced by the perceived PA and NP roles.

Perceived roles Participants typically perceived PAs and NPs as being "like a resident," less commonly as an independent clinician, and rarely as a collaborator.

• *"Like a resident."* The primary perceived PA or NP role within the clinical learning environment was being "*like a resident*." When describing PAs or NPs, participants usually specified the PGY level, either a low- or mid-level resident, at which the PA or NP appeared to function.

"[The PA or NP] so sort of functions as a low-level resident or equivalent of." R1

Responsibilities of PAs and NPs in the role of "*like a resident*" varied depending on the PGY level at which they were perceived as functioning. PAs and NPs viewed as low-level residents organized clinical work for the team, completed routine clinical tasks, and recognized the need to contact someone above them when clinical decisions needed to be made.

"So the [PAs and NPs] will kind of help facilitate getting tests run, different imaging studies, following up on labs, that kind of thing." R9

PAs and NPs perceived as functioning like midlevel residents assisted more senior residents by seeing new patients and consultations, evaluating patients on the service, making routine clinical decisions, and performing procedures.

"like a physician extender, [a PA or NP is] somebody who can kind of reliably see a patient and understand the detailed aspects of their history, and as well as help with other things, like discharge, help [physicians] in the operating room, help kind of—kind of where— help is needed. But somebody who's reliable and well-trained." R9

Participants who perceived PAs and NPs "*like a resident*" at the same level as themselves indicated that they worked closely together, describing PAs and NPs as their peers. However, residents at a higher PGY level than the perceived PA and NP level described these clinicians as their assistants to whom they assigned work. PAs and NPs were perceived as being "*a good asset to have*" (R14), freeing up residents' time to do other, more complex tasks and making work more efficient.

"[PAs and NPs] function more like peers, sometimes like your junior residents … I can use these like my junior residents." R5

"she's very much like a right-hand person" R1

• *Independent clinicians.* Several participants perceived that PAs and NPs also could function as independent clinicians able to provide medical services with minimal or no physician supervision. In this role (typically in separate, nonteaching services), PAs and NPs were perceived as having primary responsibility for their own patients, performing procedures and making clinical decisions independently.

"I think [the PA or NP] sees patients more or less independently. I know she's got some oversight [from the attending physician], but she sort of runs her own clinic." R1

Participants indicated that they had little or no engagement with PAs and NPs in independent roles and, as such, had only a limited understanding of how independent PAs and NPs interacted with attending physicians.

• *Collaborator.* Few study participants perceived PA or NP roles as collaborators with physicians on medical teams. Collaborators were described as functioning as a teammate with residents at all PGY levels, as well as with attending physicians and other professionals such as nurses and pharmacists. As such, clinical work was perceived as shared and patient care decisions were made collaboratively.

"We'll talk about the pros and cons as a group and decide what the best um, way to go is for that day. Um, we'll kind of weigh the risks versus benefits… I think as a group we always come to a consensus, but it's never one person superseding that." R13

BARRIERS TO PERCEIVING PAS AND NPS AS COLLABORATORS

Although the presence of PAs and NPs in the clinical learning environment provided many opportunities for participants to interact with PAs and NPs, several barriers to understanding their roles and to perceiving them as collaborators were identified, including the lack of preparatory instruction about PAs and NPs, the hierarchy of medical education, and limited role modeling of interprofessional collaboration.

Lack of preparatory instruction Most participants indicated that they had limited knowledge of the PA and NP professions before entering their residency program. No participants recalled having had formal instruction about PA or NP education or scope of practice during medical school, and only a few had been exposed to PA or NP students or professionals before their residency. Furthermore, participants indicated that they had not received an orientation to the PA and NP responsibilities in the clinical learning environment when they entered their residency program. Therefore, participants had been left to learn about PA and NP responsibilities through "*hearsay*" (R2) or by figuring it out over time.

Interviewer: *"How do you think you came to understand these different roles that the [PAs and NPs] play?"*

Participant: *"Just based on my experience. So it's basically from my interaction. Again, there was no like education about the PAs or nurse practitioners. That's all what I learned from working with them."* R11

The hierarchy of medical education The hierarchical structure of medical education strongly influenced how participants perceived PAs and NPs. Given the lack of understanding of PAs and NPs as unique healthcare professions, participants typically viewed them as residents in the hierarchical structure of medical education. Virtually all participants described the clinical team structure as hierarchical, with the attending physician at the top, followed by senior-level residents, and with midlevel residents and interns lower in the hierarchy. In this model, participants typically viewed their own role as clearly defined based on their PGY level, with responsibilities changing each year as they progressed through their residency program. Supervision of clinical activities and clinical decision-making were determined by this hierarchy, and therefore, PAs and NPs perceived as "like a resident" were expected to conform to the hierarchical power structure based on their perceived PGY level. However, unlike residents, PAs and NPs perceived as "*like a resident*" did not move up the medical ladder each year; instead, their roles and responsibilities were perceived as static over time. Despite gaining more experience over time, PAs and NPs typically were perceived as having limited ability to contribute to high-level medical care and complex clinical decisions. Instead, their main purpose was perceived as assisting higher-level residents in their clinical responsibilities. Viewing PAs and NPs through the lens of the medical education framework not only seemed to result in their being underused in the medical team, but also risked creating confusion for some participants, such as when residents were expected to work with and even supervise more experienced PAs and NPs.

