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Exploring Negotiated Autonomy in the
Physician–Physician Assistant Collaborative Dyad

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by Stephen Peter Robie, PA-C

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Dedication

I would like to dedicate this dissertation to my father, Dr. Peter W. Robie. You are my inspiration and role model as a practitioner of medicine, a friend, and a father.

"I have no idea what's awaiting me, or what will happen when this all ends. For the moment I know this: there are sick people and they need curing."
– Albert Camus, *The Plague*

For you, Dad.

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Abstract

Exploring Negotiated Autonomy in the
Physician–Physician Assistant Collaborative Dyad

Physician Assistants (PAs) are integral members of multidisciplinary medical care teams who practice medicine legally under the supervision of physicians. During medical care, supervision is a dynamic process of collaboration wherein a PA who displays competence is granted increasing independence by the supervising physician. This process has been referred to as negotiated autonomy. Despite being noted in work-force literature, the mechanics of how negotiated autonomy operates in real-time have not been described. As organizations increasingly work to integrate PAs into practice, new-hire training programs called 'on-boarding' have been implemented to accelerate PA professional development with a goal of increased efficiency and autonomy. This study sought to develop an operational model of PA-physician collaboration and negotiated autonomy at the point of care in urban, academic emergency departments to enhance PA education and early career development.

This is a grounded theory study composed of two phases. The first phase is a series of interviews with practicing PAs and physicians regarding their collaborative process. Interviews were transcribed and analyzed utilizing grounded theory techniques to develop emergent themes related to PA-physician collaboration. Findings revealed insight into how PAs and physicians view their respective roles in PA practice. Unexpected findings included the influence of practice similarities between PAs and resident physicians. Ultimately, findings were consolidated into a series of themes coined the 5 P's of PA-physician collaboration: perspective, place, preparation, process, and

progression. These themes formed the basis for the development of a complex-adaptive system model of PA-physician collaboration. The second phase of the study reviewed the phase one findings and model with a focus group of PA-physician practice leaders to explore how these findings could be translated into actionable items to inform on-boarding training and PA practice.

This is the first study that has developed a specialty-specific, evidence-based model of PA-physician collaboration as a framework for negotiated autonomy in practice. Translational research concepts were utilized as the phase one findings were then translated during phase two into a series of implementation recommendations. The results form a foundation for future research into PA-physician collaboration as well as into the role of PAs in practice within academic medical centers. The study additionally contributes to the growing body of team science literature exploring professional dyads. Organizations may use these findings to enhance training programs for new-hired PAs while also informing physicians on how to approach PA supervision and collaboration.

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List of Abbreviations

AAPA: American Association of Physician Assistants

CFIR: Consolidated Framework for Implementation Research

KTA: Knowledge to action framework

MD: Medical Doctor

NP: Nurse Practitioner

OTP: Optimal team practice

PA: Physician Assistant

RCC: Relationship Centered Care

Glossary of Terms

Complex adaptive system: A system with multiple components that interact via reciprocal feedback mechanisms with outcomes that are often unpredictable.

Complexity theory: A scientific framework that seeks to understand the behavior of complex systems.

Delegated practice authority/negotiated autonomy: Theory of medical practice where the autonomy of a medical provider is granted under the supervision of a physician. The degree of autonomy is dynamic and at the discretion of the supervising physician.

Grounded theory: An approach of qualitative inquiry with an interactionist perspective that utilizes a structured approach to analysis with the goal of generating theory.

Negotiated order: A process that explores the process of negotiation as it pertains to completing tasks. Individual actors have agency that is derived from their place within a larger social structure/order. Progression through this order is dependent upon actors' capacity to negotiate with other individuals within the same structure/order.

Nurse Practitioner (NP): Medical care provider who operates in team-based care model and is under the auspices of the board of nursing.

Onboarding: A standardized training program for new-hire PAs with a goal of integrating them into a practice setting in a manner that aligns with their organizational role.

Physician Assistant (PA): Medical care provider who operates under the delegated practice authority of a supervising/collaborating physician.

Physician: Medical provider who has completed training and achieved MD/DO designation with license to practice medicine without supervision.

Relationship Centered Care: school of thought to explore how transpersonal relational processes influence clinical decision-making.

Resident Physician: Medical care provider who is a licensed physician undergoing specialized medical training.

Chapter 1: Introduction

Overview

Physician assistants (PAs) are integral members of collaborative team-based medical care in the United States (Halter et al., 2013; Halter et al., 2018; Hooker et al., 2017). They are licensed to practice medicine, including diagnostic and prescriptive power, with clinical autonomy linked to a supervising physician who delegates to the PA practice authority under the physician's "supervision" (Schneller, 1978). Given the variable experience and competence across PAs, the degree of autonomy afforded an individual PA at any time is influenced by myriad factors (Schneller, 1978). Additionally, PAs, depending on the specialty, frequently work with several different physicians, making delegation a dynamic and iterative experience. This delegative process has been described as both "overt" and "covert," with mechanisms often occurring saliently during clinical practice at the point of care (Schneller, 1978). However, the conceptual structure and influencing factors of the PA–physician collaborative/supervisory relationship has not been thoroughly explored in existing workforce literature. Ultimately, a PA's clinical behavior is dependent on this course of inter-provider negotiation. PAs are becoming more prevalent in the medical care system at all levels, leading to evolving discussions on their autonomy and how best to implement PAs in different clinical settings (Morgan et al., 2020). With an eye toward increased autonomy and efficiency, some organizations are lobbying to redefine the PA–physician relationship to reflect a collaborative, rather than supervisory, affiliation. Accompanying this evolution are calls for PA new-hire training programs, referred to as "onboarding" or "transition to practice" programs, to ease transition into a new practice setting and rapidly integrate PAs into an organization's

practice pattern (Anglin et al., 2021; Morgan et al., 2020; Polansky, 2011). These efforts are complicated by a lack of understanding regarding how PAs interact with physicians and this relationship's influence on PA autonomy.

The consolidated framework for advancing implementation (CFIR) cites organizational and individual factors, including social architecture and self-efficacy, as key components influencing successful innovation implementation in the practice setting (Damschroder et al., 2009). The PA alone may be viewed as a practice innovation with a goal of improving care efficiency and quality. Each of these influencing elements impacts the process of negotiated autonomy and further characterization of their potential impact could be leveraged through programs targeting PA behavior. Insights into the process of PA–physician collaboration would be especially relevant to the design of proposed postgraduate onboarding training programs (Morgan et al., 2020; Polansky, 2011). Clinical competence, both internally and externally perceived, is suspected to be the primary factor influencing autonomy determination; however, competence is based not only on a PA's knowledge base and skill set, but also on their capacity to effectively collaborate with the ultimate arbiters of PA autonomy: physicians. It is generally accepted that PAs are not "finished" after completion of their didactic education and require on-the-job training to be effective clinicians (Anglin et al., 2021; Polansky, 2011). The need for additional postgraduate learning emphasizes the importance of a structured onboarding process that could identify strengths and deficiencies and enable more informed autonomy negotiation between the PA and their supervising physician. Though acutely prevalent in emergency medicine, this multifaceted perception of competence, both how it is defined and how it is nurtured, is relevant to any practice setting where

introductory professional training would enable successful organizational integration of the PA.

Though seemingly linear and transactional, negotiated autonomy likely has multiple influencing factors that call for a more systematic consideration of how to conceptualize the PA–physician relationship (Cawley & Bush, 2015). Characteristically, the PA–physician dyad is a co-dependent existence with the PA functioning both as an extension of the physician and as an autonomous medical care provider (Cawley & Bush, 2015; Schneller, 1978). This relationship is akin to a "complex adaptive system" with numerous potentially influencing variables impacting the dyad's efficiency and effectiveness of communication (Manson, 2001; Pype et al., 2017). Functionally, this autonomy determination reflects a "negotiated order" between the PA and the physician (Degeling & Maxwell, 2004). Conceptualizing the PA–physician dyad as a complex adaptive system and exploring this phenomenon through the social theoretical lens of negotiated order suggests covariables that will enrich PA practice and training by identifying mechanisms to enhance translation and implementation of onboarding/transition to practice PA training. This study will specifically explore the nature of PA–physician negotiated autonomy in emergency medical practice and its implications on programs targeting integration of new-hire PAs as they transition from students to medical providers.

Statement of the Problem

Although integral to the PA profession, the functional collaborative relationship between PA and physician in emergency medical practice is ill-defined (Phillips et al., 2018). Approximately 13% of the PA workforce identifies emergency medicine as their

primary specialty, making it a popular practice setting for PA utilization (National Commission on Certification of Physician Assistants, 2019). Given its confined nature and dependence on guideline-directed care, emergency medicine is of interest to translational clinical practice research (Runyon et al., 2013). However, studying implementation of clinical innovations for PAs in this setting is difficult due to the ambiguity of their autonomy delegation and its implications on their practice behavior. This includes training programs aimed at integrating the PA into a specific organization or practice (Morgan et al., 2020). CFIR, a trans-theoretical implementation framework composed of evidence-based variables, stresses that individual and collaborative mechanisms are essential to individual and organizational change, but how these features apply to PAs in emergency medicine is poorly understood (Damschroder et al., 2009). As "delegated" or "negotiated" autonomy determines a PA's capacity for practice, a thorough understanding of its functional structure is fundamental to implementation strategies targeting the PA (Schneller, 1978). The PA–physician dyad was conceived as a mentor–protégé relationship, but evolution of influencing factors such as market consolidation and the shift toward cost-conscious care have limited this relationship to a more administrative role (Holt, 1998). Therefore, the view of a singular physician–PA collaborative dyad is outmoded and not applicable to modern-day practice. Reliance on such limited traditional conceptions of PA utilization complicates the implementation of PAs and their professional identity.

The PA today can be found in nearly all medical disciplines and often works in settings that emphasize group, rather than individual, collaboration (Halter et al., 2018). In the emergency department, PAs often interact with numerous rotating supervising

physicians, creating spontaneous collaborative relationships that are temporary and situation specific. This fosters a work experience where scope of practice and degree of physician oversight is non-standardized and heterogeneous (Phillips et al., 2018; Sawyer & Ginde, 2014). Such versatility is largely borne out of necessity given the pace and constraints of emergency practice, but it contributes to unintended ambiguity within the PA–physician dyad. For instance, there are often multiple physicians who act in a supervisory position toward an individual PA, and each may have differing comfort levels with the PA's level of autonomy. In a similar vein, a PA may be uncomfortable with the degree of autonomy afforded them by a particular supervising physician and may attempt to self-limit their freedom in the interest of patient safety. This continuous reinvention makes the explicit identification of a singular supervising physician, as called for in an apprentice–mentor design, an antiquated concept. The shifting associations between PAs and their supervising physicians may also lead to professional identity confusion for the PA, who may assume at times conflicting clinical behavior attributes of their physician colleagues, influencing development of their own medical decision-making process. Collaboration is felt to be composed of various elements, including the PA's comfort with their experience, their fund of knowledge, competent clinical skills, physical proximity to collaborating/supervising providers, and perceived malpractice risk (Chumbler et al., 2001). The complexity of this system impedes implementation as interventions targeting PAs are difficult to develop and study due to a limited understanding of PA autonomy and behavior. It is difficult to attempt practice or behavior change when the processes underlying each are poorly understood.

PAs are important to emergency care delivery in the United States and their presence is increasing. In 1997, nearly 28% of emergency departments employed PAs, whereas by 2006 that number had increased to 77% (Menchine et al., 2009). An estimated 1 in every 8 patient visits to the emergency department is managed by either a nurse practitioner (NP) or a PA (Ginde & Carmargo, 2010). Given this growing prevalence, PAs are increasingly relevant to emergency care and integration of practice change. Implementation science examines the barriers and facilitators of practice change (Tavender et al., 2016). In 2007, an Academic Emergency Medicine consensus group identified knowledge translation and implementation science as essential to achieving the triple aim of improving population health, decreasing cost, and enhancing quality of care (Lang et al., 2007). This has accelerated research efforts, but there remain few published findings examining PAs (Tavender et al., 2016). Given their proximity to physicians and similar biomedical training, one may assume PAs respond to practice innovation similarly to physicians, but this belief has not been validated. Practice innovations, including adoption of guideline changes or integration of training programs, depend on influencing individual behavior and practice patterns. Theoretically grounding negotiated autonomy, the essential mechanism of PA practice, would enhance collective understanding of implementation and assist in development of onboarding education programs.

Negotiated autonomy makes PA performance dependent on ‘borrowed’ autonomy from their physician colleagues. Literature shows that elements such as proximity of providers to one another, existence of written guidelines, clinical setting, and medical specialty influence PA–supervising physician interaction (Geller et al., 1998). However,

the relative degree to which these elements, or other competing facets, influence practice is not clear. This study will explore aspects that influence physician-mediated PA autonomy. These may include elements such as the interpersonal relationship between providers, the individual physician's malpractice risk tolerance, the PA's professional experience, the proximity between the providers, and the clinical context. Understanding how these elements manifest and intersect will assist in identifying variables for translating clinical innovations at the individual level and reduce ambiguity related to PA autonomy. Organizational/team science views the dyadic relationship between two individuals as the fundamental unit of interprofessional collaboration (Liden et al., 2016). A key element to effective dyad function is mutual agreement on individual role perception, but this requires an understanding of how these variables are constructed and aligned (Liden et al., 2016). This study utilized the sociologic theory of "negotiated order" to explore how PA–physician interprofessional interactions interplay within the semi-structured healthcare setting (Degeling & Maxwell, 2004). The results of this exploration will provide conceptual grounding for the construction of a new theory of PA–physician collaboration. Knowledge translation depends on taking these concepts and providing a framework for operationalizing them into practice. The theoretical construction can then be directly applied as the translational structure of onboarding and transition to practice programs to assist organizations in integrating PAs into their clinical practice (Morgan et al., 2020).

The PA is most beneficial to the health system when safely practicing at the peak of their license and capabilities (Morgan et al., 2020). With increasing participation across a multitude of specialties and escalating participation in emergency care delivery,

there is emphasis on how best to integrate PAs into the healthcare system more efficiently (Morgan et al., 2020; Pittman et al., 2020). Specifically, how does one ensure an expeditious and safe transition from training to practice in early-career PAs or those who change specialty mid-career (Morgan et al., 2020)? This is a multifaceted issue, but the fundamental realization is the degree of autonomy a PA is granted and how this evolves over time. The determinative factors of negotiated autonomy in current practice require exploration. It is essential to investigate and illustrate the mechanisms that determine and facilitate interprofessional collaborative processes as American healthcare continues to embrace team-based practice. Findings will provide a foundation for future team/organizational science exploration of the PA–physician dyad and inform innovation translation of any number of potential interventions affecting PA practice, including postgraduate education with an appreciation for the complex elements inherent to current practice while strengthening PA practice and quality of care.

Purpose and Research Questions

This study will identify influencing factors of negotiated autonomy within the complex adaptive system of the PA–physician dyad through the lens of negotiated order and organizational team science with the goal of developing a framework of negotiated autonomy to inform translation of onboarding training programs targeting new-hire PAs. Emergency medicine demands dynamic point of care decisions regarding the degree of MD–PA supervision and is an ideal setting for such an inquiry. The study had two phases. The first phase assessed emergent themes from PAs and physicians on how the functional PA–physician relationship operates and evolves in an academic emergency medicine setting. The second phase reviewed Phase 1 results with an expert panel of PAs

and physicians to condense findings into actionable, translational recommendations to guide early-career PA new-hire training. Elements of the knowledge to action framework (KTA) assisted in conceptualizing findings into actionable next steps (Field et al., 2014).

Phase 1 Research Questions:

- How do physician assistants and physicians describe the experience of “negotiated autonomy” and the process of collaboration during practice in an academic, urban emergency department?
- How do physician assistants and physicians describe enabling or impeding factors influencing autonomous physician assistant practice in an academic, urban emergency department?

Phase 2 Research Question:

- How can insight related to physician assistant and physician collaboration as it relates to negotiated autonomy inform the implementation and integration of new-hire physician assistants in an emergency department?

Results from this study provide a foundation for future study on PA–physician collaboration to better reflect current practice and will enrich future translation and implementation of professional PA integration.

Statement of Potential Impact

This study’s objective is to conceptualize PA–physician collaboration with the intent of enhancing onboarding training. Beyond this primary goal, the study has numerous implications for PA practice and translational science. The American Academy

of Physician Assistants has proposed "Optimal Team Practice" (OTP) as a new road map for the PA profession that emphasizes autonomous practice and seeks to redefine the legal relationship between PAs and their supervising physicians (Katz, 2017; Kidd et al., 2019). Since its inception, the PA profession has been functionally dependent on autonomy granted by physicians (Holt, 1998). The functional dependence is encapsulated by the negotiated autonomy relationship that binds PAs to their supervising physicians (Schneller, 1978). As such, redefining this relationship, as OTP proposes, would alter a core element of the PA profession. Many argue that such a move better represents current practice patterns between PAs and physicians, as many feel this dyad is largely collaborative, rather than supervisory, in nature (Katz, 2017). The consequences of this reorientation are far-reaching, including practice-level considerations and policy-level impacts that may profoundly alter the workforce landscape for PAs. It is also predicated on assumptions of traditional autonomy delegation that may not be relevant to current practice.

Physicians have historically been cautious regarding expansion of allied health practitioner autonomy due to concerns for patient safety and fears of physician replacement, rather than supplementation, in the workforce (Ginde & Camargo, 2010). Such hesitancy is understandable given the variable levels of experience and competency PAs have early in their professional careers. PAs do not have the benefit of residency training and are generally not expected to function with high levels of autonomy upon workforce entry (Morgan et al., 2020). Therefore, physicians cite patient safety concerns with expanded PA autonomy, as such expansion only occurs with a reduction in physician oversight. In response, the American Medical Association recently passed a

resolution opposing the establishment of autonomous regulatory state PA boards due to ongoing concerns over expanded PA autonomy (Kidd et al., 2019). If in clinical practice PAs interact with physician colleagues in a more collaborative, rather than supervisory, fashion then reimaging the PA–physician dyad may have substantial merit. However, the functional relationship in current practice is opaque and likely represents a spectrum of interaction rather than a distinctly linear relationship. Redefining a fundamental element of PA practice without a thorough understanding of its determinants may have unintended consequences for the medical workforce.

The labor landscape has been one of many drivers of the OTP movement (Kidd et al., 2019). In an emergency department, it is common for a PA to practice under a documented primary supervising physician, but then interact with multiple physicians who act in a collaborative and supervisory role at the point of patient care. This ambiguity, coupled with the perceived administrative burden of linking a PA to a supervising physician, has led some to claim the PA is at a disadvantage in the job market when competing with NPs who, depending on the state, may have less oversight requirements for practice (Katz, 2017; Kidd et al., 2019). Though PAs and NPs are similar in terms of their overall task accomplishment in medicine, there are fundamental differences in their epistemology, training, and care restrictions (Kidd et al., 2019). Therefore, the elusive relationship between physician and PA has implications for PA employment as PAs compete with NPs in the job market. The professional identity of PAs is rooted in their association with physicians and serves as a distinction between them and NPs. Developing rich descriptions of the functional relationship between PAs

and physicians would have profound influence on PA professional identity and their position in the modern medical division of labor.

Given the complexity of the PA–physician relationship, there is a suggested increased administrative burden in employing PAs when compared to NPs as the PA and physician, in most states, are linked in both a legal and a functional capacity (Kidd et al., 2019). It has been proposed that this burden represents a hindrance for PAs when competing for jobs against NPs, who are generally more legally independent and do not require as complex an administratively managed relationship with physicians (Katz, 2017). Though this inference is nuanced, the American College of Physicians has acknowledged issues with a lack of clarity regarding the nurse practitioner–physician relationship and feels it requires practice-level refinement which represents similar administrative burden. Despite these findings, the perception that NP management is more streamlined persists in many circles (Center for Practice Improvement & Innovation, 2010). Practicing PAs have also expressed concerns about survey data suggesting a plurality of PAs reporting an NP being hired above them for positions due to the perception of reduced administrative burden (AAPA, 2017). Self-reported data may overstate this perception, but the anxiety about this occupational "competition" remains palpable. Therefore, a prominent element of OTP being proposed by the AAPA seeks to legally separate PAs from physicians in the language of state laws that govern medical practice (Katz, 2017; Kidd et al., 2019). The belief is that this better reflects the more dynamic relationship between PAs and physicians in current practice (Katz, 2017). The results of this study, which explores how negotiated autonomy operates in current

practice, furthers the understanding of this dynamic and provide clarity for concerns raised regarding the OTP movement.

It has been determined, and reaffirmed, that PAs provide safe and effective medical care, but this assertion is made under the traditional assumption of the PA's role as a dependent/supervised provider (Brook et al., 2012; Halter et al., 2018; Laurant et al., 2009; Roy et al., 2008). As a result of their successful implementation in current workforce paradigms, the use of PAs in acute care settings is accelerating (Pittman et al., 2020). The increasing employment of PAs in these settings has led some to speculate that market forces may encourage PAs to operate with reduced oversight given their cost-benefit ratio is augmented by high individual productivity with reduced physician oversight (Morgan et al., 2020). A PA who operates with heightened independence hypothetically liberates their collaborating physician to have increased productivity as they are less encumbered with responsibilities inherent to direct supervision. This economic pressure may place either the PA or the physician into uncomfortable clinical scenarios or place patient care at risk. These concerns are compounded when considering ethical implications inherent to having PAs, generally regarded as dependent/collaborative providers, operating independently. One could argue that public acceptance of PAs' function within the healthcare system is based upon their close working relationship with physicians (Kidd et al., 2019). In a way, the PA not only assumes practice autonomy from the physician but is also granted cultural authority from their close association (Starr, 1982). A foundational understanding of the mechanisms of negotiated autonomy is essential to the evolution of the PA profession and would either affirm or deny the arguments made in justification of the OTP movement.

There are numerous potential applications of a conceptual model of negotiated autonomy and collaborative practice. It would inform proposals to amend or alter the legal relationship between PAs and physicians to better reflect current practice. It would also provide insight on current practice trends to facilitate deliberation on whether initial conceptualizations of PA roles align with current implementation. If there appears to be malalignment, the model would assist in the redefinition of PA professional identity and enlighten PA didactic education as well as postgraduate training. With the expanding use of PAs and a push toward broadened autonomy, structured and site-specific training programs identified as onboarding or transition to practice are being developed to enhance organizational integration of the PA role (Morgan et al., 2020). A clear understanding of this role and the collaborative mechanisms would be integral to the translation and implementation of these programs. Further understanding of negotiated autonomy would also expectantly enhance patient safety as it would identify gaps in current practice patterns where a PA may be exceeding their degree of competency-proven autonomy and inform policy on how to prevent these scenarios and abrogate risk. Conceptual frameworks that enhance quality-focused interventions are in demand as medical practice evolves into an arena increasingly concerned with quality care metrics and patient safety. This study contributes to that body of literature.

The sustainable translation of quality-enhancing innovations has been identified as a key component to achieving improved value of medical care in emergency medicine (Lang et al., 2007). Team/organizational science and translational research paradigms focus on how to study and strengthen the functional processes of interdisciplinary teams (Lotrecchiano, 2013). In this school of thought, the collaborative dyad represents the

fundamental/core unit of interprofessional relations (Liden et al., 2016). Research exploring implementation notes interprofessional relationships and individual factors including self-efficacy are essential to successful interventions (Damschroder et al., 2009). Practice innovations, whether implementing clinical decision tools or training programs, are ultimately dependent on changes in individual behavior. A PA's behavior may, in practice, be fundamentally different from a physician's since they function with a fluid notion of autonomy. Though PAs are trained in a similar, albeit abbreviated, model as physicians, it is not known whether they respond to change in a similar fashion as their physician colleagues. An initial step to understanding this complex system would be to identify influencing variables not known in the existing workforce literature to direct future dedicated study. These findings would be foundational to future team/organizational science study. The development of a functional understanding of PA practice would identify mechanisms not only for how to enhance translational/implementation study and interventions focusing on PA practice, but also ways in which PAs could become agents of change in healthcare.

Complexity theory and negotiated order have been used to frame medical workforce research into interprofessional medical practice and collaboration, but neither have been applied to PA practice (Pype et al., 2017). Additionally, team/organizational science does not have an established literature base concerning PA–physician collaboration; however, there exists a generally robust body of study into dyadic relationships (Liden et al., 2016). Patient-centered care has generated "relationship-centered care" models that focus not only on how clinicians interact with patients, but also how they interact with each other (Beach & Inui, 2006). PAs function with a

uniquely elastic understanding of autonomy influenced by the relationship between the PA and their physician colleagues (Schneller, 1978). They may self-restrict their own practice in situations in which they feel uncomfortable. Conversely, a supervising physician may rescind elements of autonomy if the PA displays behaviors the physician feels uncomfortable with. Negotiated autonomy demands constant re-evaluation and adjustment with the goal of safe, effective care. The complexity of this care paradigm makes classification within existing conceptual frameworks problematic. The successful application of complexity theory as a lens for exploring the dynamics of PA practice provides an additional tool for researchers to use to explore the allied health professions.

Theoretical Foundation or Conceptual Framework

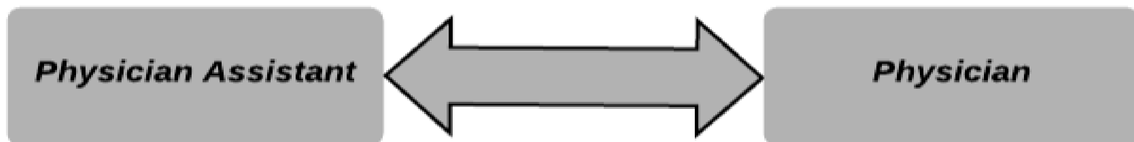
A PA and their supervising/collaborating physician function in an interdependent dyad under the auspices of negotiated autonomy (Schneller, 1978). Even if the individual PA and physician do not interact directly when rendering medical care, they are legally linked through a state-mandated supervisory agreement (Kidd et al., 2019). How this relationship functions in practice is variable and dependent on factors such as local law and institutional credentialing requirements. The PA–physician dyad is not linear, as myriad variables influence the degree to which one node (the PA or the physician) may depend on the other. Complexity science holds that components of a system interact in a relational sense and experience reciprocal alterations to achieve stability when modification of intervening variables occurs (Manson, 2001). The PA–physician dyad cannot be defined in simplistic terms because of this dynamic nature. The application of complexity theory illuminates how the PA–physician relationship is conceptually interdependent, but it is insufficient to define the means, or process, of negotiation.

Dyadic relationships have many complex contributing factors that affect their quality including respect, trust, and mutual role perception (Liden et al., 2016). Negotiated order is a theory that can be applied to explain why and how PAs and physicians interact (Degeling & Maxwell, 2004). By blending the conceptual framework of complexity theory with the mechanics of negotiated order the structure and function of this dyadic relationship can be explored in greater depth.

As described previously, a complex adaptive system is a sustained interaction between individual components that are reinforced by self-sustaining reciprocal feedback mechanisms. As they are always active, these mechanisms form a fluctuating system in search of balance (Manson, 2001). From a practical perspective, one can envision a PA and a physician operating in a manner consistent with that of a complex adaptive system (see Figure 1).

Figure 1

Physician Assistant–Physician Dyad

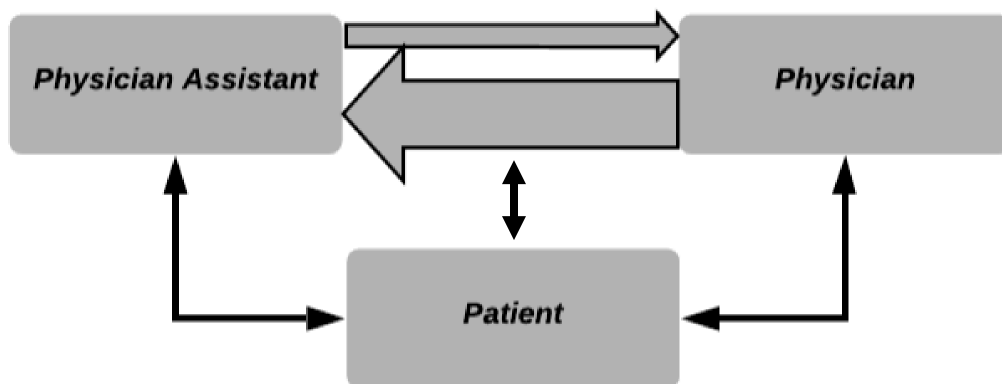


The physician and PA are here linked in a co-dependent dyad. The degree of autonomy that the PA wields is dependent upon the degree afforded to them by the supervising physician. If envisioned as a co-dependent and reciprocal feedback loop, the *degree* of dependence of the PA on the physician is spontaneous and situationally specific. For example, a patient with a simple or straightforward medical problem may yield a high degree of negotiated autonomy to the PA as the physician is comfortable with the

capacity of the PA to complete the task of treating this complaint. With increasing patient complexity or the necessity of complex interventions (like surgery), the degree of afforded autonomy may diminish as the physician assumes greater oversight/control to compensate for the relatively limited training or comparative experience of the PA (see Figure 2).

Figure 2

Physician Assistant–Physician Dyad in Practice



However, if the PA has previously demonstrated to the physician competence in the management of a similar clinical scenario (including symptom presentation, patient complexity, etc.), the degree of afforded autonomy may be increased. This is consistent with research on dyadic relationships that shows individuals who have demonstrated technical proficiency are granted increased "appraisal respect" from the opposing node of the dyad (Grover, 2014). The extent to which this displayed competence is dependent on the individual, historical experience of the supervising physician may lead to a competent PA being restricted by a physician unfamiliar with that PA's clinical experience. In the emergency medicine setting, a complex array of factors may influence the degree of PA

comfort with patient management, leading to covert and spontaneous negotiation rather than an overt, rigid agreement.

The linkage of the PA and physician within this reciprocal relationship exists not only because of an explicit legal association, but also because interprofessional collaboration is dependent on negotiation between individuals. This negotiation is foundational to the theory of "negotiated order" (Degeling & Maxwell, 2004). Negotiated order was first proposed by Anslem Strauss to explain how individuals accomplish tasks within a social system (Nugus, 2019). Order, defined as spontaneous structure, emerges through a process of interpersonal/interprofessional interaction. Complex adaptive systems seek balance when confronted with change or unexpected elements. Negotiated order hypothesizes that this order is achieved through constant negotiation across individuals in the system. An individual, or agent, will seek to define their agency, a manifestation of their autonomy and a reflection of their capacity to act unimpeded (Nugus, 2019). They do so within the confines of the system's structure, which includes external influences that either impede or enable agency/autonomy (Nugus, 2019). However, as these interactions are spontaneous and the parameters of the system fluid, agency must shift to accommodate systemic change. In medical practice, change would include unexpected clinical scenarios or complex patients requiring increased input or collaboration between providers.

Agency (autonomy) is dependent on role perception within a system. Perception of role along with positive perception of proficiency is also notably key to the quality of a dyad (Grover, 2014). The theory of symbolic interactionism contributes to our understanding of negotiated order (Nugus, 2019). It posits that interactions between

agents are based on their internal and external perceived roles or professional identities and that this perception can *change*. This process of change is mediated by negotiation between the agents of differing power within the system and can be readily applied as a functional expression of the negotiated autonomy between PAs and physicians. Overlying these interactions is the notion of power, which is an agent's ability to advance their individual or collective interest within a system (Nugus, 2019). Power in the context of medical care represents an agent's leverage over a clinical scenario and the capacity to direct patient care. The PA is granted this power within specific circumstances/parameters that are negotiated with their supervising physician and can be either expanded or contracted through the negotiation process. In the context of the PA, one can say that they exist as a channel for the physician's power, functioning more as a conduit than an independent agent. In this sense, the physician exerts their power *through* the PA, implying a *dependent*, rather than interdependent, relationship. Whether this interaction holds true in clinical practice, and what confounding variables may influence it, is explored in this study.

An obvious question is which *specific* elements within the PA–physician relationship facilitate or detract from PA autonomy. In a competence-based profession, the natural evolution of the individual is to progress to higher competency through direct experience, leading to a decline in the need for direct supervision and escalating autonomy. This comfort with personal performance is equivalent to the PA's feelings of professional self-efficacy. From a market perspective, diminished oversight decreases redundancy and increases efficiency, but necessitates inter-provider trust. One would suppose that direct patient care experience of the PA would facilitate trust between the

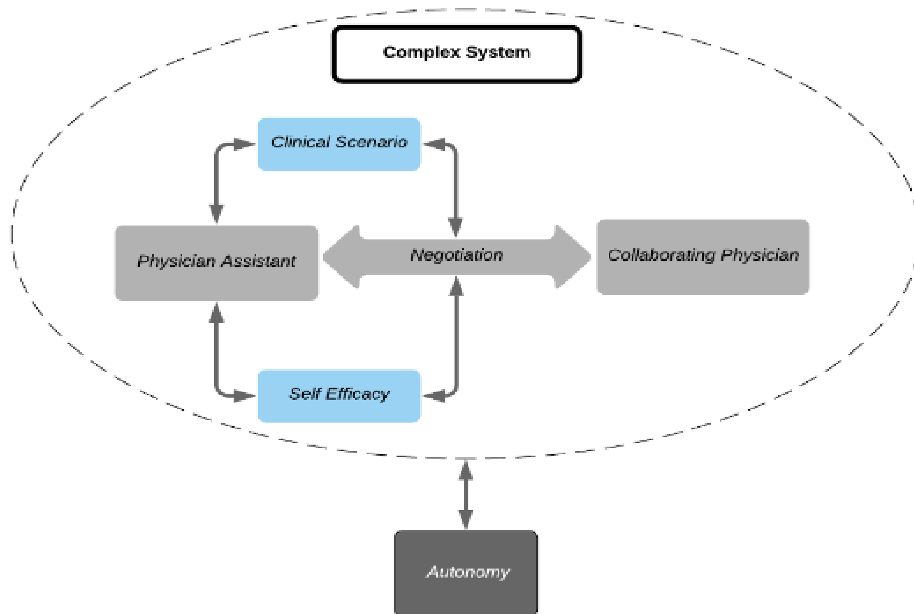
PA and their physician colleagues. However, the influence of a PA’s professional experience is tempered by the supervising physician’s awareness of it. Without a well-established interpersonal relationship, it would be difficult for the physician, lacking knowledge of a PA’s background, to appreciate the PA’s experience and capabilities. Likewise, experience is dependent upon subject material and setting. For example, a PA with extensive experience in an alternate setting, such as cardiology, would have greater comfort managing patients with cardiovascular disease in an emergency setting than those with obstetric or orthopedic complaints. This is a clinical scenario not uncommon in the PA workforce, as approximately 49% of PAs change specialties during their career (Hooker, Cawley, et al., 2010). The additional facilitating factors and the extent to which they influence this process require exploration and definition to comprehend how they affect the dyadic collaboration.

The negotiation of PA autonomy that occurs at the point of patient care determines how a PA may behave in a specific situation. Successful implementation of change in a healthcare system, such as the translation of an innovation or the implementation of a practice change, is dependent on an understanding of individual behavior (Damschroder et al., 2009; Durlak & DuPre, 2008). Self-efficacy, one’s self-perception of competence, is one of several key individual elements within CFIR that has been consistently identified with successful implementation (Damschroder et al., 2009). On a conceptual level, self-efficacy is an individual characteristic linked to negotiated autonomy. A provider who feels they lack competence, a consequence of low self-efficacy, may try to supplement this deficiency by engaging with their supervising physician via overt negotiation. CFIR also identifies external factors such as social

architecture, a structural manifestation of hierarchical division of labor, as a key factor implementation (Damschroder et al., 2009). This notion of social architecture is comparable to the power differential parameters within a negotiated order system. The reciprocal PA–physician dyad is itself a collaborative network that should be considered when designing interventions to alter clinician behavior, such as increasing uptake of a practice innovation. If complexity theory provides the structure and negotiated order the action, then self-efficacy and social architecture link the relationship to translation and implementation. Though CFIR is not explicitly explored in this study, it reinforces how these elements are related back to translational science concepts. The model in Figure 3 displays how one may envision the PA–physician dyad as a complex system and how various, yet unidentified, variables may influence current practice.

Figure 3

Potential Complex System of Physician Assistant–Physician Dyad in Practice



The result of this hypothetical system is the degree of professional autonomy afforded to the PA. Complexity theory frames the system by giving it a structure. The act of

negotiation links the PA and physician in action. CFIR asserts that the presence of intervening variables related to the design of the system, its social architecture, and individual factors is essential to the translational capacity of the system. However, the identity of these specific variables and their relative influence are not known and are explored in this study.

Summary of Methodology

This study will frame the PA–physician dyad as a complex system that operates under the auspices of negotiated order. Such an approach has not previously been attempted. Therefore, a methodology allowing the emergence of relevant themes is required. The generation of such themes necessitates a qualitative strand of inquiry, as this allows for limitation of preconceptions and the organic growth of understanding through discovery. Grounded theory is a methodology that utilizes qualitative data to uncover explanations of social phenomena (Kennedy & Lingard, 2006). The PA–physician relationship is contextual and reliant on interaction; thus, an interactional/constructivist paradigm that accepts multiple realities rather than a singular truth is needed (Kennedy & Lingard, 2006). Grounded theory is ideal for the generation of theory and the exploration of social relationships (Kennedy & Lingard, 2006). Its exploratory nature, and the allowance for emergence of heretofore unidentified themes, makes it the most suitable methodology for this study. Alignment between the goals and research questions is best achieved through the application of a post-positivist paradigm with the application of grounded theory methodology as detailed previously.

Limitations and Delimitations

This study focuses on PAs and physicians in an academic, urban emergency department setting. Emergency medicine is a team-based, collaborative model of practice. Supervising physicians operate closely with PAs, implying that the working PA–physician relationship in this setting is well established. Translating these findings into practice settings, such as rural primary care, that do not involve such proximity of providers is difficult. Additionally, the academic setting often involves resident physicians, which may influence supervising physician perception as physician-PA oversight is similar to physician-resident oversight. Familiarity with the resident physician role, coupled with professional self-identification as an educator, makes collaborative practice a natural inclination among this cohort of supervising physicians. Nonacademic settings, without the modeling provided by resident physicians, likely have a different functional relationship between PAs and supervising physicians. It is also possible that nonteaching settings have an increased financial interest in full PA autonomy to increase efficiency and maximize PA–physician productivity. An additional limitation is the assumption that the PA–physician relationship functions as a complex adaptive system. It is possible that the relationship is more linear and that this framing is inappropriate. The utilization of grounded theory helps to mitigate these concerns, as this methodology allows for reconceptualization should emerging themes conflict with initial assumptions.

Chapter 2: Review of Literature

Introduction

The literature review covers a wide range of topics including research concerning PA autonomy as it relates to the PA–physician dyad. Negotiated/delegated autonomy was explored both inside and outside the context of medical practice. The review was restricted to PAs; while PAs and NPs are frequently linked in workforce literature, their differing historical evolutions and epistemologies justified decoupling them in this review. To appreciate context and reasoning for current developments, a thorough review of the historical establishment and growth of the PA profession was performed. This is preceded by a discussion of professionalization in the medical field. The historical review enables a richer understanding of how current practice aligns with the original intent of the PA within the larger division of labor in medicine. Conceptually, complexity theory and its implications for workforce research were explored along with negotiated order and its potential applications. Organizational and team science literature was also explored to assess prior research on dyadic relationships. The ultimate purpose of the study is to assess how a conceptual understanding of current negotiated autonomy may enhance translation of professional/education interventions for PAs. Therefore, a cursory review of translational health science concepts was performed. Finally, previous applications of grounded theory applicable to the current study are reviewed.

Negotiated autonomy was introduced as a concept to define PA autonomy in 1978; therefore, the literature review relational to PAs covered from 1970 to the present. Literature concerning professional autonomy and the historical development of the PA profession was not restricted to a particular period. Utilized databases included PubMed,

CINAHL, and SCOPUS. Further literature exploration utilizing Google Scholar and the references of discovered literature was also performed. Applicable MeSH terms included physician assistants, scope of practice, supervision, autonomy, negotiated autonomy, dyads, dyadic relationships, delegated autonomy, professional autonomy, and collaboration. Database review applicable to professional autonomy directly included those previously mentioned in addition to JSTOR, ERIC, ABI/INFORM, and ProQuest. Complexity theory and its applications to workforce literature were explored using a combination of the mentioned databases as the applications would have covered the expanse between both research inquiries. Applicable MeSH terms included a transection of those previously utilized.

Limitations encountered during review included a paucity of literature exploring negotiated autonomy. Negotiated autonomy is generally an academic term used to describe the facilitation of PA autonomy as defined in state medical practice laws. Given the relative youth of the PA profession, established in the late 1960s, much of the available PA literature focuses on justification for PA utilization, quality of care, and patient safety. An anecdotal review of how PAs practice confirmed that many references in modern practice utilize the definition offered by Schneller in 1978, but further exploration and applicability of the term is limited. Since there is less literature on PA practice mechanisms, beyond establishing utility and quality, it is unlikely there is literature applying complexity or negotiated order theory to PA practice. Team science literature on PA–physician relationships is also limited, but there does exist a body of literature on dyadic relationships. The PA as a medical care provider is unique in how they function, thus corollaries across practicing medical providers are limited. NPs

function similarly but derive autonomy from an epistemology distinct from PAs. Resident physicians also operate with attending physician supervision, but they are legally independent providers and approach their clinical work in the context of ongoing training rather than as a professional identity. The awareness of being a dedicated trainee would influence a resident physician's perception of their autonomy differently than a PA, who is regarded as a working professional. Despite these limitations, there was rich literature to contextualize the PA profession and explore potential applications of complexity theory and negotiated order.

Description and Critique of Scholarly Literature

Medicine as a Profession

The initial topic of review is PA autonomy. An exploration of PA autonomy, however, is not possible without an extensive review of "autonomy" as a general concept and its application to the medical profession and division of labor. Much of our characterization of medical practice as a professional enterprise comes from sociologic studies performed in the early 1970s. At that time, workforce scholar Eliot Freidson (1970) described medicine as a "consulting profession" and sought to distinguish it from an "occupation." When one references the "profession" of medicine it is generally assumed to be a reference to the status and power of physicians. This is because the physician, as a professional, stands at the pinnacle of medicine's division of labor (Schneller, 1978). Sociologist Paul Starr (1982) referred to physicians as occupying a "sovereign" profession, meaning they are placed beyond reproach in terms of prestige and influence within the medical hierarchy. But this begs an essential question: What is a "medical profession" and how does that influence the autonomy of physicians and

nonphysician practitioners? The answer to this question is complicated and laden with historical influence.

Physicians in essence operate as a protected guild. Their professional skill set is composed of essential tasks including evaluation, diagnosis, treatment recommendation, and provision of prescriptions (Freidson, 1970). These basic tasks form the occupational foundation of medical practice. Professional medicine in the United States emerged in the latter half of the 19th century as scientific innovations refined during the American Civil War were blended with European-influenced training techniques leading to the establishment of the first formal medical schools in the United States (Starr, 1982). However, physician education and training methods were heterogenous and bred a workforce of variable, and often questionable, competence. The Flexner Report in 1910, commissioned by the American Medical Association, sought to establish minimum standards of training for American physicians by highlighting, in particularly damning fashion, the stark limitations of the current paradigm (Starr, 1982). Its findings encouraged a higher basic standard of education that elevated the cost of training and led to the contraction of available schools capable of meeting such high standards. This contraction restricted availability of training and made the skill set of a physician harder to obtain and, thus, more valuable. The American Medical Association, a professional group lobbying for the interests of physician practice, politically lobbied for further barriers to entry into the medical profession (Starr, 1982). There were multiple drivers for this strategy including enhancing quality of care, devotion to public safety, and the assurance of exclusivity among practitioners with its obvious market benefits (Starr, 1982).

With higher standards of training and the American Medical Association lobbying state and federal legislative bodies to codify physician oversight at the state level, physicians came to dominate both entry into their profession and monitoring of their own performance (Starr, 1982). The result of this maneuvering was the establishment of state-sanctioned physician dominance over medical practice. From a sociologic perspective, an "occupation" is defined as a series of tasks that an individual is uniquely qualified to complete based on training and experience (Freidson, 1970). An example would be a bank teller, who is trained by the bank to perform tasks including the counting and distribution of money to members of the bank. Within a market economy, any role that leads to the completion of specialized tasks can be referred to as an occupation. In contrast, a "profession" goes a step further by *restricting* specialized tasks to the purview of an occupational specialist who has satisfied requirements for either professional certification or legal licensure (Freidson, 1970). It is therefore more selective than an occupation. In the case of physicians, their tasks include components of medical practice over which they proclaim preeminent competence: evaluation, diagnosis, and treatment (Freidson, 1970; Starr, 1982). The process of certification and licensure distinguishes the professional as uniquely and solely qualified to accomplish their designated tasks. The movement from occupation to profession is a natural evolution sensitive to market forces, as an occupation will progress toward professionalization to secure its practitioners' dominance over an arena of tasks. There are myriad reasons for this progression including economic security by limiting competition and/or ensuring public safety by establishing minimum standards of competence (Freidson, 1970).

Paul Starr wrote (1982) what many consider to be the definitive historical review of medical professionalization in his book *The Social Transformation of American Medicine.* In this text, he showed that the process of medical professionalization occurred in the early 20th century and proceeded on a similar path to most professions (Starr, 1982). Professionalization occurs when a group proclaims dominion over specialized knowledge and technical procedures while also establishing normative rules of behavior (Starr, 1982). A profession grants its members control over access to the field and confers sociocultural power and influence. The tight control over a desirable range of skills gives members of the profession power. This power is relative to the degree of public dependence on, and demand for, the professional's knowledge and skills. In most circumstances, dependence is accepted so long as the public is assured the profession regulates its members (Starr, 1982). A profession is dependent as much on the public's acceptance as it is on its own performance. Thus, careful self-regulation allows a profession to restrict access to membership while also assuming the role of performance arbiter. However, this evolution requires preceding steps to ensure its success.

The initial goal of a profession is to achieve "cultural authority," which is defined as an intrinsic trust felt by the public toward the professional. In this instance, patients of physicians assume that the physician is capable of drawing on a body of esoteric knowledge beyond lay comprehension (Starr, 1982). In return, the physician must reassure the populace they are competent in their field and will act solely in the patient's interests rather than in their own economic interests (Freidson, 1970; Starr, 1982). In other words, the willing participation of a patient in this transaction requires the belief that the physician is not conning them. The premise that physicians surrender personal

economic interest to the needs of patients is referred to as the “third logic” of the medical profession (Freidson, 1970). It follows the “first logic,” which is the consolidation of bureaucratic control of the profession, and the “second logic,” which concerns market-driven considerations (Freidson, 1970). This third logic is essential to the maintenance of public trust (Freidson, 1970). Physicians are granted vast cultural authority as they are entrusted to name and provide substance to symptoms that are often ethereal complaints (Starr, 1982). In a way, a physician engages in a reality-defining role by labeling a patient’s experience and prescribing ameliorating treatment steps. It is an awesome authority and responsibility but remains strictly the opinion of the physician, akin to an educated guess (Starr, 1982). However, these medical opinions are bestowed legitimacy by the state and the lay public who accept the physician’s credentials, thus further reinforcing their dependence on the physician’s skill set (Starr, 1982).

Cultural authority, the intrinsic trust described here, can be further leveraged into “social authority,” which grants the holder power of persuasion in the greater social sphere (Starr, 1982). Whereas cultural authority is a personal acknowledgement proffered by the lay public, social authority is state-sanctioned control. The establishment of social authority is the consolidation of a professional group into a state-protected monopoly over a field of knowledge and service (Starr, 1982). In medical practice, states “license” providers who have been trained and “certified” as competent by a body of their peers. Licensure and certification, as governed by preeminent peers, grants members of a profession the capacity to restrict access to their field and to self-define their competence (Starr, 1982). From an idealistic perspective, this responsibility is granted in the interest of public safety as practitioners of superior competence in a complex field carry with

them the responsibility to judge and certify their peers (Starr, 1982). This is especially important in disciplines, such as medicine, that necessitate a knowledge base beyond the comprehension of those who lack similar training. From a less idealistic, market-based perspective it also grants the professionals protected dominion over their proclaimed knowledge and services. Such authority insulates the profession from market-driven competition and can lead to price fixing (Starr, 1982). These factors conspired in the United States to create a physician-dominated medical profession imbued with vast cultural and social authority. It also established a prestigious field and great success in improving public safety and health with advances in medical care. However, it conferred near-total control over the medical provider market by physicians. This capacity to maintain control would be repeatedly challenged by the demands of the public, escalating healthcare complexity, and the advent of payor systems in search of cost containment (Coombs & Pedersen, 2017).