"And you may be working with the [PA or NP] who has been there for a couple of years or knows the dynamic of the team better, and so I think—but you're still doing a lot of the same tasks, and so there is sort of a question of where you fit in there. As the [PA or NP], technically I mean, they may know more than you. But when you guys are on the same level, can they assign you work? Can you assign them work? Like it's that sort of a time where it's… as an intern, you are sort of still trying to fit in where you go." R1

Limited role modeling of interprofessional collaboration Finally, few participants described having experienced role modeling of interprofessional collaboration between attending physicians or senior-level residents and PAs and NPs. Most participants described limited opportunities to observe attending physicians, PAs, and NPs interacting within or across medical services. Therefore, they rarely had opportunities to observe collaborative decision-making involving attending physicians, PAs, and NPs. Participants also indicated that when residents and PAs or NPs had conflicting opinions about patient care plans, the attending physician was called upon to make the decision. Furthermore, some participants noted that PAs and NPs did not typically express their own clinical opinions, and instead tended to be "deferential" to residents.

"[PAs and NPs] frequently will—they'll come up and say, 'Hey, do you think this is reasonable?' And the residents say, 'No. I don't think—I think we should do this.' And they're generally pretty deferential. They don't have particularly strong opinions... then if there's any additional questions, we'll reach out to the attending, or they'll reach out to the attending." R6

DISCUSSION

The results of this exploratory study of residents' perceptions of PA and NP roles at one academic setting revealed several striking findings. First, despite national accreditation requirements that medical schools prepare graduates to function collaboratively in interprofessional healthcare teams, these residents did not recall having received instruction about the PA and NP professions, nor did they report having received a formal orientation to PA and NP roles in the clinical learning environment.[2] The apparent lack of this instruction appeared to result in residents having a poor understanding of PAs' and NPs' educational preparation, scope of practice, and professional responsibilities when they entered their residency training.

Next, the lack of a mental framework to understand PA and NP roles as colleagues in healthcare teams appeared to result in residents being left to make sense of these clinicians through the framework of their own profession and its educational hierarchy. As such, residents may be left to perceive PAs' and NPs' presence in the clinical learning environment as intended primarily for the sake of helping residents with their work, instead of the broader purpose of caring for patients as part of interprofessional healthcare teams. Such a physician-centric perception of PAs and NPs is contrary to the patient-centered goal of interprofessional teamwork.[2]

Finally, although residents may be afforded the opportunity to learn about PAs and NPs through authentic engagement with them during clinical training, their views of PA and NP roles will undoubtedly be affected by those they encountered in the clinical learning environment and the role modeling provided by PAs, NPs, and attending physicians. An unexpected finding in this study was the limited opportunities available to residents to explore differences in opinions with PAs and NPs about patient care decisions. Shared decision-making is a key aspect of interprofessional collaboration.[2] Given the often overlapping clinical roles of physicians, PAs, and NPs, conflict about patient decisions is inevitable and in fact is essential to enhancing patient care. As described by Lingard, "Although the fluidity and overlap in roles create conflict among the

team, this conflict is not 'avoidable' per se; it is the *sine qua non* of collaboration."[16] However, in settings where decisions are made based on hierarchical position, when PAs and NPs defer decision-making to residents, and when attending physicians are called on to settle differences, residents will not have the opportunity to learn how to address conflict in a collaborative manner. These barriers to learning likely result in residents being ill prepared for interprofessional collaboration when they complete their residency program.

LIMITATIONS

This study took a qualitative approach to allow an in-depth exploration of residents' perceptions through interviews in one clinical setting. Although such an approach is the preferred methodology to explore questions of perceptions, results are not intended to be generalized to residents in all settings. Second, an interviewer's background may influence participants' comments and the semistructured nature of interviews may lead the interviewer to impose biases on the probing questions participants were asked. As is recommended in qualitative research methods, researcher triangulation and reflexivity were used to mitigate the potential influence of these relationships and improve credibility of the analysis.[13-15] The familiarity with topics related to clinical practice provided the interviewer the opportunity to explore issues more deeply. Third and finally, given the overlapping roles and responsibilities of PAs and NPs, we elected to study these two professions together. Because previous research by several members of the research team (MP, RS, MG, DD) had found that physicians often discuss PAs and NPs interchangeably, it was determined that seeking to explore differences between perceived PA and NP roles would likely be beyond the reach of this study.[10]

CONCLUSIONS

Based on the finding of this study and in light of our (MP, RS, MG, DD) previous research exploring the impact of PAs on resident learning, we propose the following:[10]

- PAs and NPs must be cognizant of the effects that they may have on residents. Because residents may have limited previous instruction on the PA and NP professions, PAs and NPs in the clinical learning environment should consider the opportunity to teach residents about PAs and NPs. PAs and NPs also should seek opportunities to model interprofessional competencies with residents and actively contribute to patient care decision-making involving residents and attending physicians.
- Medical educators should consider how to effectively orient medical students and residents to the roles of other healthcare professionals they will likely encounter in their clinical settings. Attending physicians must provide opportunities to model effective interprofessional collaboration, including through involving PAs and NPs in complex clinical decision-making. Instead of avoiding conflict, clinicians should recognize that differing opinions about patient care are a learning opportunity for residents and other healthcare professionals in the clinical learning environment, and use these opportunities to enhance clinical competencies in interprofessional collaboration.
- Additional research is needed to determine how learning opportunities in clinical learning environments can be enhanced for students, residents, and other healthcare professionals and how to overcome barriers to interprofessional collaboration between PAs, NPs, and physicians. **JAAPA**

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