Physician Assistants

The idea of a physician's assistant was first introduced by Dr. Charles Hudson during a meeting of the American Medical Association House of Delegates in 1960 (Coombs & Pedersen, 2017). There had been much discussion regarding how to combat a national physician shortage and Dr. Hudson called for the establishment of an "assistant" or "extern" who could extend the physician's reach. This extension would be achieved by having the assistant perform basic medical tasks under a physician's supervision (Coombs & Pedersen, 2017). There were numerous reasons to consider this workforce development, including expanding medical insurance models and the advent of Medicare. Not only did these events increase the pool of individuals seeking medical care, but they

also produced a fiscal environment increasingly interested in cost control (Coombs & Pedersen, 2017). Research at the time also showed urban clustering of physicians, in turn creating a relative rural provider shortage. The workforce was further strained as physicians, pursuing their own research interests or searching for greater prestige and financial gain, began entering sub-specialty practice in higher numbers, thereby reducing the number of primary care providers (Coombs & Pedersen, 2017). These developments were acknowledged by a medical establishment ever more aware of the rising risk of ceding market share to competing practitioners (Coombs & Pedersen, 2017). It was largely an existential threat, but if physicians were unable to satisfy public need, then the public might seek alternate sources of care. Whether likely or not, given the barriers to practice entry that had been erected, these market forces are often stimulants for professional change. The public's search for care alternatives could conceivably have led to political lobbying that may have endangered physicians' social authority over clinical practice. Such erosion would inevitably threaten physicians' cultural authority, impairing their control over the medical division of labor.

While medical staffing was evolving, care delivery itself was also shifting. Until the mid-20th century, most medical care took place in the home or a physician's office (Freidson, 1970; Starr, 1982). Hospital-based care was reserved for indigent populations or those with mental illness (Starr, 1982). However, the 1950s witnessed a shift toward hospital-based care for those with advanced illness requiring specialized treatment. The staffing model for hospital-based care depended on resident physician staffing built into physician training (Coombs & Pedersen, 2017; Starr, 1982). Communities that lacked teaching hospital infrastructure, with its concurrent supply of resident physician staffing,

necessitated a unique practitioner to extend the physician's reach into the hospital. This would free the physician to continue their community-based practice while maintaining their control over care delivery (Coombs & Pedersen, 2017). With support of the medical establishment, political pressure, and clear public demand, Duke University established the first PA training program in 1965. It was founded and constructed by Dr. Eugene Stead; a prominent physician regarded as the father of the PA profession (Coombs & Pedersen, 2017). His vision was training individuals with baseline medical experience to function in an augmented capacity, supported by physicians who would serve in a supervisory role. The tethered PA–physician construct was present from the very beginning and served the dual purpose of ensuring sociocultural authority for the PA while preserving physician control.

In this new model, PAs would learn the biomedical model of medicine via a condensed version of the medical training previously reserved for physicians (Hooker et al., 2017). Given the accelerated nature of the training, it was felt that prior clinical experience would ensure baseline competence while also alleviating concerns from the public or the suspicions of other physicians regarding the PA's skill set (Hooker et al., 2017). Dr. Stead had initially considered nursing as an ideal source for candidates, but his overtures were rebuffed by a nursing establishment wary of altering their role in the division of labor (Hooker et al., 2017). Some in nursing leadership were uncomfortable with expanding beyond traditional nursing tasks while also placing themselves further under direct physician control (Hooker et al., 2017). Additionally, there was a movement within nursing to establish their own clinician prototype that would be managed directly by boards of nurses rather than physicians. Following these experiences, Dr. Stead chose

against repurposing existing healthcare workers and instead elected to create an entirely new role (Hooker et al., 2017). This practitioner was envisioned as a "dependent" provider who would exist under the jurisdiction and supervision of a physician (Hooker et al., 2017). The role was made explicit when Dr. Stead stated in 1964, "Our physician assistant is structured entirely as a dependent component of the doctor's team. He has no professional existence as an independent agent" (Holt, 1998, p. 259). Public safety was a concern as care provided by inexperienced practitioners carries with it the risk of substantial harm. Structuring the role in this sense ensured safety while reducing physicians' concerns that these new providers would become competitors. It also aided in achieving trust from the public and medical system (Holt, 1998).

Although constructing the PA as a dependent provider can be viewed as restrictive, the role was made purposefully vague with "no ceiling on his [the PA's] activities except that they be performed under the supervision of a doctor" (Holt, 1998, p. 262). This way the PA's scope could be anything and everything their supervising physicians wished it to be so long as the outcomes corresponded with the general standard of care. Direct physician involvement also reduced the legal complexity in amending state laws for PA practice (Sadler & Davis, 2017). In the United States, medical practice laws occur at the state level. The process of lobbying and legislating new laws to establish the legal infrastructure for PA practice would have required a vast administrative and political effort. However, if PA practice could be codified with the addition of a simple amendment to a given state's medical practice act, then the PA could practice essentially under the physician's license (Sadler & Davis, 2017). The language recommended by the American Medical Association at that time described services by a

PA as occurring “under the supervision, control, and responsibility of the licensed physician” (Sadler & Davis, 2017, p. 47). With the achievement of licensure, PAs became state-sanctioned members of medical care teams. However, there remained a fair degree of ambiguity as the structure of “supervision” as dictated by state laws was often not fully defined or operationalized.

Negotiated Autonomy

An occupation is an economic position where an individual is uniquely qualified to perform specified tasks due to training or education (Freidson, 1970). An occupation can evolve into a profession comprised of individuals who are empowered by cultural and social authority to control oversight and access to a specified occupation. Occupations and professions coexist on an evolutionary progression that occurs as an occupation moves beyond just training and toward certification and licensure. This increases public trust by ensuring standards of professional conduct while also stabilizing the market. Within a professional context, “autonomy” is the degree of freedom and control an individual has over their work (Freidson, 1970). Ultimately, autonomy is *conditional* on the degree of latitude afforded by professional certification, state licensure, or both. An individual draws their personal autonomy from the professional group autonomy as approved by the group’s peer members and sanctioned by the state. Thus, individual autonomy flows from professional autonomy (Freidson, 1970). In practice, physician oversight, the monitoring and assurance of competent care, is peer mediated. The standard of care is established and reinforced by physician-led organizations and further consecrated by the state. Indeed, the standard of care is the measure against which malpractice is judged. This is appropriate, as one would expect

experts to regulate the performance of other experts. It is an interesting arrangement wherein any potential limits of autonomy are considered by those who may also seek to expand it. While ensuring public safety, physicians granted themselves a high degree of market control. However, as the complexity of care and the number of individuals seeking it increased, so did the number of tasks that fell under the professional purview of physicians (Starr, 1982). In a way, they became victims of their own success. It was a situation that demanded physicians and policymakers consider ways to expand coverage while maintaining safety and control.

PAs are unique within the healthcare system in how they are afforded autonomy. Schneller (1978) identified five essential elements of medical care: client statement of claim (presentation of a patient complaint or symptom), verification of claim (triage or intake), diagnosis (identification of claim cause), proposition of course of action (prescription of medications or services), and treatment (either direct via physician action or indirect via physician referral). In the medical division of labor, a physician can participate in all stages of care, but traditionally cedes tasks related to each stage except for diagnosis and prescription (Schneller, 1978). Diagnosis and prescription carry the highest risks of errors; therefore, they are closely guarded by physicians in the interest of public safety. Economically, insulating these aspects of care from competition also reinforces physician control and maintains a degree of monopolization. For these varied reasons, physicians have been reluctant to give up control over these essential components of care provision. Coincidentally, these elements of medical practice are frequently targeted by those who wish to enter the arena of medical practice as, due to their scarcity, they are the most lucrative.

Yielding control and exclusivity of diagnosis and prescription authority threatens the market centrality of the physician. Thus, the difficulty arises in how physicians can expand health system capacity to accomplish these essential tasks while maintaining physician control (in the interest of both economic preservation and public safety). The medical establishment granted PAs access to these tasks under close physician supervision, which had the effect of assuring legitimacy to a public wary of allowing lesser-trained individuals control their care while restricting the freedom of potential competition. Still, the tasks of diagnosis and prescription necessitate a combination of training and experience for competent execution, and the risk of inappropriate wielding of such power is vast. The physician profession has undergone a long educational evolution to refine a training model that combines rigorous didactic mastery (undergraduate achievement/medical school/clerkship) and real-life supervised skill refinement (residency/fellowship). Credentialing of these programs, combined with mandated individual recertification, by external boards further reinforced the establishment and maintenance of peer-assured competence within the physician profession. Development of an abbreviated training paradigm, while maintaining competence, necessitated the design of a process that accounted for dynamic maturation of the PA via on-the-job training.

Schneller likened negotiated autonomy to "performance" autonomy whereby the degree of autonomy is expanded or contracted based on the performance or demonstrated competence of the provider in question (Schneller, 1978). This differs from the more restrictive "functional autonomy" applied to nurses where task delegation is close-ended and specific (Schneller, 1978). Providers with functional autonomy have a list of tasks

they may perform and are restricted to those tasks alone. It is an effective process as it provides clear role identity and structure, but also limits the agent to a narrow subset of tasks. Physicians, by contrast, operate in a sphere of "self-regulative autonomy," which asserts that the limitations on practice are only those that physicians place upon themselves either as a group or as an individual (Schneller, 1978). The task delegation of performance autonomy for PAs was designed to enable expansion to include practice without direct/visualized supervision, provided competence had previously been successfully demonstrated. PAs come from an applicant pool with wide heterogeneity of previous medical experience and thus carry with them variable competence at the conclusion of their formal training. The imposition of negotiation afforded physicians, who also assume medicolegal risk by associating with a PA, the capacity to determine the degree of practice freedom afforded the PA. In this sense, the performance autonomy of a PA is both situationally specific and temporary, as at any point the PA and/or physician may decide that a particular patient care scenario is out of the PA's purview and, in response, restrict or rescind the allowed autonomy. It is a unique and ingenious way for the physician to maintain a central role in patient care and ensure patient safety while expanding the care capacity of the medical division of labor.

As described, the practice of a PA is dependent on their negotiated autonomy with a supervising physician. Schneller (1978) notes this negotiation is both overt and covert. Though it varies by state, PAs practice under the guise of a written delegation agreement that is determined at the practice level. It will often list various procedures a PA may perform, but when the characterization of medical practice is broached, it is usually open-ended. This means that when it comes to the practice of diagnosis and prescription, the

process of negotiation is covert and ill-defined. This literature review sought to evaluate the existing literature that characterizes negotiated autonomy. A MeSH term does not exist for negotiated or delegated autonomy, therefore the terms “professional autonomy” and “physician assistant” were searched in the PubMed database. Most articles reviewed examined how autonomy influenced job satisfaction or the implications it had at the practice level; no articles examined the factors that contribute to or influence the state of negotiated autonomy between PAs and physicians. Further review in CINAHL and EMBASE revealed similar findings. What follows is a review of this literature.

There were no identified studies that directly explored mechanisms of negotiated autonomy between PAs and physicians. There were sparse studies that explored the frequency of PA–physician collaboration in various practice settings. Cawley and Bush (2015) found that since PA–physician interaction is “dynamic,” task delegation patterns appear to evolve over time with expansion of PA responsibility correlating with direct experience. This dynamic growth curve fits well with the description of negotiated autonomy as performance-based and associates autonomy expansion with demonstrated competence. The study examined national workforce survey responses that categorized PAs by practice setting, years in practice, and percentage time spent consulting with physician colleagues (Cawley & Bush, 2015). It found that PAs with 15 or more years of experience were less likely to spend 10% or more of their time consulting with physicians (Cawley & Bush, 2015). When viewed from a sub-specialty practice perspective, primary care PAs consulted with less frequency both at the onset and several years into their career (Cawley & Bush, 2015). Emergency medicine PAs with less than 5 years’ experience were found to consult with a supervising physician approximately 75% of the

time, with this figure dropping to approximately 50% after 20 years of experience (Cawley & Bush, 2015). It is interesting to note that even with 20 years of practice experience, PAs in emergency medicine still reported consultation with physician colleagues in nearly 50% of all patient care encounters. Explanations for these findings were not the goal of the study and thus were not broached, though there are some potential explanations for these findings. It is possible that experienced PAs consulted with physicians due to administrative or legal requirements mandated by their state or organization of practice. Economic pressures may also play a role, as services rendered by PAs often lead to reduced financial reimbursement without the direct involvement of a physician. It may also reveal that though PAs may acquire a high degree of proficiency and autonomy throughout their career, there will always be a role for physicians as collaborative providers.

In the primary care setting, practice autonomy was explored by Chumbler et al. (2001) where they attempted to explore the precursors to expanded autonomy. They specifically examined practice attributes, such as clinical decision-making and prescriptive authority, to identify which elements were most influential to PA autonomy. The study showed that years in individual practice as a PA alone were not as significant as the years in practice with a specific supervising physician. Additionally, the income and structure of the practice (single specialty versus group practice) along with rural versus urban distinctions were influential on PA autonomy. One might expect that years in practice as a PA alone would have the highest influence on an individual PA's expanded autonomy. However, the finding that the years in practice with a specific supervising physician, rather than simply in practice, is an intriguing finding. It suggests

that the mentorship model proposed by Dr. Stead and the other progenitors of the profession works just as intended. It is the interpersonal PA–physician relationship, rather than the individual alone, that allows for PA growth. A strong relationship, reinforced with experience, fosters trust between providers and facilitates expansion of the PA's autonomy. The study also showed that in the primary care setting, the proximity to supervising physician, degree of clinical productivity, and adherence to written guidelines influenced the capacity of independent PA practice (Geller et al., 1998). Whether this finding holds true in practice settings where the relationship is divided between a PA and multiple physicians who function as supervisors, such as in emergency medicine, is not known but demands attention.

In emergency medicine, practice patterns relevant to PA autonomy are not well established. Literature suggests that malpractice risk is proportional to the degree of an individual PA's perceived supervision (Hooker, Klocko, et al., 2010). Emergency medicine PAs consult with their supervising physicians more frequently than their primary care peers (Cawley & Bush, 2015). This is dependent on the practice setting as rural emergency medicine PAs are often more independent than their urban counterparts, a finding largely attributed to limited physician availability (Sawyer & Ginde, 2014). Though the risk of malpractice is high in emergency medicine, the perceived risk among physicians as it relates to their working relationship with PAs decreases as their experience with PAs grows, suggesting that trust is organic and evolves over time (Gifford et al., 2011). As PAs further expand their presence in emergency medicine, some physicians have expressed concern that PA utilization is becoming more focused on physician replacement rather than collaboration/supplementation (Ginde & Camargo,

2010). This discomfort may represent the manifestation of old fears or the result of the movement within PA practice to distance PAs from their physician colleagues. These findings further reinforce the calls to better understand the foundational elements of PA autonomy and their potential consequences (Bushardt, 2015).

PA Postgraduate Training

It was acknowledged from the outset that the PA would not be a “finished” product when they completed their training (Schneller, 1978). The very idea of negotiated autonomy concedes that the PA must display progressive competence in clinical practice to gradually attain increased responsibility. The condensed educational model and lack of residency training made this a requirement for successful acceptance and implementation. This made the PA dependent on the input of their supervising physician, but it also made the PA an exceptionally versatile clinician as the physician could then train the PA in the manner of practice best suited to their style and approach. The generalist background and on-the-job training concept also makes it possible for the PA to change specialties throughout their career. The only real requirement for a PA to change specialties is an understanding with their employer that there will be an adjustment or learning period as the PA acclimates to a new specialty field. This represents a potential career advantage for PAs over physicians, who are more committed to the specialty they were trained in during residency or fellowship (with some exceptions). NPs also have restrictions on their specialty practice as they usually decide between “acute care” or “family practice” designations. The detriment to this training model, however, is that the PA is less efficient and requires more oversight at the outset of their new career or specialty. In response, postgraduate training has been proposed to accelerate the PA’s integration into

a practice setting or specialty. This training can take different forms, either as residency or onboarding (also referred to as transition to practice) training. PA residency training programs were considered separate from professional onboarding since these individuals are directly identified as "learners" and thus approach their roles from a different perspective from new-hire PAs. The literature review focused on onboarding programs in isolation.

"Onboarding" is a term frequently used in workforce literature to describe the process of integrating new-hire employees into a specific practice setting (Morgan et al., 2023; Polansky, 2011). This can include orientation to organizational processes like the use of electronic medical records, increasing familiarity with an individual's role within an organization's division of labor, or an establishment of baseline clinical competence. Despite the graduated competence design of the profession, little is known in existing workplace literature regarding the process of on-the-job training for PAs. In general, workplace-oriented learning is distinct from classroom-based learning as professionals are more focused on directly relevant material for application in their professional role rather than perhaps more esoteric or academic-centric material (Polansky, 2011). Survey data has shown that only 35% of new graduate PAs feel "well prepared" for their clinical duties right out of school and nearly 32% do not feel comfortable performing all their clinical duties after 6 months of employment (Polansky, 2011). The relationship with their supervising physicians was identified as far and away the most influential aspect of on-the-job learning for PAs (Polansky, 2011). Though a majority of PAs are given structured orientation at new jobs, most feel it is insufficient to their learning needs

(Polansky, 2011). Supervising physicians were identified as the most utilized and critical resource for PAs in augmenting their perceived knowledge gaps (Polansky, 2011).

New-hire PAs often feel a degree of insecurity when transitioning into practice from school or entering a new practice area (Forister & Chlup, 2017; Polansky, 2011). New graduates are increasingly seeking employment opportunities that afford them structured mentoring or support upon workplace entry (Morgan et al., 2020). Supporting transition to practice has been consistently identified as an area in need of improvement by PA education professionals (Nelson, 2016). Onboarding programs are being offered as structured processes to successfully integrate PAs into new practice settings and increase their efficiency and scope of practice at a more rapid pace (Morgan et al., 2020). It has additionally been suggested that these programs may also decrease the risk of provider burnout and staff turnover, though these outcomes have not been specifically explored in existing literature (Bauer et al., 2007). Since the relationship between the PA and their supervising physician is commonly cited as the most essential aspect of new-hire learning, a deeper understanding of the collaborative process would assist in designing, implementing, and evaluating the outcomes of onboarding training programs.

Inferences for This Study

After extensive review of the existing literature, there were no identified studies that explored the specific nature and structure of PA negotiated autonomy either in general practice or in emergency care. The PA's position in the medical division of labor is well understood, but there has been little to no exploration of the process of autonomy determination at the point of care. What limited literature exists reinforces the presupposition that it is determined largely by the interpersonal relationship between the

individual physician and PA. In a setting where interactions between these individuals are varied and transient, the dynamic nature of this relationship remains elusive. This study will explore these mechanisms and processes to enhance understanding of autonomy and its influence on future translational clinical research. The lack of existing literature reinforces the need for a qualitative, grounded theory approach as an initial exploration, though framing via a conceptual framework would assist in giving operational structure to potential findings in this study. There is also a lack of literature that establishes a conceptual framework for the design and implementation of onboarding training programs with the goal of accelerating PA autonomy in a safe, standardized manner.

Theoretical or Conceptual Framework for This Study

Exploring PA and physician collaboration, with its inherent influence on translation and implementation, necessitates a conceptualization of their relationship and a theoretical basis for their interactivity. Implementation science literature has reported that individual factors like self-efficacy, combined with inner-setting elements like structural and culture contexts, influence networks and communication (Damschroder et al., 2009). Each is considered vital to successful application and uptake of interventions, such as training programs, applied in medical settings (Damschroder et al., 2009). Multiple studies have highlighted the importance of clinician interprofessional and interpersonal relationships on effective medical practice (Beach & Inui, 2006; Gelb Safron et al., 2006; Nundy & Oswald, 2014; Suchman, 2006). In practice, the relationship between PA and physician was intended to be reciprocal and interdependent (Schneller, 1978). Characterizing this relationship as a complex adaptive system embraces this interdependence and provides a conceptual framework appreciative of the relationship's

design (Pype et al., 2017). Though an effective means for describing how the PA and physician are linked, complexity theory cannot account for the mechanisms and motivations of their interaction. Negotiated order is a theoretical representation of interprofessional collaboration that has been applied in the medical arena and can be extended to individual interaction (Nugus, 2019; Nugus, Greenfield et al., 2010). A review of existing literature was conducted to explore applications of both complexity theory and negotiated order in medical workforce collaboration and team-based care. Though the literature base was limited, there does exist a foundation for application of these concepts to interprofessional collaboration and the potential influence on research-to-practice translation.

Some have suggested it can take nearly 17 years for evidence-based practices to be implemented at the practice level (Bauer et al., 2015). Indeed, nearly half of all innovations do not achieve general use (Bauer et al., 2015). These revelations have contributed to an emphasis on translational research exploring the barriers and facilitators of implementing and sustaining evidence-based innovations (Damschroder et al., 2009; Tavender et al., 2016). Implementation scientists endeavor to develop frameworks that respect the complex structure of modern medical care and emphasize not only individual behavior, but the varied cultural and contextual characteristics affecting uptake. CFIR is a trans-theoretical model that seeks to combine existing literature into an overarching construct embracing the multifactorial nature of implementation (Damschroder et al., 2009). Evidence-based decision-making is dependent on individual behavior performed by individual clinicians. This behavior is heavily influenced by internal and external considerations of varying influence (Damschroder et al., 2009). If one is to consider the

contributing factors of PA clinical behavior, one must also consider how the PA operates within the PA–physician dyad. CFIR highlights elements that should be considered when approaching PAs and practice innovation implementation.

CFIR identifies social architecture as how individuals and groups within an organization coalesce into networks based on their functional differentiation (Damschroder et al., 2009). This differentiation is self-organizing according to the internal division of labor and composed of professional coalitions arranged in task-completing units (Damschroder et al., 2009). The PA and physician combine to form a functional network whereby the PA may be indistinguishable from the physician in their task performance; however, the freedom of task assumption is restricted by the physician's delegating authority. The implications this delegative process may have on implementing innovations at this contextual level have not been explored and would be difficult to study given the limited knowledge of the delegation process. Of interest is how individual characteristics of the PA and of the physician are subsumed by the PA–physician relationship. Within the realm of task achievement and delegation, it is the relationship between the individuals, rather than the individuals themselves, that is most influential. It bends, expands, and contracts in response to clinical scenarios. This capacity for adaptation makes the PA–physician dyad highly versatile and appealing to unpredictable practice settings. Still, the ambiguity that makes it so versatile also makes it difficult to examine.

The Science-of-Team-Science explores the enabling and impeding mechanisms underlying interdisciplinary collaboration (Lotrecchiano, 2013). There is a paucity of literature directly exploring the PA–physician collaborative dyad. However, there is an

established body of literature in the team/organizational science field regarding the dynamics of dyadic relationships (Liden et al., 2016). The dyad is viewed as the primary unit of interpersonal relationships and can take many forms including leader–follower, teammate–teammate, and mentor–protégé (Liden et al., 2016). There are many variables that influence the quality of a dyadic relationship including personal perception, similarity, value alignment, and respect (Liden et al., 2016). In the context of the PA–physician relationship, it is likely that this notion of respect between providers would be particularly influential in the negotiation of autonomy. Professional respect, which operates bidirectionally across a dyad, is felt to be notably influential on the quality of a dyadic relationship (Liden et al., 2016). Grover (2014) expanded this notion further with the concept of appraisal respect, which reflects how a positive perception of an individual, particularly their technical proficiency or skill, enhances the degree of respect. This appraisal respect would appear to operate proportional to "graduated autonomy" within the PA–physician dyad.

Dyadic relationships are contingent on interdependence, exchange, and reciprocity between the two linked parties. Task interdependence in particular concerns the degree to which these parties depend upon one another to accomplish their professional tasks (Liden et al., 2006). The relational quality of a highly interdependent dyad is directly affected by the degree to which the skills and competence of each is clearly communicated to the other (Liden et al., 2006). The "climate" in a workplace is a reflection of how the shared perception of each member of a dyad can be altered through a process of interpreting organizational policies and inferring social cues regarding normative dyadic behavior in a specific organization (Salancik & Pfeffer, 1978). The

perceptions of behavior can put the dyad at risk of experiencing a “psychological contract breach” wherein a member of the dyad may exhibit unexpected behavior in contrast to the other member’s perception of their skillset or role (Liden et al., 2016; Zhao et al., 2007). This can lead to a sudden reframing of the relationship and contribute to a breach of trust that has implications for the quality of the relationship and the functional capacity of the dyad (Zhao et al., 2007).

The available literature reviewed regarding dyad relationships was largely found in organizational and management research. There was a frequent refrain noting the limitations of empirical research in this arena due to the closed nature of the relationship as it occurs between two individuals. An exploration of the PA–physician collaborative relationship as a functional dyad was not found in the established literature and is an area of great potential interest as it represents a knowledge gap. Though there was not specifically PA–physician related literature found in the dyad research, the concept of inter-provider relationships was noted in medical workforce literature.

Relationships between clinical providers, and the inherent implications on care quality and coordination, is an emerging area of interest. The concept “relationship-centered care” (RCC) has been suggested as a school of thought to explore how transpersonal relational processes influence clinical decision-making (Suchman, 2006). RCC is divided into four general clinical relationship types: clinician–patient, clinician–clinician, clinician–community, and clinician–self (Nundy & Oswald, 2014). RCC respects the notion that healthcare relationships are shaped by reciprocal influence and defined by the power instability inherent to their structure (Beach & Inui, 2006). Examples of this structural influence include the patient–doctor relationship or the

clinician–subspecialist relationship wherein each dyad displays some sense of relational power disparity. In each, an individual is seeking the counsel of the "other," granting the other their power. The PA–physician relationship carries a similar design with the physician functioning as expert consultant should the PA seek insight. The CFIR framework, reinforced by the tenets of RCC, acknowledges that the relationship between the PA and their supervising physician is essential to PA practice and translation. Examining this relationship further would require additional theoretical lenses.

Complexity is the study of how systems develop and respond to change in unpredictable ways. This evolution is based on the continuous interaction of various nodes that establish co-dependent, self-sustaining relationships in a search of balance (Pype et al., 2017). Complex adaptive systems in sociology are multi-nodal and composed of individual parts (individuals) that adapt to changes and demands from the environment (Nugus, Carroll et al., 2010). Each adaptation produces ripple effects throughout the system, generating persistent flux between order and chaos (Nugus, Carroll et al., 2010). Care delivered in an emergency department is an example of a complex adaptive system as caregivers from various disciplines are exposed to unexpected developments that force them to consistently respond and adjust their management (Nugus, Greenfield et al., 2010; Widmer et al., 2017). Rather than a linear progression that operates according to an established structure or order, complex systems are unpredictable and predicated on the flux of the various interdependent nodes. The collaborative relationship between PA and physician is often described as a unidirectional relationship with the physician dictating care delivery to the PA. However, it may be more appropriate to envision this relationship as a complex adaptive system.

The characterization of care teams as complex adaptive systems is increasingly found in healthcare workforce literature (Anderson & McDaniel, 2000; Miller et al., 1998; Pype et al., 2017; Pype et al., 2018). A scoping review revealed that complexity theory is most often applied in health services to explore relationships, self-organization in healthcare teams, and outcomes research (Thompson et al., 2016). Inter-provider relationships are of common interest as agents, also described as nodes, within a system interact throughout the process of care provision. These interactions produce behavior at both the individual and system levels (Thompson et al., 2016). Emphasis on interaction reinforces how complexity can be applied to collaborative medical practice. If one considers the PA and physician as individual agents, the interaction of the agents themselves produces a behavior that seeks to achieve task completion in care provision. This interaction is negotiated autonomy in practice. Complex adaptive systems are described as being "open" to their environments, meaning that they must adjust and self-organize to various stressors (Thompson et al., 2016). Therefore, the flexibility afforded to the PA by the design of negotiated autonomy enables the functional relationship between the PA and physician to adjust spontaneously to meet patient demands or unanticipated clinical scenarios. This versatility is of high utility in practice arenas like emergency medicine where conditions are subject to rapid change. Review of current literature found no previous studies applying complexity theory concepts to the PA–physician collaborative dyad. Though complexity theory works as a framing device for describing the dynamic nature of the PA–physician relationship, it does not provide an adequate understanding of the *processes or motivations* that facilitate this dynamic interaction.

Negotiated order was first described in 1964 by Dr. Anslem Strauss, who observed that individuals working in hospitals did not appear to complete tasks in a linear manner corresponding to their division of labor (Allen, 1997). Rather than being a "static order," the social structure in the hospital underwent continuous change facilitated by both overt and covert "negotiations" between individual professionals (Allen, 1997). The revelation of the system's lack of static order foreshadowed much of the later findings supporting the application of complexity theory to medical care. The act of negotiation is a process to reconcile power differentials between individuals and enable responses to change within the system (Allen, 1997). Negotiated order, in the context of interprofessional collaboration, operates at three levels: macro (concerned with higher-order concepts like regulatory policy), meso/institutional level, and micro/interpersonal level (Bourgeault & Mulvale, 2014). The interpersonal level exists between individual professionals and describes how individuals have internalized roles, but also negotiate their tasks based upon a variety of outside influencing factors (Bourgeault & Mulvale, 2014). This relational interaction reflects much of the functional relationship that exists between PAs and their collaborating physicians. The identity of those outside influencing factors is unknown and is an area of potential study.

There is an implication that because there is frequent negotiation between health professionals, interprofessional/interpersonal relationships are in perpetual flux. Though there is some validity to this point, the relationship retains a degree of agency as its history fosters an internal structure that then allows for some prediction of how it will respond to future stressors (Holden, 2005). An individual's role is pre-established based on precedent which enables an agent to work within those historical boundaries or to seek

to expand them through the process of negotiation (Holden, 2005). The PA–physician collaborative dyad itself has a "memory" that directs its future interactions. This memory may also be reflected in the institutional role of the PA, encompassing the variety of tasks that the practice has designated to the PA, and the interpersonal relationship between the collaborating individuals. In emergency medicine, where diagnosis and prognosis are initially ambiguous, the flexibility and adaptability of this system become strengths (LaDonna et al., 2018). However, the mechanisms of how PA–physician interactions change over time have not been elucidated. Additionally, the process of interaction requires further exploration from a theoretical perspective. In the context of this literature review, there were no identified studies that applied negotiated order to the functional relationship between PAs and physicians.

Negotiated order sets a mechanistic understanding for how the functional relationship between PA and physician undergoes negotiation and change. It is a theory concerned with the systematic distribution of power between groups also referred to as "social order" (Comeau-Vallee & Langley, 2019). In the context of professions, power is the capacity of one professional to persuade another to follow their recommendations (Comeau-Vallee & Langley, 2019). Once established, it is codified, by the state (government), the institution, or both. Physicians have the power to practice medicine and may also confer, or direct, subservient professionals to perform tasks under their direction. Such power is derived by title attainment through education and training, but is also concerned with "social position," or perceived social status, within a group (Comeau-Vallee & Langley, 2019). These distinctions form professional "boundaries" which, when taken in totality, define the division of labor (the dividing lines existing as

these boundaries). In the medical context, this division of labor takes the tasks involved in the provision of medical care and assigns them to various professional groups that have declared sovereignty over them. Interprofessional collaboration occurs via negotiations at the intersection of these boundaries (Comeau-Vallee & Langley, 2019).

Individuals, or agents, assert dominance over tasks and therefore self-define based on their professional identity (Degeling & Maxwell, 2004). For example, a nurse would consider themselves uniquely qualified, by virtue of their professional identity, to complete traditional nursing tasks. Therefore, their role within the system is encapsulated by their professional identity. They may further contract or expand these tasks by negotiating with other agents in the system and then displaying competence, which would further reinforce their capacity to negotiate increased functionality. This expansion is limited only by professional barriers reserved for neighboring professions (such as diagnosis and treatment for physicians). This happens typically in a hierarchical fashion as the desire to expand task delegation escalates to levels and individuals above them in both social and professional status. Negotiation exists from previous historical negotiations that have outlined task delegations within the division of labor, but also frames and enables future negotiation. In many ways, negotiated order gives structure to how individuals define their professional reality and role within a systematic division of labor (Bechky, 2011).

There are proponents of collaborative medical team practice who are seeking to move away from rigid structuralist silos and toward overlapping autonomy between providers (Bourgeault & Mulvale, 2014). The reasoning behind this shift is that it will enable various professionals to assume a broadened array of tasks to improve care and

system efficiency (Bourgeault & Mulvale, 2014). In the current body of research, negotiated order has been applied to examine the interprofessional relationship between nurses and physicians (Allen, 1997; Svensson, 1996). Allen (1997) observed that physicians no longer appeared to dominate medical practice in the modern arena as allied health providers, nurses, and occupational or physical therapists, for example, had steadily increased their influence. He observed that nurses would often alter patient care choices and the course of care through subtle interactions with their physician colleagues. This may take different forms, like making recommendations for interventions or alerting the physician to concerns about various treatments (Allen, 1997). This process of negotiation in many ways helped maintain a semblance of order as the relationships between nursing and physicians evolved. The stabilization ensured the system would continue to function despite friction that may arise between individual agents.

Nugus, Greenfield et al. (2010) highlighted power disparity and its need for reconciliation as the driving force of negotiated order in medical care settings, making a distinction between “competitive” and “collaborative” power within the negotiated order of health services. Power is often characterized by how it initiates conflict when leveraged in a unidirectional manner. However, if distributed in an equitable fashion, power can enable individuals within a system to function at a higher capacity (Nugus, Greenfield et al., 2010). Through the process of negotiation, actors can exercise agency by resisting power structures in the areas of medical decision-making, care delivery, and evaluation of care quality (Nugus, Greenfield et al., 2010). The setting greatly influenced the leeway in negotiation. Non-acute care settings fostered greater potential for elasticity within the system than acute care settings (Nugus, Carroll et al., 2010). This reinforces

the notion that interprofessional collaboration is subject to influencing factors that may inhibit or encourage its process. In areas where there is ambiguity regarding individual professional roles, the act of negotiation is essential to task delegation and achievement (Degeling & Maxwell, 2004). Negotiated order provides the functional element for how providers within a system interact, thus making it an ideal application in the context of this study.

Negotiated autonomy is the identified process for how PAs act within medicine's division of labor to accomplish tasks of medical care provision and delivery (Schneller, 1978). By framing the PA–physician relationship as a complex adaptive system, the coupling of providers shows that there are myriad intermediary factors that influence their functional relationship. The process of their collaboration is one of constant negotiation seeking to establish order and facilitate patient care. After a review of the existing literature, applications in healthcare workforce study have been noted, but their application specifically to the PA–physician relationship has not been explored. Negotiated autonomy exists as a legal and philosophical concept that establishes how PAs perform physician-dominated tasks. However, the process of this negotiation is ill-defined and warrants exploration through the lens of complexity theory and the application of negotiated order. The findings of such an exploration would have influence not only on how PAs may facilitate translation and implementation of practice change, but also how PAs perceive their role in medicine's current division of labor.

Chapter 3: Methodology

Overview

This study proposes that the PA–physician dyadic relationship is functionally a complex adaptive system with dynamic and reciprocal elements. As a shared experience between collaborating individuals, it is ideal for qualitative inquiry. The study targeted the interpersonal and interprofessional interactions influencing autonomy negotiation between PAs and their supervising/collaborating physicians. The goal was to discover emergent themes among PAs and physicians regarding their collaborative process and investigate how these themes may intersect or diverge. The findings were then translated into actionable recommendations to inform future implantation of onboarding training of new-hire, early-career PAs. Such training programs can be utilized to inform new-hire PAs as to their organizational role and enable improved PA–physician interactions while facilitating improved negotiation between providers. The mode of inquiry applied was intentionally broad to enable emergence of unanticipated concepts. Without an established literature base providing variables for study, quantitative inquiry would be inappropriate as quantitative investigations typically study the characteristics of a known variable and can have trouble appreciating potential relational elements. Approaching negotiated autonomy in this manner would be difficult as the contributing variables are not known or established in existing literature. Qualitative inquiry enables the exploration of a shared experience to discover these relevant variables and provide the desired foundation for future study.

The thrust of this study is not how PAs or physicians practice in isolation, but rather how they interrelate through the course of patient care. It seeks to establish a

theory of the PA–physician relationship in practice that reflects the nuances of current practice and thus identify and operationalize variables for future exploration. In doing so, it will direct future study on how these variables influence translation of innovations to PA practice, specifically that of onboarding training programs. This will establish a foundation for future team/organizational science study of the PA–physician dyad. Findings will also provide insight into the evolution of PA autonomy and its inherent workforce policy implications. The study was composed of two phases, an initial phase that interviewed PAs and physicians to generate emergent themes and a second phase composed of an expert panel whose members reviewed these themes to generate a framework conceptualization with the goal of influencing future onboarding training programs (refer to Appendix A for model of study design). Phase 1 of the study considered the following research questions:

- How do physician assistants and physicians describe the experience of "negotiated autonomy" and the process of collaboration during practice in an academic, urban emergency department?
- How do physician assistants and physicians describe enabling or impeding factors influencing autonomous physician assistant practice in an academic, urban emergency department?

Themes obtained from the initial question regarding PA and physician perceptions of PA autonomy showed both agreement and disagreement between these professionals regarding current PA practice. Probing questions explored how these factors may influence perception of PA professional identity. The second research question considered impeding or facilitating variables influencing autonomous PA practice. These

questions searched for themes to be blended into a conceptual framework describing the current state of negotiated autonomy and its interpersonal/contextual factors. The resultant themes were subsequently reviewed by a stakeholder panel of PAs and physicians to propose a framework accompanied by recommendations for how these findings may aid in the implementation of PA postgraduate onboarding training. The focus group considered:

- How can insight related to physician assistant and physician collaboration as it relates to negotiated autonomy inform the implementation and integration of new-hire physician assistants in an emergency department?

Findings from this study will inform modern perception of the PA–physician dyad and its role in the functional autonomy of the PA in emergency medical practice.

Translation of health innovation necessitates an integrated approach that starts with the identification of a gap in knowledge leading to inquiry toward knowledge creation and finally progressing to application via an action or intervention (Field et al., 2014). This study identified a knowledge gap regarding the current structure and implementation of negotiated autonomy as it relates to PA–physician collaboration and practice. By virtue of their training, it is acknowledged that new graduate or early-career PAs require closer collaboration and supervision as they garner experience and enhance competence (Morgan et al., 2020; Polansky, 2011). This graduated competence-based autonomy progression forms the foundation of negotiated autonomy in practice (Schneller, 1978). Structured, employer-based training platforms, referred to as onboarding programs, have been proposed to enhance PA competence progression and ensure safe implementation of the PA at the practice level (Morgan et al., 2020;

Polansky, 2011). Designing programs to enhance PA autonomy necessitates a thorough understanding of how negotiated autonomy, along with any facilitating factors or barriers, functions in current practice. It demands contextualization based on the specific setting as a PA may function with different expectations of autonomy in an emergency room than in a primary care office.

Unique knowledge precedes the development of innovative programs applied in practice. The knowledge to action framework (KTA) has been proposed to conceptualize this progression and guide design and ultimate implementation of innovations (Field et al., 2014). The structure of the KTA can be found in Appendix B. Though CFIR has been applied in this study to guide the translational potential of the specific findings, the findings can be transitioned from conceptual to potential actionable items utilizing the KTA. Findings from this study are applicable to the knowledge creation cycle at the core of the KTA. Results were synthesized into a conceptual framework with a goal of guiding design and implementation of PA professional implementation including onboarding PA training programs. To generate this synthesis, the second phase of this study took the themes generated from the Phase 1 qualitative inquiry and reviewed them with a panel of PA and physician experts to finalize the conceptual framework and guide future implementation of its findings. The panel would represent a cross-section of PA–MD emergency medicine providers and PA educators. This panel functioned as a focus group that discussed potential study implications and reviewed the framework (Wilkinson, 1998). The group further generated recommendations to guide future research and explicate the translational potential of the study's findings toward the design and implementation of onboarding programs.

Given the study's goal of theory construction, grounded theory methodology was felt to be most appropriate. Grounded theory embraces a constructivist/interactionist worldview wherein individual perceptions of reality are thematically linked but retain personal perceptions that shape behaviors. Each has significant influence over interpersonal interaction (Corbin & Strauss, 2015; Creswell, 2014). Rather than testing a hypothesis, grounded theorists pursue a broad sense of how individual perceptions intersect to form socially accepted realities (Creswell, 2014). The process of interpersonal interaction is important to grounded theory, which postulates that reality is constructed of mutually accepted social norms reinforced by relationships (Creswell, 2014). In grounded theory research, these concepts and relationships emerge through a process of coding and analyzing the narrative responses of participants during interviews. The literature review showed a lack of established literature exploring the PA–physician collaborative dyad. As such, there were no variables from which to initiate inquiry. Grounded theory is an inductive approach to research, seeking variables that are not yet known, thus reinforcing the validity of this research methodology in this setting.

As a method of study, grounded theory enables a researcher to develop general, abstract theories regarding a process, action, or interaction that is "grounded" in participants' shared reality (Creswell, 2014). This shared reality is constructed through a series of observations and interviews wherein the researcher attempts to obtain from open-ended exploration consistent themes that permeate personal perceptions. These perceptions coalesce into a shared understanding that forms the foundation of social roles and processes (Creswell, 2014). This emergence occurs through a process of careful participant selection and interview construction. Codes are not pre-identified, but rather

arise through the analytic process that occurs in conjunction with data collection. Concomitant analysis during collection gives the researcher flexibility to identify and explore emergent themes as they arise. It is important to identify appropriate participants and craft open-ended interviews to avoid excessive investigator influence on thematic emergence.

Qualitative Inquiry

Qualitative inquiry draws on the shared reality of participants who self-identify with specific social groups. It utilizes inductive methodology to explore this reality (Corbin & Strauss, 2015). Grounded theory is unique within qualitative methodology as it seeks to identify interrelated concepts to construct theory grounded within the data (Corbin & Strauss, 2015). This process involves constant re-evaluation of data via the method of "constant comparison" to guide cohesive understanding of the given phenomenon (Corbin & Strauss, 2015). The goal is to leverage the emergent concepts identified from the study into developing a framework or model of negotiated autonomy. Findings can then be applied to guide practice change. Grounded theory was leveraged throughout this study as it seeks theory construction; however, there are some potential concerns regarding this approach.

Physicians and PAs are the primary participants of the study and though they share a similar epistemology given their mutual biomedical model lenses, they differ in extent of training, life experience, and professional identity. PA education programs have traditionally drawn from an applicant pool that includes mid-career individuals and those with an established background in various health fields. Each of these elements may influence the individual PA student's worldview in a manner different from physicians

(though this long-held precedent is changing with the influx of younger and less directly health-experienced training cohorts to PA programs). Physicians' professional identities are deeply influenced by residency training, whereas PAs do not typically undergo residency training. Physicians are likely to mirror the influence of their residency training, especially early in their career. PAs may, in contrast, evolve a professional identity that aligns mostly with their early work experience. Indeed, it is felt that a PA's "training," as it were, is extended through their first job as they are not considered "finished" at the completion of school (Morgan et al., 2020). The degree to which PAs assume the professional practices and identities of their collaborating physicians is not known. While physicians are trained in a specific approach, PAs develop this sense either via their personal role development or by modeling themselves after mentors or colleagues. The heterogeneity of experience and professional development between PAs may make mutual themes between them difficult to discover. However, variations in participant responses due to differences in practice-level considerations (such as PA role and practice scope) can be controlled by focusing on PAs in practice specifically at urban, academic emergency departments at a similar point in their careers.

Much of professional scope of practice is determined at the practice level in healthcare, which has implications for this study's transferability to different settings. An institution may limit a PA's utilization to specific areas like urgent care, thus restricting their involvement in more complex arenas of emergency practice. They may also constrain the triage-determined complexity of patients or have a graduated process wherein the PA may assume increasingly complex patients as they achieve increasing experience. This would have implications on the frequency and importance of physician

collaboration. The degree of this collaboration may also be dependent on the institution. In the interest of efficiency and patient throughput, some practices may mandate that PAs function as autonomously as possible, with little to no physician oversight, to expediate patient disposition. In contrast, other institutions may require all patients, at least in some fashion, to be overseen directly by a supervising physician. The reasons for this distinction are varied, but billing status, with reimbursement at higher rates for direct physician participation, likely influences this practice. Finally, state laws frequently differ in how they characterize PA autonomy and may require specific modes of collaboration. For example, some states require PAs only to have intermittent, indirect chart review with their supervising physicians. Other states require more strict and documented review (Pittman et al., 2020). This extensive heterogeneity of practice combined with the aforementioned contextual factors may impair thematic emergence.

The study included both PAs and physicians. In grounded theory, it is encouraged for the research team to be cognizant of and embrace their personal experience and potential bias throughout the research process (Corbin & Strauss, 2015). The proximity of the study team to the subject material had positive aspects. This includes how their intimate understanding of PA–physician interprofessional dynamics may have enhanced rapid identification of emerging themes. However, care was taken to ensure these personal impressions did not influence interviews during data collection. This impact was mitigated through careful construction of open-ended, semi-structured interviews and adherence to the established research protocols. Cross-checking with participant impressions also helped to reduce the risk of bias influencing the results. The team was up front with participants that they had backgrounds in medical practice, which allowed

participants to exchange ideas more freely and not feel compelled to explain their various institutional roles.

Grounded theory seeks to establish theory on how individual concepts interrelate (Corbin & Strauss, 2015). This study assumes that PAs and physicians operate in a manner that is approximate to complex adaptive systems facilitated through a process akin to negotiated order. Though grounded theory advocates prefer to approach a topic of study without preconception, the application of complexity theory is a useful framing device that allows conceptualization of the relationship under study. It would be difficult to justify the proposed approach without appreciating this relationship. This preconception may be problematic as it can introduce confirmation bias; however, it is helpful to understand how the functional interdependence of the PA–physician dyad may lay the foundation for identification of additional variables. Such framing enables exploration of these variables through the emergence inherent to grounded theory research. Though there was a general understanding of the PA-physician relationship prior to the study, codes were allowed to emerge organically during phase 1 analysis.

Research Procedure

Participant Selection/Timeline/Institutional Approval

Phase 1 of this study was composed of semi-structured one-on-one interviews involving PAs and physicians working in academic, urban emergency medicine departments. Participants included PAs and physicians working in a shared PA–physician environment. Academic emergency departments were defined as those that utilized resident physicians in daily practice. Participants were employed full-time within this setting. Physicians were limited to those who identified as attending physicians

overseeing PAs. Participants were identified through heterogenous purposeful selection. Purposeful selection was accepted as suited for grounded theory as it allows participant selection to be actively influenced by early data (Foley & Timonen, 2015). Once the study was initiated, further participant identification occurred via a snowball effect with participants referring colleagues or contacts they felt would be insightful. The goal was a balanced representation of gender, age, and experience to ensure a wide array of phenomenological impressions. Once identified, individuals were contacted by the research team by either phone or email. Details of the study were reviewed and consent obtained. Consent signature was waived by the IRB to preserve confidentiality and copies of consent were provided to participants electronically. Recruitment and interviewing continued toward a goal of six to twelve dyads (composed of one PA and one physician) or until saturation was achieved. Collection and analysis occurred over an approximate 12-week time frame (refer to Appendix C for diagram of Phase 1 study design). In total, approximately 25 participants were approached. 7 did not respond and 1 dropped out due to difficulty scheduling. 3 participants did not meet inclusion criteria. Ultimately, 14 interviews were completed.

Phase 2 of the study encompassed a focus group that reviewed the findings and framework developed from Phase 1 results with accompanying recommendations for applying findings to new-hire onboarding training for PAs. Focus groups are moderated discussions among selected individuals concerning a specific topic that can elicit group consensus regarding a specific phenomenon (Wilkinson, 1998). The focus group was constructed via purposeful sampling and included both PAs and physicians actively practicing emergency medicine in academic, urban settings. Phase 1 participants were

excluded from participating in Phase 2 of the study. Recruitment targeted a cross section of experts including senior PAs with an administrative and/or educational background who oversaw the integration of PAs in their practices. Physician participants were similarly composed of senior faculty who oversaw PA practice. The targeted enrollment was four to six participants. Findings from Phase 1 were reviewed by the research team and a tentative framework structure was created to help guide group discussion. This framework, along with information summarizing the Phase 1 study findings and hypothetical cognitive tasks related to PA autonomy/competence, was provided to participants prior to convening the group so they could prepare for the discussion. "Tasks" in this sense was used to define higher cognitive areas of medical practice including differential diagnosis construction and treatment prescription. The goal was to focus on behavioral elements that contribute to autonomous practice rather than strictly procedural performance. The focus group occurred in a single episode of 60-minute duration over Google Meet. A focus group guide was developed to provide an overall session structure (Appendix D) The study was approved by the Institutional Review Board (IRB) of the George Washington University (assigned IRB number NCR202969) on December 14, 2020.

Inclusion and Exclusion Criteria

Study participants for Phase 1 included both PAs and physicians practicing at urban, academic medical centers in the emergency department. PA inclusion criteria included work experience of at least 12 months and up to 36 months at the time of study recruitment. A less experienced PA may have reservations regarding their exercise of autonomy given their limited capacity for displayed competence in their field of practice.

A more experienced PA may have less regard for the importance of negotiated autonomy in their practice given their level of comfort with their own clinical practice competence. Physician participants were restricted to those with at least 1 year of post-residency work experience. Phase 2 participants were restricted to PAs and physicians employed either clinically or in an administrative capacity in an academic, urban emergency department. Participants were restricted to those with senior positions overseeing the successful integration and implementation of new-hire PAs in their organizational practice setting. Phase 1 participants were excluded from Phase 2 inclusion. Both study phases attempted to have balanced gender representation among participants. All participants were English speaking and actively employed at the time of their interview.

Interview Structure/Recording/Transcription

Interviews in both study phases consisted of open-ended questions designed to explore the prespecified research questions. Interview guides (refer to Appendix E for PA interview structure/script and Appendix F for physician interview structure/script) were developed and included a structure of opening, central, and closing questions to guide the sessions and ensure topics reviewed adhered to the goals of the study (Foley & Timonen, 2015). Additional probing questions contained within the guide were applied to ensure rich, thick descriptions of the phenomena related to PA–physician collaboration. Each interview was audio recorded and the interviewer took extensive notes and memos. Recorded interviews were transcribed into written form in real time and subsequently de-identified for analysis. The only directly identifying information included was the professional designation of PA or physician. Each participant was provided with a written

description of the research project that included material related to their informed consent.

Phase 1 participants were interviewed once for approximately 30–45 minutes. Interviews were recorded and transcribed using Otter.ai software. Otter.ai is a web-based resource for researchers that records audio and utilizes a computer algorithm to transcribe interviews as they occur. Data is synced over a secure connection to servers located in North America and is encrypted, kept private, and not shared with third parties. Once deleted, this information is permanently removed from their servers. Written memos taken by the interviewer during the interviews were transferred to a Word document. Questions utilized in interviews were changed as the study progressed through the process of constant comparison (see the "Coding" section). All information pertaining to conducted interviews was saved on a password-protected computer. Backup files were placed on a thumb drive that was also encrypted and password protected. Following analysis, audio files were deleted to protect confidentiality. Final analysis included quotations and excerpts from interviews, but these were de-identified and the lack of reference to original transcripts makes identification of participants exceedingly difficult, thus preserving confidentiality. Interviews continued until saturation/sufficiency was achieved during analysis indicating a lack of new or emerging themes, thus rendering further interviews unlikely to yield new information (Corbin & Strauss, 2015).

Coding

Data analysis in Phase 1 began immediately after the first interview and continued throughout data collection. Results from each interview were reviewed immediately through a process of constant comparison that enabled early emergent theme

identification and helped sharpen further data collection (Corbin & Strauss, 1990, 2015). Prior to the interviews, a general understanding of the PA-physician was developed based on personal experience and literature review. This was maintained in memos to frame initial coding, but codes emerged organically during interviews. Transcripts were scanned through a process of open coding where conceptual labels were assigned as a means of distilling their meaning into a simplified form (Corbin & Strauss, 2015). This process generated codes that refined future data collection through constant comparison (Corbin & Strauss, 2015). Constant comparison is a method whereby codes that appear linked through shared processes, contexts, or goals are placed into categories of shared meaning. As codes and categories accumulated, the researcher then shifted to axial/focused coding to further categorize data into subcategories and associated groupings (Corbin & Strauss, 2015). Particular attention was paid to the context, conditions, causes, and intervening factors/consequences of the major codes during the axial/focused coding phase, which added depth and showed connections among the codes to encourage theory development.

Finally, selective coding progressed by assigning conceptual themes to the categories and subcategories that were then operationalized into a theoretical construct (Saldana, 2014). This theory was grounded in the initial data by reflecting on codes and statements that supported the inclusion of various concepts and their associative linkages. Throughout this process, memos were taken by the researcher to document thoughts or associations that were then fed back into the research to help inform the ongoing data collection as well as identify early theoretical constructs (Foley & Timonen, 2015). NVivo 12 Pro (for Windows) was utilized for coding and analysis. Themes generated in Phase 1 of the study were reviewed by the expert panel in Phase 2 and translated into a

framework of negotiated autonomy and active recommendations for how to implement these findings into influencing new-hire PA integration via onboarding.

Credibility and Trustworthiness

By virtue of its inductive approach, qualitative research does not emphasize the traditional conceptualizations of validity in data analysis (Foley & Timonen, 2015). Instead, qualitative research seeks credibility, or trustworthiness, through a variety of methods to ensure methodological consistency. Trustworthiness is best achieved by applying a consistent, reproducible approach and implementing strategies to ensure accurate representation of thick, rich descriptions (O'Brien et al., 2014). Both study phases utilized a variety of methods:

1. Purposive sampling to ensure participant heterogeneity:
    - It is essential to apply a clear methodology for participant selection to ensure accurate representation of a specific perspective on the phenomenon in question (Chiovitti & Piran, 2003). In respect to the current study, application of the previously presented inclusion/exclusion criteria fostered the perspective of PAs and physicians practicing in urban, academic emergency departments. Using purposeful selection, the study strived to ensure a heterogenous sample. Though there was expected heterogeneity across experiences, it was anticipated that a thematic coherence would emerge allowing for construction of a grounded theory of negotiated autonomy.
2. Obtaining thick and rich descriptions:

- Development of an interview guide assisted in obtaining thick and rich descriptions pertaining to the study objectives (refer to Appendices E and F for the interview guides). This encouraged themes relevant to the study objectives (Foley & Timonen, 2015). However, questions allowed for spontaneous emergent themes throughout the interview process. Thick and rich descriptions enabled a comprehensive assessment of the phenomenon in question. Separate questions were then developed for both physicians and PAs as there were expected to be different perspectives on the phenomenon of negotiated autonomy.

3. Constant comparison:
    - Constant comparison is a strategy of initiating data analysis at the outset of data collection rather than waiting until data collection is completed (Chiovitti & Piran, 2003). This initial analysis feeds back into the structure of future interviews to help guide data collection toward emerging themes. This establishes a reciprocal, iterative approach to data collection that reinforces previous findings while still allowing for alternate thematic development and ensures that theory development is grounded in the collected data.
4. Member checking:
    - The use of member checking is viewed as an essential technique when considering a qualitative study's credibility and entails reviewing findings with participants to gauge their response to early data interpretations (Bowen, 2009). This provides an opportunity to

confirm the initial findings (Bowen, 2009). In this study, participants were given an opportunity to review their interview transcript and confirm initial statements and provide elaboration if they felt it was needed.

5. Negative case analysis:
    - A negative case is a study finding that represents a radical departure from neighboring data points (Corbin & Strauss, 2015). In the context of this study, it would be the impressions of a PA or physician participant that ran diametrically counter to those of other participants. Though there is some argument to be made that such findings may suggest fallibility in the neighboring data, it can also be used to closely examine this data to ensure it can stand up to scrutiny and ensure reliability study findings. Though it is not possible to seek out negative cases without overly guiding the interview, this study did not exclude them from analysis and will rather evaluate them through constant comparison.
6. Reflexivity:
    - All research, both qualitative and quantitative, is at risk of falling prey to the personal bias of researchers. This is of heightened concern in qualitative research and can be mitigated through reflexivity (Malterud, 2001). Put simply, reflexivity is the practice of openly acknowledging personal subjectivity and how this internal lens can influence qualitative data analysis both negatively and positively.

Essentially, the researcher must be aware of their own experience and how it influences their data interpretation. This is especially relevant in the presented study due to this researcher's prior experience as a PA. Given the essential nature of preconceptions, this bias is unavoidable. It is therefore preferred to accept the influence of personal preconceptions and contextualize them. Reflexively reviewing internal perceptions throughout the research process can minimize selective perception bias (overly focusing on impressions that align with one's personal beliefs). It can also enhance clarity of findings and better position the researcher to interpret the impressions participants may be trying to express. Through practicing reflexivity, a researcher is prepared to more deeply engage with the data on a personal level leading to enhanced transparency and trustworthiness of findings. In the analysis phase, the study team carefully noted whether such preconceived notions were confirmed or disconfirmed by the study's findings, thus enhancing reflexivity in the research findings.

7. Expert panel:
    - The expert panel focus group also acted in a trustworthiness capacity as participants who had experience in the engagement and integration of new-hire PAs discerned if the obtained themes were relevant to their practice setting. This served as further confirmation of the findings' relevance.

These strategies were applied throughout the study to ensure consistent methodology and enhance the credibility of the findings.

Human Participants and Ethics Precautions

All research is subject to ethical concerns and steps should be taken to protect the integrity of the research and the safety of its participants. Given the essential nature of the PA–physician relationship to clinical practice of PAs, it is possible that strong negative feelings toward this relationship from either party may damage the working relationship between individuals and lead to professional tension. It was therefore imperative that participant confidentiality be protected and that study findings were depersonalized. All identifying information was removed after data collection and member checking. Furthermore, the location of practice of participants was not included in the final data analysis and presentation. This study obtained approval from the IRB at the George Washington University and adhered to the standards of participant protection. Participants were informed of all risks and consent was obtained from each. Data focused on professional practice only and did not include protected health information. All participation was voluntary, and participants were informed of their right to withdraw from the study at any time. During the interviews, participants had the right to refuse to answer any question(s) they did not wish to answer. Though all studies contain a degree of risk, this study was considered low risk to participants as questions pertained to professional roles that were not expected to provoke overly personal feelings that might have been subject to stigma.

Chapter 4: Results

Introduction

Data collection/analysis proceeded in two phases. The first phase was a series of interviews utilizing grounded theory design followed by a second phase composed of a focus group. Phase 1 included individual interviews with PAs and physicians that were then transcribed. Data analysis began with open coding to generate initial impressions. This was followed by axial/focused coding, which grouped open codes into general concepts and contributing subdivisions. Finally, theoretical coding was used to identify emergent themes. Coding shifted between axial/focused and theoretical coding as the relationships between codes were further refined and reinforced. These themes formed the basis of a conceptual model to develop a workable framework for new-hire PA training. Once the model was established, a focus group composed of PA and physician leaders practicing in emergency medicine reviewed and developed recommendations to guide translation of findings into practice. In addition to the emergent themes related to the research question, unforeseen topics arose to reveal potential areas of future research. Results are detailed in the following sections outlining the results of open coding, focused coding, and thematic coding that contributed to theory construction. The conceptual model is then presented for review. Following this review, the structure and results of the focus group are presented with the actionable items included.

Phase 1 Results

The first phase of the study endeavored to describe how working PAs and physicians characterize their experience of negotiated autonomy and the collaborative process. It sought to detail enabling and impeding factors influencing autonomous PA

practice within the context of an urban, academic emergency department. Interviews were semi-structured and open-ended with discussion and elaboration encouraged through probes. Approximately 25 participants were approached with 7 not responding, 1 drop out due to scheduling conflicts, and 3 not meeting inclusion criteria of 1-3 years in practice. A total of 14 interviews were conducted comprising seven PA–physician dyads (PAs and physicians who worked at the same clinical site). At time of interviews, each PA and physician was working clinically in emergency medicine. Dyads were matched according to clinical site. Participants came from four different clinical sites that met inclusion criteria of being urban, academic medical centers and are referred to as sites A, B, C, and D. There was one PA–physician dyad recruited from Site A, three PA–physician dyads from Site B, two PA–physician dyads from Site C, and one PA–physician dyad from Site D. Participants were randomly assigned a number during analysis for quote attribution. Having multiple dyads from some sites led to rich descriptions and context including workplace circumstances and provider relationships. Sites with a single PA–physician dyad provided counterpoints to the multiple dyad sites. Interviews were semi-structured and conducted electronically over Google Meet with audio and video. Video allowed for interpretation of nonverbal cues during the interview process. For consistency, interviews were conducted in the same manner. Sessions were a free-flowing with only intermittent redirection to research question topics. Length of the interviews was on average 45 minutes, ranging from 40 minutes to 55 minutes.

A total of 14 written transcripts were generated in real time using Otter.ai software. Following the conclusion of the interview, the transcripts were reviewed concurrently with the audio recording and modifications made to ensure accuracy. During

this review process, potentially identifiable information was redacted from the transcript to ensure confidentiality. On completion, transcripts were offered to participants for review for accuracy and completeness. At the conclusion of data collection, no changes to the transcripts were requested. Two participants, a physician and a PA, were approached at random and were provided with the final Phase 1 findings to review and comment through Google Meet conversation. This feedback was utilized as a form member checking findings/results and their input was used to inform the ultimate construction of the conceptual model. Recordings were deleted to protect participant confidentiality. Transcripts were subsequently uploaded into NVivo release 1.7.1 (1534) for data analysis.

Analysis was performed first using grounded theory open coding techniques as described by Corbin and Strauss (2015) and Saldana (2014). Memos were generated throughout the process, linked with each of the interviews and with the coding process, and provided a guide for initial and future impressions. The memo process also facilitated and encouraged constant comparison wherein analysis occurred during initial transcription and data collection with an eye toward informing future interviews and discussions. In the process of open coding, general categories were developed and further stratified into subcategories. A total of 90 open codes and subcodes emerged during this initial analysis phase. Memos revealed a strong undercurrent of how influential identity and role perception are for both physicians and PAs regarding the PA role in practice. Open coding results are detailed in Figure 4.

Figure 4

Open Codes

OPEN CODES

Collaborative environment

- PA individual characteristics:
    - PA awareness of limits
    - PA care efficiency
    - PA comfort
    - PA level of experience
    - PA work ethic
- Department structure
- PA-PA relationship
- PA-Resident tension
- PA-Physician relationship evolves
- MD individual characteristics
- PA individual characteristics:
    - PA awareness of limits
    - PA care efficiency
    - PA level of experience
- PA-MD relationship:
    - Dedicated feedback/training
    - PA assumes physician traits
    - PA fear of physician opinion
    - Physician age/experience
- Peer modeling
- Performance feedback
- Physical layout:
    - Provider proximity
- Physician champions
- Physician comfort
- Physician confusion regarding PA training
- Physician fear of replacement
- Physician responsibility:
    - Physician as team leader
    - Risk aversion
- Documentation defines relationship
- Physician perception of role in PA practice
- Evolution of role perception
- Influence of training:
    - Lack of dedicated physician training
    - Onboarding
    - Post-grad fellowship
    - Transition to practice
- Lack of communication
- PA-PA relationship peer modeling
- Lack of written policy
- Modes of communication
    - PA initiates
- Other PA opportunities
- PA as professional
    - Other PA opportunities
- PA awareness of limits
    - Patient complexity
- PA care efficiency
- PA comfort
- PA level of experience
- PA-physician familiarity
    - PA empowerment by physician
- Pressure
    - Efficiency
    - Time constraints
- Previous experience
- Provider reputation
- Regional variation
- Supervise vs collaborate
- Trust
- PA physician relationship evolves
- PA physician role tension
- PA physician structure:
    - Communicating expectation
    - Driven by patient complexity
    - Graduate responsibility
    - Influence of PA experience
    - Negative influence of the physician identity
    - PA overconsulting
- PA quality of life
    - Burnout
- PA Role
    - Evolves with experience
    - Expanded autonomy
    - Institutional role
    - Physician variation
    - Resident differences
    - Resident similarities
    - Self-perceived role
    - Site variation
- PA role ambiguity
    - Additional training
    - Identity confusion
    - Individual variability
    - Role confusion
    - Role freedom
- PA turnover

Open codes were composed of selected statements, definitions, and quotes from the interview process inputted into the NVivo software. They were then reviewed through a process of constant comparison and consistent memo review. While compiling these results, early insights became readily apparent. These insights included a particular emphasis on the concepts of PA identity and PA role, from the perspectives of both the physician and the PA. Such findings fed into an early emphasis on the weight each participant had in the collaborative process. The open code book was reviewed with the methodologist of the study, who confirmed that their compilation was appropriate and an accurate reflection of the collected data. Data was also intermittently reviewed with the committee chair.

The open codes were subsequently reexamined through a process of axial/focused coding. Each code was reexamined, and their associated quotes and memos reviewed. The individual codes were collapsed into one another and organized under categories of shared context and meaning. Memo documentation occurred concurrently throughout this process to guide later interpretation. Axial/focused coding consolidated the open codes and resulted in the following results shown in Figure 5.

Figure 5

Focused Codes

FOCUSED CODES

- Collaborative environment
  - Department structure
  - Physician champion
  - Lack of written policy
  - Lack of communication
  - External pressures:
    - Efficiency
    - Time constraints
  - Physical layout
    - Provider proximity
  - Documentation defines relationship
  - Large number of physicians
  - Modes of communication
    - PA initiates
- Influence of training
  - Lack of dedicated physician training
  - Onboarding
  - Post graduate fellowship
  - Transition to practice
- MD individual characteristics
- PA individual characteristics
  - PA level of experience
  - PA comfort
  - PA care efficiency
  - PA awareness of limits
    - Patient complexity
  - PA work ethic
- PA physician relationship evolves
- PA physician structure
  - Communicating expectation
  - Graduate responsibility
  - Driven by patient complexity
  - Negative influence of MD identity
  - PA over consulting
  - Influence of PA experience
  - Collaborative process
- PA quality of life
  - Burnout
- PA / Resident tension
- PA role
  - Resident similarities
  - Resident differences
  - Institutional role
  - Site variation
  - Self-perceived role
  - Evolves with experience
  - Expanded autonomy
  - Physician variation
  - Academic setting
  - Patient perspective of role
- PA role ambiguity
  - Role freedom
  - Role confusion
  - Individual variability
  - Identity confusion
  - Additional training
- PA turnover
- PA MD relationship
  - Physician age and experience
  - PA assumes physician traits
  - Dedicated feedback and training
  - PA fear of physician opinion
  - Mentorship
  - Shared experience
  - Supervise vs collaborate
  - PA physician role tension
  - PA physician familiarity
    - PA empowerment by physician
  - Trust
  - Progression of PA physician relationship
    - Evolution of role perception
    - Previous experience
  - Physician observation
  - Physician investment in PAs
- PA-PA relationship
  - PA per modeling
- Performance feedback
- Physician comfort
  - Physician fear of replacement
  - Fear of liability
- Physician confusion of PA training
- Physician perception of role in PA practice
- Physician responsibility
  - Physician as team leader
  - Risk aversion
- Provider reputation
- Regional variation
- The PA as a professional
  - Other PA opportunities

The axial/focused coding process revealed consistent elements that formed themes. There was an emphasis on the impact of the organization, intended to represent the hospital and the administrative support structure for the providers, and how the desires and needs of the organization drove much of the collaboration between providers.

The organization set the general framework and established practice patterns that framed much of the collaborative interaction. Additionally, there was focus not just on the identity of the PA and how they related to attending physicians, nominally their supervisors in any given instance, but also how they related to resident physicians whom they worked alongside. The physical structure of the environment and how this influenced the relationship was also a recurring topic. The relationship between providers, the process of interaction, and how these elements changed over time showed similarities across participants. An emergent element that had not been anticipated was the crossover between PA and resident physician identity, both in how they functioned within the medical system and how they engaged with the attending/supervising physicians. Throughout the axial coding process, codes were collapsed into increasingly specific categories serving as the basis for the themes that resulted from the study.

Thematic and Theoretical Coding

Through the process of coding review, constant comparison, and memo review/documentation a series of themes were revealed. These included what were labeled the "5 Ps": perspective, place, preparation, process, and progression (shown in Figure 6).

Figure 6

Themes

Themes

- PERSPECTIVE
  - PHYSICIAN ASSISTANT
  - PHYSICIAN
- PLACE
- PREPARATION
- PROCESS
- PROGRESSION

These concepts focused on the individual relationships between the PA and physician. Important in their consideration was the perspectives of both the physician and the PA as the participants held similar views, but they were notably distinct from each other. The degree to which these perspectives aligned was important to the stability and efficiency of the relationship.

Overview

The PA and physician perspectives focused on the perception of the PA role within the larger healthcare ecosystem and explored how the PA and physician perceived the functional nature of their relationship including both their trust and their comfort level with collaborative practice. How the PA–physician relationship was viewed by each member of the dyad was of tantamount importance to framing the discussion regarding PA–physician interaction. The individual perspectives within the dyad place the relationship within a larger functional context that includes the place of work. "Place" exists on a multi-level system that includes the physical hospital or department, the organization, and the greater policy level (usually at the level of state law). It is within this context that the dyad itself is framed by "preparation," which includes the prior experiences of the individual PA and physician. This references earlier career training and includes any organizationally specific training PAs and physicians may have received. The "process" elaborates on the activity of collaboration including how the PA and physician directly interact at point of care delivery in emergency practice. The process evolves over time, as does the relationship between providers, and this evolution is reflected in the theme of "progression." These elements all work in concert and coalesce into a shared collaborative experience. The final theme, and one that was

unexpected, was how the practice identity of the PA overlaps with that of resident physicians. The study explored collaboration within academic medical centers and thus the interactions between physicians, resident physicians, and PAs were frequent and the similarities and dissimilarities between these providers were influential on the work environment. Each of these elements were explored in further detail and combined into a conceptual model presented following this review. This conceptual model was the primary topic of discussion during the Phase 2 focus group portion of this study. These theoretical elements are discussed in more detail in the next section.

Perspective: The Role of the Physician in PA Practice

One of the foremost themes that emerged through the course of the interviews was the importance of perspective when it came to the PA–physician collaborative dyadic relationship. Within this context, perspective relates to the vantage point from which each member of the dyad, the physician and PA, view the role of the PA within the health system and the physician's role in the PA's practice. There are various ways one can interpret the role of the PA in medical practice and the way in which the PA and physician work together within that structure. One aspect is inherently mechanistic regarding medical task completion. As demonstrated in the following quote, this can frame the PA's functionality in a strictly utilitarian lens:

> I think the PA is a force multiplier. We as a team can see far more patients. The PAs offer cognitive offloading of some of the medical decision-making in the care of the patient. They're task sharing in terms of written documentation, physical and logistical things that the patient needs like procedures or transportation to imaging or whatever. (Physician #2)

This was a common sentiment among the physicians, who viewed PAs as a means of task sharing and logistical offloading. This viewpoint is reinforced by the need for rapid disposition of patients through an emergency department:

> You're in a high-volume place like [my institution]. It's unfortunate, but a lot of times, PAs get used as labor, move the meat, like we need to get some of these patients in and out and that is an unfortunate reality but still a reality. (Physician #3)

This is not to say the contributions of the PA within the system are not appreciated or respected, but rather the focus of the PA was how they functioned from a professional, task-oriented capacity. Physicians often viewed the PA as a working professional, which also provided a degree of distance between themselves and a perceived obligation to teach or mentor the PAs. The physicians viewed this as an advantage to having PAs present as it liberated physicians to focus more on resident education:

> Residents are in a training program. They are in a dedicated training program to become emergency medicine attendings and the PAs are not in a training program. Residents also get paid like half of what the PAs get paid, and I think that there is a little bit of: you [resident physicians] are here to be trained so therefore I must train you. I must teach you. And I think that there's more of an attitude with PAs of this is your job and you're here to work this job. I am not here to train you. (Physician #3)

Some physicians had a different perspective regarding their role, but most accepted the premise of the physician being the ultimate supervisor of care (a distinction none of the PAs disagreed with). Within institutions that had perhaps more clearly defined PA roles than others, there was a holistic sense of ownership from the physician perspective:

> I used to feel that I was personally responsible for the PA's performance in that individual instance, but now I have come to see it as I'm personally responsible for that PA's performance overall and the department's performance overall and we're all responsible to do as good a possible job every time for every patient. (Physician #5)

Overall, there was a mutual respect between physicians and PAs, though there was a careful distance that the physicians sought to maintain with repeated references to PAs being "professionals." This was not just framed in a manner to distinguish them from residents, though that appeared to be a recurring element to this perspective, but rather released the physicians from a sense of obligation toward PA professional training. Physicians tended to view the PAs as independent actors. The physicians generally felt they were to provide support when needed, but there was not a strong sense of obligation to train or educate PAs.

Complicating matters was a perceived ambiguity toward the skills and experiences of individual PAs. Physicians frequently admitted to a generally limited understanding of PA training and skills. There was consensus among physician participants that they were not exposed to their role within PA practice during their medical training until they were residents and even at that stage the experience was limited as they often worked adjacent to, rather than with, PAs. Thus, many physicians were unsure of a PA's general practice capacity immediately following graduation from PA school and were also unsure of how to function directly with PAs in practice. One physician commented on overall physician awareness of PA background and training:

> I think it's very bad. I think we have very little understanding. I think even at [the hospital] where we have a PA program it's bad. I don't think we fully understand the length or nature of [PA] training. (Physician #2)

This individual further elaborated:

> With doctors, you know interns, the day after they graduate, or residents, the day after they finish residency, we have an internal scale of what they should be capable of. I don't think we have that for PAs, and I think a big part of it is we have no idea what came before their graduation. And I think at [this hospital] specifically, where we interact so much with the PA students, we're also very scattershot in how we treat the PA students because we have nothing to compare

> them to other than medical students, so we default to treating them like medical students. And I don't think that's terrible, but it's definitely not the best for them. We teach them material that is wildly out of scope or at the wrong point in their clinical training. I think a better understanding of how they're trained would help us teach them better and would also help us have more accurate expectations when they're done training. I think the same is true of nurse practitioners. I don't think we have enough understanding of how nurse practitioners are trained or what to expect of them or how to train them. And we are not taught and often not shown how to even model our leadership behaviors with those two groups, or any group, but specifically those two groups, because they don't happen as often. We don't get as much experience. (Physician #2)

It is not hard to imagine the difficulties for any individual to have a firm grasp on their responsibilities to a colleague if they have a limited understanding of that colleague's training and professional background. PAs echoed these sentiments as they noted being confronted at various times with a physician's poor understanding of their clinical competencies and abilities:

> I don't feel like we've had a lot of PA autonomy discussions and it's interesting because even in the resuscitation bay when we practice every attending I have asks, "Can you do this? Can you run a Level 1 trauma? Can you do this procedure?" I feel like I'm constantly having to, not necessarily defend myself, I think they're genuine questions, but tell them I don't even technically know what I can or cannot be doing but I can tell them I've been ACLS [Advanced Cardiovascular Life Support] trained, and I've done this many of "X" or this many of "Y." Different attendings have different comfort levels with what I can and can't do and I don't feel like there are any rules or set criteria of my practice maximums. I feel the PA group is almost hesitant to ask them to be placed, because I think they're afraid our abilities would probably be limited by saying "No PA intubations" and stuff like that. So I think it's a very complicated question and I think everybody sort of dances around it. (Physician Assistant #1)

From the physician perspective, the role of the physician within PA practice was regarded as supervisory. They viewed the PA as a working professional over whom they exerted oversight. It was felt that this relationship had the capacity to change and evolve over time with the PAs asserting increasing autonomy as the physician became increasingly comfortable with their practice pattern.

From the PA perspective, the role of the physician was viewed as a combination of supervisor, colleague, and mentor. There was overall unanimity among the PAs that they served a role to work adjacent with physicians and augment their clinical care. One PA noted:

> Our profession was made to work alongside doctors, not in place of doctors. I personally don't think that we should be practicing independently in an outpatient clinic setting without a supervising doctor there. Our profession was made as mid-levels to work alongside doctors, not in place. So, I do think that moving forward this might change and as long as there's the proper education requirements that go with it, I think that's fantastic and to each their own. It's not something that I personally myself would do, but I know other providers do. (Physician Assistant #6)

The concerns revealed in the literature review that PAs are aiming to replace physicians were not often echoed from the perspective of the PA participants. Though many acknowledged they have a capacity to work essentially independently from physicians, they were respectful of the physician as the ultimate arbiter in the medical decision-making process. They also noted that the role of the PA and how they interacted with individual physicians shifted over time.

> I feel that realistically a PA will never be able to practice without a supervising physician just based on how the role was established, but I think when you can get very comfortable with the doctor that you're working with or doctors that you're working with, it leads to better patient care and better outcomes for the patient. (Physician Assistant #7)

This "comfort" level between the PAs and their collaborating physicians was returned to on a frequent basis. PAs noted that physicians have concerns regarding increasing PA independence, and the ambiguity of the PA role fosters a wide array of potential autonomy. The notion of autonomy in and of itself, as applied to an individual PA's practice pattern, was a moving target with multiple contributing variables such as the

PA's prior experience, the physician's comfort level with that individual PA, and how this could shift over time.

> To be honest I think there is this discomfort among physicians and PAs with PA autonomy, because I feel like there obviously should be some ceiling with PAs and I don't feel like it's very cemented. You know it seems to always be changing and then based on our practice level and experience and comfort and what they perceive as our competence. I feel that the ceiling changes. And so it's really difficult to describe it as this one thing when it's so varied between even providers. (Physician Assistant #1)

Though it was noted that the physician is a collaborative partner, PAs were comfortable conceding the physician was the ultimate authority. Physician Assistant #2 said, "In the emergency department, everything circles around the physician and what they want." This led to some PAs describing themselves in certain circumstances as an extension of the physician's decision-making process rather than as an independent, or even co-dependent, agent.

> I think you must accept that if you want to do this kind of PA practice . . . with certain attendings, you might feel like you're in less of a decision-making role and more carrying out work role. Doing essentially administrative work. (Physician Assistant #4)

However, they elaborated that this would shift over time both with increased experience of the PA and increased comfort of an individual PA with that particular physician colleague:

> Once you get to a level where at least with most patients you're feeling comfortable, [the physician] acts more as a sounding board and provides more guidance and help if you are having trouble with a case or are more concerned about something that you're maybe less familiar with. It's more of having a second line of backup. (Physician Assistant #4)

This plasticity within the PA–physician dynamic was a source of comfort but also a source of frustration with participants. The vagueness of the PA role allowed some to feel unencumbered by expectations and therefore more liberated to approach patient care on

their own terms. Other PAs perceived this as an isolating experience and felt a tendency to revert into a more administrative role where they would offload much of their decision-making to the physicians, with several organizational and situational variables influencing this tendency (these are discussed later).

The PA–physician relationship was labeled by participants, both physicians and PAs, as essential to the successful implementation of PAs. The role of the physicians in PA practice was largely influenced by the *role* the PAs served within a particular clinical setting. PAs were viewed as collaborative partners best utilized as relatively autonomous actors who engaged with physicians when the need arose. PAs who were used in lower acuity settings were given higher independence, but this enhanced autonomy was rather narrow in scope. Other times, it seemed much of the decision-making was made by the physicians and the PAs served in more of a supportive role. The physician would do a cursory evaluation, develop a diagnostic/treatment plan, and the PA would then execute that plan. Among PA participants who experienced this "extending" of the physician there was a sense of restriction. They noted the department was busy and the physician would often evaluate patients and initiate the treatment plan prior to the PA's involvement. This led participants to feel a lack of professional development in these conditions. The degree to which the PAs and physicians perceived roles aligned arose as an important foundation to a robust working relationship. These perceptions flowed into a neighboring emergent theme that grew from the PA perspective and focused on how PAs viewed themselves as clinicians.

Perspective: PA Identity

A prominent theme among the PA interviews was the importance of the PA's professional identity. PAs freely acknowledged that much of their decision-making was informed by their physician colleagues. This influence was augmented by the frequency and duration of direct collaboration and discussion. The incidence of these experiences seemed largely dictated by institutional mandates for how often the PA had to "staff" or formally present their patients to the physician. For PAs who worked in close proximity with their physician colleagues, and who had to present the majority of patients to the physicians during their shifts, there was an underlying compulsion to tailor their practice specifically to that individual physician.

> Every physician has different expectations and a different practice style. As PAs we're expected to either ask about that or learn from working with that physician to determine their style because every physician wants something different from you. So, the onus was on me to make that determination myself just from starting to work. (Physician Assistant #2)

PAs felt a responsibility to figure out how the physician wanted them to practice in various situations and to tailor their medical decision-making toward the present physician. This applied not just to medical decision-making, but also to the flow of presentation and disposition. Some physicians would prefer formal presentations and independent evaluation prior to the PAs proceeding with a plan whereas others only expected the PA to engage with them if there was a specific question or concern. This frustrated several PAs who felt they spent a great deal of time trying to emulate their supervising physician rather than executing their own independent judgement. Taking that a step further, it was generally understood that the PA was responsible for learning their physician's patterns.

> I feel like that's probably one of the more difficult and frustrating things, especially when starting out, is to feel that every day you have different expectations and a different environment, depending on who you work with. And I feel it's up to me to have those conversations or initiate those conversations, if I'm going to have them, or else it's sort of a "learn as you go" type situation. (Physician Assistant #2)

Physicians shared a similar impression and noted this was likely a challenging experience. Having a wide array of supervising physicians further complicated this process as one physician's particular practice pattern was not immediately transferrable to neighboring physicians.

> [O]n a micro level that ambiguity must be incredibly frustrating to PAs and I think it's frustrating and concerning to attendings where it creates an awkwardness of "Here's what I as an attending am expecting from you today" and I need to articulate that at the start of a shift because otherwise we're going to get partway through a shift and realize that you've been sending people home without telling me about them and that wasn't what I was comfortable with. So either I have the conversation with you before the shift starts or I wait until halfway through the shift and have the awkwardness of realizing that our relationship wasn't what I thought it was and you, as a PA, have the awkwardness of going into work every day not really knowing who you are that day. Are you going to be a scribe? Are you going to be practicing autonomously? Are you going to be something in between? And I think that would be incredibly frustrating for the PAs. I think it's unpleasant for the attendings. Both of those things fade over time as the PA and attending get to know each other and form a more stable dynamic. And then it's just a matter of day-to-day variations, "Today I'm working with this attending so this is how things are going to be" and that would create a feeling of frustration that is fluctuating, but at least it's a known quantity. (Physician #2)

This ambiguity would lessen as the PA and physician developed a more consistent rapport over time, but the expectation among physicians, and largely among PAs, was that the PA would adjust their practice to conform to the physician's approach. One physician noted the capacity for a PA to learn their "pattern" and then felt this translated into more autonomy and collaboration for the PA.

> Those who are much more senior and been here awhile or have just worked with me and they know my pattern, what I would like to do in this case, then there's more autonomy because it's more of a collaborative experience. (Physician #7)

It could be argued that a PA adhering to a physician's pattern is not so much an autonomous or collaborative endeavor, but rather more supervisory. PAs had differing opinions about the degree to which their practice was autonomous. As a result, many participants felt it was important to clearly define the PA role. Clarity as to whether a PA was to function independently of the physician and use them as a failsafe versus conforming to the physician's approach would augment the work experience for both parties. PAs found this experience enhanced as they became more experienced.

> Now I ask them to be involved more than micromanaging me. Every attending is different and their comfort level and how they prefer to practice with their PA. (Physician Assistant #1)

The professional identity of the PA would need to include the expectations and influence of their physician colleagues while emphasizing the PA's capacity for independent action depending on a patient's clinical complexity and acting within the context of their organizational role. This identity was also frequently conflated with that of another provider found in the academic setting: the resident physician.

Perspective: PA–Resident Identity and the Academic Setting

The conflation of PA and resident physician identity was a recurring topic throughout the discussions regarding PA identity in an academic medical setting. Both PAs and physicians described the PA's functional role as being similar, if not identical, to that of a resident physician. Many PAs implied that their desire to work at an academic institutional setting was influenced by an expectation of learning opportunities. The prevailing impression was that working in an academic institution dedicated to resident

physician training would grant the PA access to similar learning opportunities. PAs also expressed an expectation that academic physicians dedicated to resident teaching would grant PAs the same level of teaching attention. Such expectations somewhat surprisingly ran contrary to many physician participants' expectations. The lived experience of PAs working in an academic setting revealed a gradual understanding that attending and resident physicians shared an epistemology and life experience, having progressed through a protracted and rigorous training experience, that PAs did not share. As noted later, this experience felt alienating to some PAs and contributed to a degree of professional dissatisfaction.

In a general sense, PAs expressed that the resident presence often detracted from their work experience rather than enhanced it. This varied based on the clinical site as many PAs worked in settings with variable resident exposure. These learning opportunities were often associated with the opportunity, or loss of opportunity, to perform various emergency medicine procedures. PAs acknowledged these procedures preferentially went to their resident colleagues. The limited exposure to procedures was felt to limit the PA's capacity to perform them independently.

> I don't get to do [procedures] a lot. I feel like I can do them with supervision. Being at an academic center with residents, I feel like I don't get the amount of procedures I want to, so I feel competent at doing them with oversight, but not beyond that. I just don't do them enough. (Physician Assistant #1)
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> I have been very recently been thinking about going where there's opportunity to practice without residents because I feel like I will get a lot more procedures. (Physician Assistant #1)

This sense of wanting to consider working at a site without residents was echoed by other PAs.

> In the future, if I continue to work in the emergency department I will likely not be working in an academic setting because I don't think as a PA it allows you to grow your skill level. I grow by managing complex patients and they usually go to residents. (Physician Assistant #3)

PAs expressed this notion that working at an academic medical center did not necessarily enhance the learning experience given that many of those opportunities seemed fashioned more toward the resident physicians.

A functional comparison of PAs and resident physicians shows both function similarly. Within the medical system, the task accomplishment is almost indistinguishable, as one PA noted:

> I feel very similar [to residents] right now. For example, today I was working with the residents. There were four PAs, a resident, and then one float doctor who we were all staffing our patients with if we needed to staff them. And there was no discrepancy between myself and the residents. We were talked to the same way by the attending. It didn't seem like there was a difference between me and them. We were treated equally. That we were both just there to learn and to treat patients and to help people. And it's not only like that with certain doctors, our CMO [chief medical officer] of the ED [emergency department] still doesn't realize that I'm a PA and thinks that I'm a resident. (Physician Assistant #6)

From a logistical and functional perspective, physicians also acknowledged that their approach to PAs was very similar to residents, which reflected their similar roles:

> The more junior, and already right there I've showed some of my thought process because I'm referring to a PA as "junior" but there's no PA 1, 2, 3 the same way there is a PGY [post graduate year] 1, 2, or 3. So because I'm at an academic center we can't help but sometimes take that approach or that thought process and apply it. I think it's subconscious. The column next to the attending name in our charting is the responding clinician which is either the PA or the resident or the NP. Because they're all winding up in that same column, we can't help but sometimes group them together and think of them as interchangeable. (Physician #7)

Though in a practical sense the similarities are clear, in the workplace differences begin to emerge. One of the clearest distinctions is the physician's impression that PAs are

working professionals and as a result they feel a pressure to shift into a collaborative/supervisory role rather than an educational one.

> There's no need for me to ask "What do you want to do?", because if the PA is coming to me and asking, "What should I do?", they're asking the question, and so I have to suppress my normal, "Well, shouldn't you be deciding?", because they're coming to me because they want to know. And so most of my mental effort is in differentiating them from the residents and being like, they're asking me because they're asking me. (Physician #1)

Some PAs felt they were not getting the learning opportunities they expected and raised these concerns with their physician colleagues. This led to internal dialogue among physicians at one of the clinical sites that revealed disagreement among physicians related to teaching expectations among PAs. Some held an impression that PAs were not there to learn and so did not feel they had a role in teaching the PAs whereas others were simply unaware that PAs desired educational feedback.

> I would say the biggest shift for me in terms of how I treated the PAs was probably about a year in when a point was made in the faculty meeting that the PAs felt they weren't getting enough education on shift and the faculty group was basically split between faculty who said "Why would we give any education for PAs? They're done training, they're not in training anymore so they don't need training and education" and attendings who, and for the most part these were younger attendings, said, "Oh, I didn't know that was a thing they wanted, sure we can start doing that." (Physician #2)

The internal categorization of PAs as professionals rather than learners was cited by physicians as a key point of distinction.

> A resident is still in training so it's a different sort of teaching role, whereas a PA has already been trained and so should have established competence in their skill set. So that's how it's different. It's similar in that I staff patients similarly with them and I approach cases that are presented to me similarly between a resident and a PA and that I'm going to check over the work in my own kind of way. (Physician #6)

This categorization was also acknowledged during interviews by many of the PAs, who expressed this informed the personal relationship among the three groups.

> I do find that the interaction between residents and attendings is more of a mentor–teacher student relationship because that's what they're there for. They're residents in their training. They are working towards becoming board certified physicians, whereas PAs are licensed providers. So I don't think there's that same student–teacher relationship that the residents have with the attendings. (Physician Assistant #3)

The role differentiation between the PA as a working professional versus the resident in training influences the perception of the PA identity just as it informs the workplace perception of the PA. There seemed to be an expectation that the PA should be, in a way, more autonomous than the resident physicians given their status of having "completed training." However, there was a concurrent acknowledgement that PAs are considered relatively unfinished products at the end of their training. One would assume that the concept of graduated autonomy implies that there is a learning curve with an expected progression as the PA accumulates experience.

Treating the PA more as a learner within an academic setting appeared to have an unintended consequence by creating friction between PAs and resident physicians, as both may garner an impression of educational opportunity loss.

> With the residency program there is a bit of tension in having PAs work the main side or critical cases outside of the urgent care setting because it can be perceived as competition for procedures and critical cases with the residents. We try to address that and balance that by keeping the PAs and residents staffed on different shifts so they're not directly competing for charts. In the community setting, that doesn't exist. The [physician–PA] relationship is very different. It enables the PA to work more on the main side than just being in the urgent care side and why that's so valuable is, if you don't see the really sick patients then you won't recognize it when it presents to you. Getting that experience makes for a stronger PA. (Physician #6)

This may not be as consequential in the community setting as there does not exist an expectation from the perspective of a provider such as the resident physician to be given priority for complex cases as a learning experience. In the absence of resident physicians

some PAs expressed improved job satisfaction not only from enhanced learning opportunities, but also with the removal of a blanket expectation that each case would need to be staffed with physicians. Many noted that in the hospitals where residents were working adjacent to them there was a universal expectation that every patient encounter had to be directly reviewed with a supervising physician.

> How much the physicians are involved in my patients has as much to do with the resident presence at the site. I work at three sites. The one that I am completely separate from the physicians in the fast-track section, there are no residents involved, and so I feel that I have a great deal of autonomy and I can feel comfortable seeing the patients that are less acute and that I'm familiar with and I do feel empowered in that way. And I know that the physicians are available if I need them. (Physician Assistant #2)

This PA further elaborated how the resident physicians impacted their work experience.

> At the third site there is a strong resident presence so there's competition for patients. There's also a supervising senior resident who is in a supervising role. And I think the relationship between the PAs and physicians at that site is pretty poor, because I find that the preference for collaboration and teaching tends to be toward the residents, whereas the PAs seem to be there, almost at times, functioning as scribes when the senior resident and the physician are seeing all the patients anyway coming up with diagnostic plans. And it's such a high-volume, busy emergency department that oftentimes the PA's opinion or plan or learning or teaching takes a backseat to what the residents and physicians want to do. (Physician Assistant #2)

In a functional sense, the PA may have initially been intended to function as a resident (in terms of task completion), but in circumstances where resident support did not exist, such as community hospitals. It should not, therefore, be surprising that placing these providers in close proximity may detract from the experience of both. Physicians, though, expressed limited understanding of PAs due to lack of exposure during their training. Therefore, removing PAs from this setting entirely would detract from both providers' learning. Perhaps rather than separating these groups their integration could be better managed.

Functional similarities aside, there emerged a sense among PAs that the attending physician–resident physician relationship contains a degree of closeness that the PA–physician relationship lacks.

> The MD and the residents seem a lot more intimately involved than we are. But I do feel like in general we are more like colleagues. There are some attendings that try to have lot of teaching moments and they do go out of their way to be like "Hey, I'm not pimping you or something, is that okay?" And I'm like "No, no, I enjoy that aspect, please go ahead." So usually, they make an effort to ask if that's the style you're comfortable with, being a teacher and a learner, because they don't want to make any assumptions. In general, though I think it's a lot more like colleagues than a teacher. But I enjoy the teacher relationship too, so they'll usually approach me and ask if it's okay. And so I'd say the relationship does seem a bit more similar to the resident with those particular attendings. (Physician Assistant #1; the term "pimping" is a slang term used by providers in teaching hospitals to describe aggressive questioning or quizzing of medical learners by more senior medical staff)

How the site was organized, in particular how patients were assigned and presented, and how well the individual PAs and physicians knew each other, influenced the utilization of PAs and residents.

> In some respects, it's similar, just kind of like the structure and workflow. But I would say feedback to residents is intentionally set up to help them learn and become more competent which takes time from the attendings. Not all attendings do that. Some are the same across the board, but I have noticed some where you can tell they're taking more time to educate residents, rather than they would with PAs. I think some of that is that dynamic. Some of it is also because they do get used to us and they've worked with us enough where they think you don't need that feedback. In certain cases, anyway. And I think some of that is site dependent. At the core academic institution that dynamic is what I would see. At some of the other locations where there are still residents, but fewer of them and the volume is not as high, there is more opportunity for education across the board, especially if you ask. (Physician Assistant #4)

Among PAs there appeared to be an expectation that by virtue of being in an academic setting and working adjacent to residents they would be afforded similar educational opportunities. What emerged over time was a different impression.

> I think the design is to allow the residents to meet their criteria for graduation. So I understand that, but in the standpoint of a PA it doesn't allow you to grow in certain areas, and not every PA wants to do procedures, not every PA wants to see complex patients so it depends on the PA and what they want in their career. For me personally, I think that I've grown much more in a nonacademic setting. (Physician Assistant #3)

The implications were that going to an academic setting with the expectation of having a high degree of learning opportunities akin to those afforded to residents was perhaps unrealistic. Both PAs and physicians acknowledged that the goal of academic institutions was to provide a framework for training physicians, but additional learning expectations were to be made with a degree of caution.

The clinical site combined with the interplay of patient volume and organizational structure was influential not just in how PAs and resident physicians interacted with their attending physicians, but also in how PAs were utilized. It was noteworthy that both PAs and attending physicians acknowledged the similarities of the collaborative/supervisory relationship, but also emphasized how this set discordant expectations with implications on the PA's work experience. PAs who expected similar educational opportunities as resident physicians were disappointed, and supervising physicians viewed the PAs as more of a finished product whom they did not feel an obligation to teach. As with the relative perspectives of the PA–physician relationship, of paramount importance was how well expectations across stakeholders aligned. Lack of agreement between PAs and physicians appears to foster friction and general dissatisfaction.

Place

Notable across interviews was the vital role that the organization and clinical site played in the PA–physician relationship. The organization framed the collaborative relationship and that framing set both expectations and the functional process of how PAs

and physicians interacted. It was through the nature of that interaction and process that a PA's autonomy flowed. The organizational lens shifted according to the varied demands of a particular clinical site. Many participants worked for a specific organization but staffed different hospital sites, each of which bore unique circumstances. These included factors such as the physical layout of the department, with some positioning PAs and physicians in close physical proximity, which encouraged collaboration and eased supervision. Notably, other sites positioned PAs and physicians in areas that were not just physically separate, but also cognitively distant in the sense that they carried entirely different patient panels, often with different levels of acuity. There were scenarios where the PA and physician were essentially unaware of the other's patient load/panel and the nature of the patient presentations and complaints. The combination of these factors coalesced into a thematic construction of Place, which set a context within which the PA–physician dyad performed.

PA practice and PA–physician collaboration is superficially determined by local or state law. However, organizational culture seemed to define the working relationship more than strict legal guidance. Several individuals acknowledged they were unaware if these expectations were codified as a set institutional policy, but rather seemed to emerge organically through practice. This made the nature of the relationship less explicit and more implicit:

> Anybody admitted, the attending physician has to review them. That's a resource allocation kind of thing, they don't like knowing it's an admit without an attending seeing them, basically. When it comes to the twos [high acuity patients] it's more of an informal like "We would like you to see all the twos," but I haven't seen that written anywhere. Then again, the scope of practice of the PA is . . . I have not . . . I'm sure it might be written somewhere, because I'm sure it has to be, but the way it's been communicated to me and treated is that their [the PA's] scope is my scope as long as I'm comfortable with it. (Physician #1)

In the absence of a clearly established protocol or definition for the relationship, physicians often took cues from their other physician colleagues regarding PA supervision. Therefore, peer modeling appears to influence the functional dyad more than any sort of established institutional policy:

> When I came into this, I had an incredibly limited experience upon which to base my relationship with them [PAs]. I think in terms of how my personal relationship with the PAs developed it would be a little bit of both. Early on, I interacted with PAs based mostly based on how I saw other attendings interact with them because I felt like, I'm new to this institution, let me see what other people are doing. (Physician #2)

Other physicians felt the heterogeneity of PA–physician interaction negatively affected their ability to link prior work experience with new clinical settings. Physicians appeared to base much of their understanding of PAs on prior experience in other organizations or settings, the most impactful of which was where they completed residency. This framing proved difficult, as many learned that the nature of PAs, including each PA's relative experience and degree of afforded autonomy, varied widely across institutions:

> I think that my whole job would have been really dramatically different coming to [this site] because the types of PAs we have at [my primary site now] are very different from the PAs that I worked with [where I trained]. I worked with almost exclusively very senior PAs, so [where I trained] they had been there for 10, 15, 20 years at the same institution, so our relationship when I was a new attending with those PAs as a new attending was very different than my relationship with most of the PAs that I work with now. Because they [the PAs] had more experience than I did, honestly. So even if I had learned about "This is how you work with PAs," I still think it's very institution dependent. (Physician #3)

The sheer volume of patients at an institution also bore an outsized influence on how PAs were deployed at a workplace. Earlier-career PAs were felt to necessitate greater oversight, but the structure and volume of a particular institution often made that degree of supervision difficult:

> I mean, every hospital is different, right? Do I think our system works right now at [my institution]? No, I don't. I think that PAs don't get as much attention as they should. I think the educational system at [my institution] is lacking. It can be a really challenging environment for somebody who's a new grad. There's not as much oversight as there should be and our volume is too high. (Physician #3)

Overall, there was an acknowledgement that varied elements of an institution or site had to be considered. Among the most prevalent suggested variables to consider were the experience of the physicians, the structure of the workplace, the volume and complexity of patients, and peer modeling supplied by neighboring providers.

The lack of a codified PA–physician collaborative protocol can be advantageous, as the relationship is malleable, adjusting to address different clinical scenarios. It also empowers PAs with less experience or confidence to engage with physician colleagues without feeling as though they are imposing. Though there are advantages to having flexibility, the relationship can shift from being malleable to outright confusing in some circumstances. The PA–physician dyad relationship frequently varies not just by institution/organization, but even by clinical sites within these organizations. One physician noted the degree of heterogeneity, stating:

> I definitely think it varies by institution and I will say that even within a practice group it varies by site. Our relationship with the physician assistant at [one site in our group] fast-track is very different from the [other hospital site] main side which is very different from [another hospital] that is very different from the [other hospital's] fast-track so I think even within a group it varies and between sites within groups it definitely varies widely. (Physician #2)

Many participants felt the institutional/organizational roles influenced how the PA–physician dyad interacted but also felt these roles were less explicit. Learning these varied roles seemed like a recurring process of trial and error. Many felt that ambiguity generally helped make the PA–physician dyad nimble, but there was a steep learning curve for both parties and there tended to be confusion, particularly with newly hired

PAs. Clarifying the roles and expectations without limiting flexibility was noted by many to be an attractive goal.

Establishing a structure for how PAs and physicians interact can occur on varying levels. There is an established structure set in state laws and there are individual relationships between PAs and physicians. However, many noted that if there were a level to best define the relationship it would be the organizational level. Policy level definitions were felt to lack the needed nuance to account for how a unique clinical site may need to leverage their PA workforce. This was best tackled within the context of the institution/organization. Physicians particularly noted this:

> Ultimately, it's best left to the organizational level, so that way you have the most nimble, flexible teams that meet your specific patient population within the resources, limitations, and abilities of your orientation plus hospital slash clinical environment. (Physician #7)

In the context of the organization, they further elaborated on the importance of open and direct dialogue across both PAs and physicians. This had implications for how the organization may best implement them in practice:

> The other guiding principle would be any type of policy decision-making needs to be interprofessional with multiple stakeholders at the table and so one of my worries sometimes is that you may have physicians deciding what is best for how PAs should be quote-unquote utilized and I feel that doesn't necessarily take into consideration the PA framework, skill set, curriculum, and training. And so I do think that one of the guiding principles of whatever is developed is it needs to be interprofessional and have PAs at the table. (Physician #7)

PA participants noted the importance of physician buy-in and some acknowledged that having a physician "champion," a physician who openly advocates for the PA group, greatly enhanced the work environment:

> We have one attending physician who does all of that and he's incredible. And I really appreciate him because he is really invested in our education and feels like

> we provide a lot of value to the department which is nice to feel that. (Physician Assistant #7)

A recurring theme throughout the interviews remained that a clearly communicated structure for the PA–physician dyad would help align interests of both parties and reduce potential for tension.

> There's a lot of concern for scope creep and a big piece of that comes out of the fact that the training for a physician is so much more expansive than going through PA school. So, there's that concern that PAs would be, or NPs, placed in a position where they don't have the appropriate training for what they're doing, so it's just not good patient care. I don't see that happening at my facility because of the structure we've just been talking about. I think we have a very defined role. They're comfortable and they've been trained to it, and so it's a good fit. But when it gets more nebulous and you don't have that sort of criteria, I think it can be dangerous care because the PAs just aren't trained the way a physician is. (Physician #6)

Participants related that the role of the PA and the process of PA–physician collaboration, the foundation of negotiated autonomy, could not be readily considered without acknowledging the essential needs of the organization. Any conceptual model clarifying this relationship must account for the general considerations of the organization and the clinical setting. This makes the Place a crucial element. Participants felt open dialogue between administration, physicians, and PAs was often lacking and the resultant ambiguity negatively impacted the experience of both PAs and physicians. Any proposed conceptual model exploring the process of negotiated autonomy would have to explicitly consider the setting and environment at the organizational level.

Preparation

Understanding the role of the PA in clinical practice and how best to interact with them requires a degree of training or instruction on the specific role PAs serve. Throughout the interviews there was an acknowledgement from physician participants

that they based their initial impressions of PA collaboration/supervision on what they were taught or observed during residency training. Beyond this real-world experience, most physicians felt their education regarding PA supervision was limited. Nearly all stated they had no formal training during medical school regarding advanced practice practitioners. PA participants reported training on collaborative practice, but also felt it was limited in scope. Both PAs and physicians felt they learned how to work together on the job and frequently modeled the behaviors of their colleagues and senior team members. This lack of clarity early in the experience suggested that introductory training for both providers on how best to work within the context of their organization would be beneficial to all parties, which leads to the next theme: preparation.

When asked about their initial exposure to PAs, many physicians had a limited background from residency training, but some expressed no prior PA exposure as they came from institutions and programs that insulated them from other care providers:

> There was the informal curriculum, and then, because the PAs were so involved in that orientation month that was functionally where we got a lot of that stuff, because a lot of us had been in medical schools in places where we didn't interact with PAs and that was our first interaction with them. (Physician #1)

In addition to limited experience with PAs, some physicians reported confusing messaging about how to interact with PAs when initially working at their organizations because of a conflict with their prior experience:

> Where I did my residency, we had almost no interaction with them because they practiced basically autonomously. So, when I came to [this site] I initially felt like we probably weren't supposed to be that involved. But then was sort of told that we should be more involved because we have a lot of new grad PAs who want support and to discuss cases and want the attending involvement whereas where I trained it was mostly senior PAs who didn't really want or need that much supervision and they were also being used in much lower acuity settings so the result was that when I came I felt a certain way about supervising/working with PAs and then that changed when I saw how things work at [this site] and I see that

> also a lot with new people who come in with the system of where they trained before in mind. (Physician #2)

The previously discussed heterogeneous PA workplace implementation appears to contribute to attending physician confusion as many organizations implement PAs in varied fashions. Graduated competence as a pathway to developing PA autonomy is complicated by the wide range of experience levels across PAs and how they are utilized at the institutional level. When coming from an institution with experienced or independently practicing PAs to one with predominately early career PAs, physicians may not feel comfortable with the high level of variable oversight and education. This is enhanced by a lack of direct training during medical school and residency regarding PA oversight and collaboration:

> I received no formal training on that. And even more than a lack of formal training, I would say that this might be a function of when I trained and where I trained, but I didn't even really know that PAs existed until my clerkships and saw them function in all kinds of capacities because a lot of our surgical services and subspecialties didn't have residencies. So, our neurosurgical service and orthopedic surgery service and urology services were all PA run. That was my first exposure to PAs, seeing them in the role that would traditionally have been filled by a resident on surgical services. (Physician #2)

Other physicians also reported having initial exposure to PAs generally later in training and sometimes not until they started their careers as supervising physicians:

> I was in medical school in my very first shift in the emergency department, which is quite serendipitous where my career has gone, I walked in and one of the goals of the day given to me by a very stern attending was to, quote, "Your job is to try to keep up with my PAs." It's comical because in retrospect I would never use the possessive tense, but she was doing it in a very "lift them up" way. And I tried to keep up and I couldn't. But I thought "Who are these people?" It was the first time I was exposed to just the name. (Physician #7)

As many physicians noted, with this limited prior training and PA exposure, preparing PAs and physicians for collaborative practice would fall to their employing organizations.

This is further reinforced by the realization that PAs appear to be best leveraged when their role is clearly defined by the needs and goals of these organizations.

Physicians often noted that the needs of their employing organization were of central concern regarding the workforce structure. Though many physicians acknowledged that they were not specifically trained in the nuances of PA oversight, the supervision/collaboration with PAs came naturally given the similarities with overseeing students and resident physicians in the academic setting:

> You know in residency you don't really get that experience of staffing PA charts, but you do get teaching and training in that you have students as well. You staff the students' cases and you're presenting all of your cases to attendings, so you get the other side as well. That kind of process of presenting and having a conversation about a patient is similar. So, I think you do get a decent amount of training on it and then what you learn on the job once you've graduated, the art of knowing how much autonomy to give in each instance, so that you're not micromanaging someone who doesn't need that sort of oversight, but that you are giving enough oversight where it's needed. That takes time to develop. That's a skill you develop as an early attending and not as a resident. (Physician #6)

This comfort level lends itself well to a structured approach to new-hire training at an organization. This onboarding concept was endorsed by PAs, who felt it would enhance their work experience. There were myriad advantages cited including enhanced alignment with some PAs' expectations of working in an academic setting. There were those who felt that the current structure was insufficient in that regard:

> I do think that it depends on the PA and how much training they want. I think new grad PAs come with this idea that they are taking a job at a teaching institution, an academic center where learning is part of the culture and that they are going to get the same amount of learning that residents do. But I just don't think that that is actually the culture at [my institution]. (Physician Assistant #3)

They elaborated by noting just how limited the current structure at their institution was and how it would benefit from expansion:

> I do think that at [my institution], when we hire new grads, I think our onboarding system needs to change. What we do as a new grad is not enough. It should be something like 2 weeks. There should be consideration of making new grads do a boot camp to understand and have, I mean, the interns, the EM [emergency medicine] interns have a whole month of training before they come on in the ED. And so why don't our new grad PAs have something similar? (Physician Assistant #3)

Enhancing PA practice and improving their capacity for more autonomous practice within a particular setting may have the additional advantage of liberating physicians to focus on other educational opportunities. Not only would this contribute to practice efficiency, but it could also enable educational opportunities for the residents or interns (the opposite of what some may feel occurs currently):

> Big picture, the more we teach and train up our PAs in the ED, the more those conversations, that supervision, take less time and it frees my bandwidth to teach the intern who's still figuring out how to submit a bed request. (Physician #7)

Ultimately, preparing both PAs and physicians through training that was specific to an institution/organization enhances the provider experience of all involved and would likely improve patient care. The structure and style of such training would do best to focus on the needs of a particular organization and practice setting. Participants felt open dialogue between PAs and physicians would be vital when designing and implementing these programs.

Process

Moving beyond the place and preparation of PA–physician interaction is the literal process of that interaction. PAs and physicians expressed that there is a fine line between collaboration and supervision. Practically speaking, the process was described as split into two consecutive phases: initiation and interaction. The act of collaboration between these two individuals may be regarded as the performative act of a PA

presenting a patient to a physician who then directs the patient's care. However, participants described a more fluid and organic process. Medical training casts the staffing of a patient between an attending physician and a supervised provider, such as a PA or resident physician, as an act of presentation. Some may carry a perception that patients are initially evaluated by the PA, who simplifies them into a set of differential diagnoses and then presents this to the attending physician, who acts as the final decision-maker in the care. Though elements of this description ring true, the reality is less overt. A core consideration was determining whether the collaborative experience between PAs and physicians is supervisory or collaborative. That nuanced distinction was of predominate concern among participants.

The term "collaboration" in and of itself suggests an equal footing between both parties participating in the care scenario. In contrast, "supervision" indicates an unbalanced power dynamic within the relationship that tilts toward the supervisor. Physicians were quick to make such an assertion:

> I'm supervising in that I know I'm ultimately responsible if something goes bad and I was sitting right next to them, but it's collaborative, right? Like I'm here for any questions you have. It's collaboration but in an unequal relationship. (Physician #1)

Most noted that this distinction was established at the institutional level:

> I would say that we supervise because at [my institution] the dynamic is set up such that we are in a supervisory role. We cosign the notes and we write in our attestation on their chart that we "supervise" them. I think the dynamic at our facility specifically creates a sense of supervision for financial and medical-legal reasons. I think, in practice, it's probably more of a collaboration. But I think we feel like we're supervising because we've been told we're supervising. (Physician #2)

The distinction of assigning a label such as "supervise" to what many conceded was more a collaboration indicated an awareness among participants that PAs and physicians

engage in a more complex working process than simply one provider overseeing the actions of another. Many regarded supervision more as a legal or financial distinction than a true reflection of current practice. Ultimately, physicians asserted their supervisory capacity by virtue of their knowledge and skill set but felt more collaborative insofar as members of the department worked toward the common goal of safe and effective medical care:

> I am nominally the supervisor, but we are collaborating in accomplishing the management of a busy emergency department together. I think it more as the captain of the soccer team, you know, you're not in charge of them, you're working together and you happen to be the one that makes the decision when there has to be one made, but I do have a little bit of both in my interactions. (Physician #5)

From the PA perspective, the distinction between collaboration and supervision was felt to be fluid. This was benchmarked by the practice-setting and staffing expectations as well as the PA's confidence. That comfort level depended greatly on the patient's complexity and the PA's prior experience:

> At this point I would say it's more collaboration, except in acute where I'm newer because I just recently started working in acute because I just hit the 2-year mark. That still feels like it's more a supervisory role, especially because of how it's structured with the residents as well, there's like a fourth-year resident that also works in acute whose role is to learn essentially how to run a department so they're also playing that supervisory role. When I'm in acute, I feel like it's more supervisory, but all other areas it's more collaborative. (Physician Assistant #7)

The degree to which the PA leans on the physician's expertise is indexed against the PA's personal comfort level. This was typically reflected in the institutional requirements for patient staffing:

> It's just depending on the ESI level of the patient that will depend on whether I staff them or not. ESI Level 4s or 5s I'll be seeing independently but 3s, 2s, and 1s I have to staff with an attending. Now it's up to the attending to decide if they want to see the patient or not physically, but if they're a "3-D", meaning that they're vertical, standing, walking, talking and I feel comfortable sending the

> patient home and they feel comfortable with my judgment, I'm free to let them go, so long as I talk to them about it. But [Level] 3 ESIs, 2s and 1s, the attending has to physically lay eyes on the patient and talk to them to make sure they agree with what I'm thinking. (Physician Assistant #6; ESI stands for "Emergency Severity Index," which is a triage classification system utilized in emergency departments. The system runs from Level 1 to Level 5. The higher ESI numbers correlate with lower acuity patient complaints.)

Some PAs viewed this more as a box to be checked than a necessity. Simply mandating general categories of patients to staff exempted a degree of subtlety and did not account for the PA's background and experience. Both PAs and physicians reported that the physician was ultimately the responsible figure by virtue of their position in the medical hierarchy and their expertise. But when and how to engage with the physician, and sometimes whether to engage with them at all, depended on additional factors such as the clinical setting and whether the PA felt engagement was truly necessary.

Engagement between providers was described by participants as dependent on numerous considerations. These included whether a directive existed at the institutional/organizational level that mandated engagement. Participants described sites that clearly mandated every patient be staffed with the physician. The degree of this staffing ranged from a brief verbal report to a formal presentation followed by a joint bedside evaluation. Others described clinical settings that granted the PA wide latitude on deciding when to directly engage physicians:

> I honestly feel like I guide it, because I think in general, you know there's a lot of turnover, so either, there's a lot of new attendings that just want to know how I want to practice and then, in the same vein, the ones that I've been with for years now they want me to achieve the highest amount I can. So, I oftentimes feel like I have to be going out of my way to say, "Hey I'm comfortable with this, can I do it?" or "Hey I'm not so comfortable, do you mind doing it?" or like being with me the whole time. I find that I'm often having those conversations, and they're always open to it, but I'm initiating it. (Physician Assistant #1)

The responsibility of determining when to engage with the physician was felt by some to impede collaboration:

> I do find that I am more hesitant to consult with the physicians because I know that they're busy with their own patients and especially because they're seeing patients of higher acuity levels on the other side, whereas my patients are maybe considered less serious or less acute. So, I do take an extra minute to think about if I should consult with them before going over there. (Physician Assistant #2)

The sense of hesitation and concern for interrupting physicians was a recurring feeling across PA participants, who felt that frequently requesting physician input may foster a negative impression of the PA's clinical acumen:

> You know, I think if you have a reputation for coming to the doctors with easy or irrelevant questions, that really becomes a roadblock to the relationship. The thing that doctors will complain to me about is PAs having difficulty making decisions. They'll come to the doctor and ask them to make the decision for them. Like, should I call this consult? Should I get this CT scan? And it's just like, you need to have the ability to make decisions independently and the doctors need to know that those decisions will be medically sound. Because where we run into trouble is when the doctors feel a PA consult is wasting their time. When they feel like this is something you could have figured out on your own. (Physician Assistant #5)

Shifting expectations of when to consult or engage with physicians may lead to PA indecision when determining to engage with physicians, which raises a concern that this may have negative implications for PA perceptions of autonomy both among PAs and among physicians. This ambiguity is exacerbated when they work at organizations where the staffing expectations vary widely across different clinical sites. As PAs gained more experience they developed increasing comfort with their own practice patterns. This growing comfort enabled them to be confident and more selective when they engaged physicians and which particular physician they sought staffing with:

> If I just have a simple question regarding medications, they'll ask me for more details and then they'll start telling me to do bloodwork and do this and that and that doesn't match the way I practice. I do appreciate their opinion on everything, but I feel like if it's not necessary then I don't need to talk to them about it. If it's

> a simple question about what's the dosing of Eliquis for this type of patient, then I'll ask another doctor who I know will help with a simple medication question without asking any further details regarding the patient. (Physician Assistant #6)

In circumstances where physician staffing was not mandatory, PAs reported having wide latitude on when and how to approach physicians for input. Such an arrangement implies that supervision, with its suggestion of active oversight, was not really occurring in a direct sense. However, such a process is also not truly collaborative as both providers need not be directly engaged when one is given discretion to determine the degree of the other's involvement. A more apt label for this process may well be "consultative" rather than collaborative. This framing would represent a shift from the typical understanding of how the PA profession is oriented in practice. If the PA is given determination on when and how to engage with a physician, they become more a self-limiting, independent agent who consults with physicians predominately when they feel it appropriate.

From a process perspective, the impression given was that collaboration and supervision exist on either end of a spectrum that shifts according to various circumstances. This fluidity is dictated by the organization and includes care elements like billing, patient expectations, and clinical scenario complexity. Even in organizations where close supervision is expected, considerations such as patient volume and divided physician attention limit supervision to something more akin to verification:

> I think that at a place like [where I work], when I don't have the luxury of having as much direct supervision, then I tend to verify a lot more because I can't actually oversee my PA in practice, right? It's too busy. I'm doing so many other things. So, I'll see every single patient independently and then we'll just have a brief dialogue and make sure that we agree. I really tend to verify everything that happens, all the medical decision-making, everything they do, because I don't have the luxury of witnessing what's going on clinically all the time. (Physician #3)

If a PA is truly afforded autonomy through demonstrated aptitude, then the notion that in many circumstances their performance is not directly witnessed limits the applicability of a competence-based process. Physicians noted the process of competence determination is not simply based on observation:

> Competence in a domain can be suggested by displaying kind of technical language or facts related to that domain and by your expressed confidence through your communication. When I'm interacting with anyone, in any relationship in which I have a supervisory role, I personally find it very, very important to set aside these potential distractors. Like the displayed or expressed confidence and kind of technical language use, really the only way I feel that you can reliably benchmark someone's clinical skills and clinical knowledge is to witness it and to reproduce it to see how it aligns with your own experience and your own performance. (Physician #4)

Another physician further elaborated:

> I think there's a performative part to medicine and being on a team and that's not true just for physician assistants. We know that to be true for medical students, for residents, and sometimes if someone presents something very competently, even if you try to be as objective as possible you can't help but be influenced. I try to remember that as much as I can when I'm on shift. I can usually tease it out. If somebody tells me about a case, and they're convinced that it's COPD [chronic obstructive pulmonary disease], but nothing about the symptoms they just told me mean COPD, no matter how confident they are I can still see through that and that's my job as the attending physician to do that. But there are still times when just the general demeanor and other aspects of the presentation, maybe it's their tone or maybe it's the way they're standing, maybe it's the completeness to it. If somebody presents and it's just very on and on and on, you can't help but get the sense they don't know what's important and what's not. So, a shorter presentation, sometimes it's not that you're brief because you're in the ED, you want someone to tell you just the pertinence. You can get a sense from some of the PAs who are good at that. Telling you just the pertinent yeses and noes versus those who just report everything to you because you can tell they're not really sure how to tease out what's relevant and what isn't. (Physician #7)

Many acknowledged a performative element to medical practice in the academic setting. Participants reported that displaying competence takes many shapes, many of which yield more of an impression of competence rather than a tangible demonstration. The act of presenting to an attending physician from the PA perspective was regarded as theatrical

in many ways. Within that performance comes a need to identify and discard erroneous material and focus on critical information. For some physicians, supervision is more an act of confirmation. They have an impression of how the PA should operate and if, following some process of verification, they feel there is alignment with their expectations then they allow the PA to proceed uninhibited. This appears to be an iterative process and once a PA has demonstrated competence within the bounds of their physician's expectation, then trust is established between the providers. Based on this trust the PA is given expanded leeway and further autonomy. This is distinct from resident physicians where the process of verification must have an educational intent. The PA, by virtue of their professional status, can seek the learning component, but it's not necessary:

> PAs, as professionals, if they're not interested in an educational experience today then that's fine. We don't have to do that because that isn't their primary purpose. I think the difference, ultimately, with how I treat PAs and residents, is that I don't really give residents much choice in our relationship and with PAs a lot more of our relationship is up to them to dictate. (Physician #2)

Ultimately there comes a moment where the PA is emboldened and the physician, after developing a sense for the PA's capacity through the aforementioned verification process, grants them essentially self-limited practice capacity. The PA is entrusted with seeking physician input when they feel it's needed rather than being mandated to seek physician approval with every clinical encounter:

> My assumption is that unless somebody tells me otherwise, they feel comfortable doing something and then I will verify that the thing has been done to the standards that I would set forth in my mind. (Physician #3)

Positive provider interactions create expanding trust and set a foundation for the PA–physician collaborative relationship. Negative interactions, however, can drastically alter the course of the working relationship.

> I have had moments where I realized that PAs that I had given a lot of freedom to I shouldn't have and then have radically changed the way I supervise them, and I have had moments where I realized that a PA that I was watching very closely probably didn't need it. And I will say that the dramatic shift is usually the former. Someone I realize I should not have been letting go that loose. The loosening of the reins comes more gradually from positive experiences. The tightening of the reins can happen very quickly with a single bad experience. (Physician #2)

This reinforces the dynamic nature of performance monitoring and evaluation:

> Well, my goodness it's not static. Imagine someone that you have a very stable and well-developed understanding of the extent or limits of your trust, you feel very comfortable with your understanding of their skills and knowledge and professionalism, but they may have a good day or a bad day tomorrow. And you might need to recalibrate all those expectations, because they didn't sleep well or because of a difficult shift the day before or a sick family member or their own illness or any number of things. And then it all sort of changes and so effective teams, for so many reasons, require constant self-evaluation as circumstances change. (Physician #4)

Most participants felt that once a working relationship framework between providers was set and the physician had verified the PA's competence in a manner they felt was sufficient, the relationship shifted from supervisory to collaborative. As this process repeated itself in an iterative fashion, this collaborative interaction evolved into a consultative one.

There may be a lay perception that the process of supervision and collaboration between a PA and physician is largely unilateral and unidirectional with the PA acting under direct physician supervision. Such an impression is not without precedent. The legal definitions that codify the PA–physician working relationship often cite "physician supervision" with an implication of an active supervision that occurs in real time.

Interview participants assert the reality is more nuanced. PAs appear to generally be given wide latitude to work in a manner they feel comfortable with and engage physicians at times the PA feels are necessary. Rather than acting as dependent providers, PAs appear quite independent, but such independence can be quickly revoked should the physician decide to. Therefore, the PA–physician power imbalance persists, but is fluid in implementation. The process of verifying a PA's practice capacity and the frequently stated need for ensuring PA competence emphasizes another recurring theme: the need to establish an institutional means for both objectively and subjectively assessing PA performance and a manner for the provision of feedback.

Progression

PAs and physicians constitute a functional dyad comprising two individuals who engage in a fluid working relationship. Emergency medical practice is unique in that rather than having a singular collaborative physician, PAs often interact with a large cast of rotating physicians. Each of these PA–physician relationships has its own history. The more a particular PA–physician dyad works together, the more experience there is to draw from and inform the functional relationship. The introduction of a new limb to that dyad would force the historical learning process to start again. PAs expressed having to re-prove themselves to one physician even though they may have repeatedly displayed competence to another physician. This fostered an expression of need for a set progression for PAs that would enable physicians who were newly engaging with a PA to have an immediate understanding of that PA's experience and practice capacity. Such a system would equip the physician with an immediate sense of a PA's capabilities and reduce the PA's burden of needing to repeatedly prove themselves. The progression

process could additionally be modified to include organization-specific training so that the PAs would be better equipped to meet the needs of their organization and clinical sites.

Some participants noted that their organization already had a feedback and training mechanism in place and felt this aided in the work experience for PAs and physicians while improving retention:

> And so if we give some continued education and professional development training for our PAs, and hope to retain them so they want to continue working for us, that's helpful for us. It frees us up, not just our own mental bandwidth. It shifts our attention more to the bedside, the patient, the patient outcome, which is the other stakeholder in all this. And the ones who have stayed here now for 4, 5, 6, 7 years, they've helped with some of the teaching and education of the residents. (Physician #7)

This kind of onboarding training, which occurs immediately after hiring, was helpful not only because it trained PAs to meet their organization's needs, but it also allowed for standardization of the PA skill set. PAs have a basic medical training background and from that foundation they build a skill set, at least early in their career, shaped not by the standards of their preprofessional education but by their prior work experience and clinical rotations. This contrasts with physicians who have a standardized residency training–specific certification. A physician noted this distinction when working with PAs:

> [T]he milestones or endpoint expectations you [a physician] must have reached or competencies you must have reached upon completion of the residency program are very well codified by design. And they are not for PAs or advanced practitioners by design, right? And so what that means is there's a sense of urgency to get the residents to well-defined and codified competencies in a finite period of time. And so I'll push the residents to get there and have very intentional educational approaches to do that, whether it's sort of Socratic questioning or classic pimping, whatever it is to get you to these well-defined competencies. For the PAs it's more loosely defined and its lower stakes, by definition, and there's greater variability among PA faculty. The interests of the PAs, the personal and professional goals, differ. (Physician #4; the term "pimping" is a slang term used by medical practitioners to describe typically

> aggressive questioning from a more senior medical provider as a manner of teaching.)

There was an acknowledgement that the degree to which they monitored and worked with a PA changed throughout a shift, but the more accumulated experience the PA–physician dyad had, the better understanding they developed of the PA's capabilities:

> That needle moves a little bit with every clinical encounter such that by the end of one shift and a dozen clinical encounters I might just be confirming the final disposition of a patient rather than hearing anything about them from the PA. Or at the end of the shift I might still be wanting to have a full conversation with them. The rate of change is definitely different from residents and medical students. (Physician #2)

Beyond the direct experience of working together, physicians and PAs both felt that a more formalized approach to noting a PA's skill set would be beneficial:

> I think we could be better at evaluating PAs, like looking at competencies, making sure that you know you're hitting specific milestones and specific domains. But that has never been part of your educational model, either. You've never gone to a place where somebody above you is going to evaluate you based on milestones and domains and competencies, that's not a PA thing. And it's never been, there's never been a push to make it a PA thing. Should it be? Probably. You know, a new grad comes out and is competent in one domain. They're great at interpersonal communication or whatever, but then super sucks at medical knowledge, that's problematic. You should be able to tease those apart. Why is your practice not good? Is it based on this domain or is it based on this domain? But there's never really been a push to do that with mid-level training. (Physician #3)

Most participants agreed there should be emphasis not just on gauging a PA's competence, but also on having a training process for PAs to enhance their practice capacity. How participants felt this should look in practice was heterogeneous.

Traditionally the best, and perhaps only, way for physicians to assess the competence level of their PA colleagues was by simply working with them. By working alongside each other, PAs and physicians achieve engagement and trust building. As

Physician #7 said, “The more or greater number of times you’ve worked with somebody you just get more comfortable with them and can be more comfortable asking for help.” – PAs echoed these sentiments:

> I think it’s probably a challenging position to be in because they have to constantly be evaluating how safe it is for you, the PA, to be taking care of this patient. But after some time and comfort and exposure to the PA, I think it becomes easier for them because they kind of know where you’re at and what you’re interested in and what you’re capable of. (Physician Assistant #2)

These sentiments suggest it would be in the interests of all parties if this process could be streamlined and accelerated with an organizationally tailored training program. This would enable PAs and physicians to have a better understanding of expectations and capabilities while providing PAs with performance feedback. From the physician perspective, working with a PA gives them the opportunity understand that PA’s competence, but this could be augmented if there were an objective understanding to enable a baseline sense of a PA’s competence without necessarily having to directly observe them in practice:

> I do think that there could be improvements set up to standardize the way we communicate about our roles and understand each other’s expectations of each other and how much we want or prefer the other party to be involved in our decision-making. I think there could be something set up that’s very objective like, “Hey, you know, you’ve been practicing for this long, you've done five lumbar punctures and now, you’re signed off on that. Now I don’t need to supervise you if you’re doing a lumbar puncture.” I feel like there isn’t really that setup for PAs. We don’t have a number of procedures we need to have done or patients we need to have seen to be considered proficient in something. It’s a continued guessing game on both sides. (Physician Assistant #2)

PAs and physicians felt this progression was missing from their current work experience. PAs reported lacking a feedback mechanism that would help them identify potential areas of improvement. There was a note that they only really received a review of their performance if there was a specific or isolated event (typically negative). This placed the

onus on the PA to actively seek out such reflection from their peers. This implies that the PA must understand when to engage with the physician, and also be responsible to police their own performance. Physician Assistant #3 said, "I didn't get a peer review or any review from a physician until I hit my 2-year mark. So, any feedback on any areas I was lacking or areas of improvement I had to seek out myself." –

This individual further elaborated:

> I did find it useful because it was the first feedback I'd ever received from any of the attendings. And I think that if I would have done this differently, and I know that our lead PA works on it and it's very hard, but I think that we should all be given feedback at 3 months, 6 months, and a year mark, so that we can all progress and feel like we are part of a team and understand our areas of weaknesses and understand our strengths. But at the 2-year mark I've already kind of gotten into the rhythm of how I practice, and then to be told, "Well actually you should do this differently." It would be nice to know that much earlier on. (Physician Assistant #3)

Other PAs felt this was a reflection on how their organization viewed the role and utility of the PA. Rather than a resource to be refined and improved, these PAs expressed a feeling of being more like a disposable commodity. The PA was there to serve a function of facilitating care by enhancing patient throughput and volume:

> I think institutionally, the way the organization looks at PAs is more as a workhorse. Not really a resource to be cultivated and maintained, but more as a disposable resource that can be replaced relatively easily with less emphasis on keeping people in the organization and developing their skills. Not so much expanding their career, but more do they show up and help us move patients. (Physician Assistant #4)

This impression of being undervalued may place PAs at risk of burnout, leading to staff turnover. This churning of staff turnover would then exacerbate the repeated cycle of physicians engaging with PAs with whom they are unfamiliar and having to constantly recalibrate their perception of their PA colleagues' competence. This cognitive burden eventually takes a toll on these physicians, as one participant noted:

> The turnover is heartbreaking. You invest quite a lot in a new PA in getting them trained and up to a standard, especially in the beginning when all of their patients are being staffed they're still developing their practice, they have more questions and so it's definitely more of an active process to have a new PA in the department than someone who has gone through the training and is comfortable in their practice. The turnover just exacerbates that because then there's always a new PA, or multiple new PAs, which can take away from the physicians independently being able to see patients. So that comes back to why we put into place this PA-to-PA training to reduce some of that. (Physician #6)

If there is to be an established progression for PAs within an institution that incorporates competence assessment while including facets of skill development and training one would need to consider two key elements: the structure and the ownership.

Participants expressed that real-time performance feedback paired with directed, organization-specific training would be essential components to any progression-oriented process. The organization-specific nature would focus on how best to equip the PA with a skill set and knowledge base tailored to their organizational role. Some participants felt this had already been established at their organization, with senior PAs taking an active role in its implementation and management:

> It came out really to reduce the workload on the physicians, the staffing, the more straightforward cases, so that there's more senior PAs where they could manage the case independently. The senior PAs could oversee the care of the new PAs to ensure quality and only engage the physicians for bigger questions. It came out of wanting to reduce some of that training burden on the physicians. (Physician #6)

Organizations that implemented such a process had the PAs control and manage the process directly:

> It's very much PA driven. We have PA 1, PA 2, and PA 3 as the different levels of PA. PA 2 comes at Year 3 and once you become a PA 2 you have another role that you get involved in outside of just working clinically. For some people that's PA education and others run the SIM [simulation] lab. One of the PAs coordinates rounds and the education, other PAs work on committees for quality and safety. (Physician Assistant #7)

Having a well-defined structure that places PAs in leadership positions to identify the objectives and implementation could have many potential benefits and enhance collaboration across all providers. Physicians noted this liberated them from some of the cognitive burden of questioning a PA's competence and needing to evaluate the PA's practice patterns. The impression throughout the course of the interviews was consistent in that having an organization-specific, competency-based training program that enabled a degree of objective measurement of a PA's clinical acumen benefits both PAs and physicians while strengthening their collaborative relationship. These emergent themes provided the foundation upon which a conceptual model of PA–physician collaboration could be constructed.

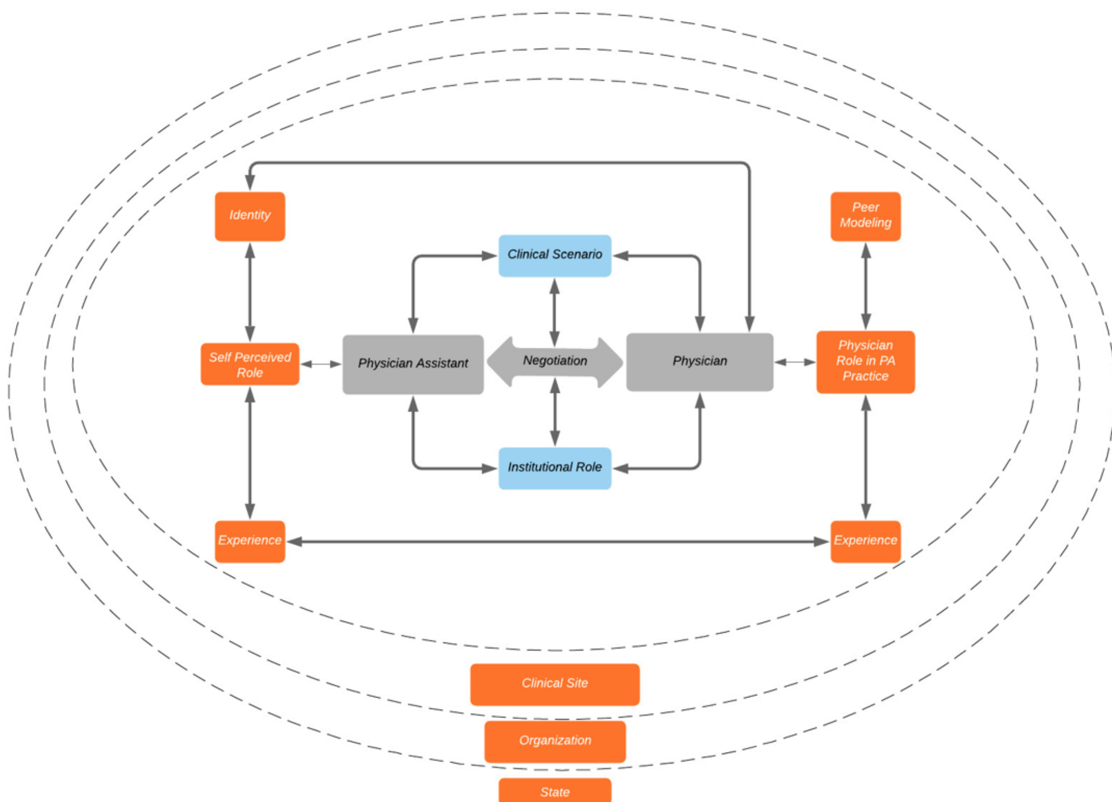
A Conceptual Model of PA–Physician Collaboration and Negotiated Autonomy

Throughout the thematic evaluation process, memos were developed that reflected on how the themes interacted with one another and the potential links that existed to operationalize them within the construct of a conceptual model. The emergent Phase 1 themes focused predominately on PA identity, PA role, and PA collaborative process with physicians. The importance of perspective, reflecting how each provider viewed and understood each other's role, was found to be integral as both PAs and physicians acknowledged that in a collaborative process the relationship or the link between the providers was paramount. The PA–physician dyad, the encapsulation of that dynamic relationship, exists within the context of the 5 P's that emerged from the analysis and included perspective, process, place, preparation, and progression. These elements, borne out of the grounded theory theoretical coding process, were foundational to the construction of a complex model. Participants observed organizations would benefit from

an approach or guideline to direct how to utilize the PA–physician relationship to improve organizational performance and efficiency. These results formed the basis of a conceptual model to guide organizations on how best to improve the collaborative process of their PA–physician teams. This guidance and understanding could then be used as the foundation on which to build and design training programs such as onboarding for the fostering of enhanced PA practice at their sites. After thorough reflection on the study analysis and results, the conceptual model was constructed and is shown in Figure 7:

Figure 7

Framework for PA—Physician Collaboration



At the center of the model is the PA–physician dyadic relationship. Bidirectional arrows emphasize that the relationship is fluid and not unilateral. Rather than the physician directing the PA in a simplistic supervisory capacity, the PA and physician engage freely with either being free to instigate interaction. The process of this engagement is referred to as negotiation, which harkens to the negotiated autonomy that PA practice was conceived as. At the heart of this negotiation is the degree to which the PA may practice autonomously, more specifically the degree of independence they may wield at a point in time. Rather than having autonomy ceded to them by a physician, often the PA seizes autonomy and practices with a high degree of freedom. However, the two providers remain linked by virtue of their legally defined relationship.

Feeding into this process is the clinical scenario, which represents the context of the patient and their clinical presentation. This is interconnected with the defined institutional role that the PA serves. The role is defined by the organization/institution and reflects how the PA is enabled and expected to practice. Elements that can contribute to or detract from this component are patient complexity and staffing requirements. If a PA, for example, is mandated to staff all patients of a particular complexity with their attending this would interconnect how the institutional role and the clinical scenario of a patient influence the negotiation or act of collaboration. The identity of both the PA and the physician link with these concepts in a bidirectional fashion, as their personalities and practice styles will no doubt contribute to this complex system. Each of these nodes is interconnected in this way to emphasize their dynamic nature and how the balance throughout is constantly shifting, which reinforces the dynamic nature of emergency

medical practice. At the center, however, remains the collaborative negotiation process between the PA and physician.

On either side of the central dyad are the individual elements of both providers. The PA brings with them their own preconceptions of their role within the employing organization and the greater healthcare system. Some PAs view themselves as extensions of their physician colleagues while others view themselves in a more distinct and autonomous fashion. This role perception is linked with their practice experience and likely grows more entrenched as they become more experienced and comfortable with their individual practice pattern. Each element crystallizes into an identity that is the conglomeration of the PA's self-perceived role as reinforced by their prior experience. These elements flow into and feed one another. The PA's individual identity is linked to the attending physician, as PAs in the study reported they frequently change elements of their practice pattern in response to the individual physician they are working with at any point in time. This shows how the physician can influence the identity of the PA and their self-perceived role.

The physician also carries with them a preconceived notion of their own role within PA practice. This role can vary from that of direct supervision, where they monitor and approve the PA in their practice, to more of a collaborative or even consultative role. These functional aspects are intrinsically linked to the physician's personal experience. Many physician participants noted during interviews that they modeled many of their interactions with PAs on how they viewed neighboring physician colleagues interacting with PAs. This response emphasizes the importance of peer modeling as an influence on physician behavior. They are further influenced by their prior work experience, which

contributes to their ongoing working relationships with PAs. The approach to PA collaboration and supervision for physicians likely shifts and alters as the physician garners further experience working with individual PAs and with PAs in general. Their personal experience is directly linked by bidirectional arrows to the PA's experience, which shows that each PA–physician dyad has its own unique history and how the providers' interpersonal experience working together feeds directly into how each views their role not just in the larger scope of PA–physician practice, but in the practice of that singular PA.

The model itself exists within a multilayered clinical context that includes the clinical site, the organization, and the state. Much of PA practice is framed by state law, which gives a general legal framework to the functional relationship between PAs and physicians. The interview process was illuminating in that it revealed very little, if any, of the active relationship was directly influenced by the state. The organizational level was far more influential. The PA–physician dyad serves a specific purpose within the context of an organization. Within that organization there are often various clinical sites where PAs and physicians practice together. Even within a specific organization it became clear that there were various influencing factors unique to the site where they were practicing that influenced how the PA–physician dyad interacted. Each of these layered contexts influences the conceptual model of collaboration in practice. Utilization of this model to identify how best to integrate and train PAs within the context of a particular organization or clinical site would need to consider these various variables and how they interrelate.

Phase 2 Results

The conceptual model that resulted from the Phase 1 study is intended for use in the management of PAs in clinical practice. Phase 2 of this study was designed to elucidate potential processes and procedures for how the Phase 1 findings and model could be translated into practice. To achieve this, a focus group of actively practicing emergency medicine physicians and PAs was convened. The group was tasked to review the model, discuss the validity of its assertions, modify components if necessary, and explore ways findings could be translated into action. There were six participants: three PAs and three physicians. All participants were actively practicing emergency medicine at the time. Preference was given to those actively involved in administrative duties including PA practice oversight. Potential participants were identified by review of their online credentials and by word-of-mouth referral. Each was contacted regarding participation via e-mail. Once participation was confirmed, the group was provided an introductory PowerPoint presentation that reviewed the background on the study, summarized the Phase 1 results, and presented the conceptual model. The discussion was framed by how best to translate the findings into practice with an eye toward applications in onboarding and new-hire PA training. The group met via a Google Meet video session for approximately 60 minutes. The meeting was not recorded to encourage a freewheeling discussion. Notes were taken throughout to document findings and record a concluding set of recommendations. These results were subsequently sent to the group for final review and any additional changes or comments.

The group discussion initially reviewed the structure and applicability of the conceptual model. The unique nature of the design was appreciated as participants noted

they were unaware of any prior attempt to define the functional collaborative relationship between PAs and physicians. Given this apparent knowledge gap, it was accepted by the group that such a design was timely and would inform current practice patterns. Physician participants expressed that risk tolerance was an additional element to consider when discussing the clinical scenario aspect of the conceptual model, as different patient presentations would impart higher degrees of risk and would inform the degree to which the physician might feel compelled to restrict the degree of PA autonomy in certain instances.

Much of the discussion was about how influential the site "culture" is when discussing workflows and relationships within the emergency department. This idea of culture was felt to reflect the overall practice pattern of an individual department and was felt to feed directly into how PAs were viewed. Competence was also discussed as having a performative element that could be directly observed by the physician, but also fed into confidence from the PA perspective, which reflected how comfortable a PA might feel practicing with more limited oversight. One was felt to feed into the other, as augmented competence would enhance a PA's confidence, which would be reflected to the physician, who would then feel more comfortable enabling the PA to practice with increased freedom. Overall, these elements were felt to be well represented within the design of the model, but emphasis was placed on clarifying these elements when presenting the model.

Participants readily acknowledged the potential role for the model in influencing the design of new-hire PA training as well as providing physicians a deeper understanding of how to interact with their PA colleagues. From the organizational

perspective, all agreed that financial considerations should be noted, such as additional cost involved in designing new-hire training programs and how to cover the time for those involved with the training. These financial considerations also included the potential savings, as many noted that PAs who feel their competence is being enhanced and who feel more confident in their practice may be less prone to burnout, resulting in reduced staffing turnover (a universally acknowledged source of elevated cost). The need to assess effectiveness was cited as an important consideration when attempting to translate the model into clinical use. Such a process would involve the development of a potential gauging of PA competence or autonomy as well as measuring the effectiveness of the model. Proposed outcomes included measurements of departmental efficiency, provider acceptability, and staffing retention.

Following extensive discussion and review, the focus group concluded with a series of recommendations for translating the proposed conceptual model of PA–physician negotiated autonomy and collaboration into practice. There was agreement that there should be clearly defined roles for PAs and physicians at the institutional/organizational level. There should be specific attention paid to the level of care the PAs will ultimately provide. If the role of the PA at a particular organization is to move efficiently through lower acuity patients, then this should be clearly communicated up front and the PAs trained to service this need. The expectation would be adjusted if the goal is to develop PAs who are proficient both in lower acuity settings and higher levels of patient complexity. By clearly delineating the level of PA practice desired, the organization can better develop training programs for the PAs. In a similar fashion, the role of the physician within PA practice should be clearly defined and distinguished from

resident physician interactions. Organizations should establish defined skills for their PAs to develop as benchmarks that can then be tracked and certified by the group to further clarify and measure baseline competencies. A framework for PA performance feedback and review, both in real time and at intermittent intervals during introduction to practice, should be implemented to enable reflection and performance improvement. Finally, there should be clinical and administrative leadership ladders for PAs to advance within an organization, which would facilitate PAs taking increasing ownership of their practice. This would also foster expanding role modeling as well as peer mentorship between PAs while liberating physicians to focus on resident education. The summarized recommendations were:

- Organizations should utilize the proposed conceptual framework to review their current PA–physician practice and collaboration patterns to identify areas for improvement and modification.
- Employers/organizations should specifically define these roles within their institution:
  - The role of the PA in practice and goals of their practice evolution over time. Define the expected ultimate function within the organization.
  - Clearly define the role of the physician in PA practice, detailing the degree of oversight generally expected and how it might evolve over time.
- Organizations should clearly define skills, knowledge areas, and performance benchmarks in order to establish expectations of baseline competencies for their high-functioning PAs.

- Organizations should establish a framework to provide regular, frequent and standardized performance feedback / reviews to PAs.
- PAs and physicians should work together at organizations to identify clinical and administrative leadership ladders for practicing PAs, as this will foster a sense of shared oversight and a career trajectory for PAs while enhancing peer mentorship and role modeling.

At the conclusion of the focus group, there was broad agreement that seeking to conceptualize the PA–physician collaborative process that yields PA negotiated autonomy was important to clarifying modern PA–physician practice. The implications for new-hire PA integration and the emphasis on organizational level changes to better reflect how PAs and physicians currently practice were felt to be immense. Recommendations were consolidated and sent to focus group participants and no additional changes were requested. These recommendations are intended to initiate discussion within organizations and practice groups on how to critically analyze PA–physician collaboration and how this could be modified to improve PA integration and practice utilization. The conceptual model was felt to be integral in providing a clarified understanding of this complex relationship and how it might be improved.

Chapter 5: Discussion

Introduction

This study sought to formulate an understanding of the process of negotiated autonomy between a PA and a physician at the point of care in an academic, urban emergency department. This included how both PAs and physicians described this process and the identification of enabling or impeding factors influencing PA autonomy. Though PAs have been functioning within the medical system since the 1970s, a review of the literature revealed a knowledge gap where there had been no attempt to develop a functional structure of the PA–physician collaborative dyad. Utilizing grounded theory, interviews with practicing PAs and physicians generated themes that formed the foundation for the construction of a conceptual model of PA–physician collaboration. The resultant conceptual model represents a complex adaptive system that corresponds with the literature review and such theoretical underpinnings as negotiated order, which predicted the inter-provider interaction to be a reciprocal, iterative process. The model was subsequently reviewed by an expert focus group panel that generated recommendations on how to translate the study findings into practice with a focus on new-hire training for PAs (also referred to as onboarding) at the organizational level. These findings carry not just practical utility in assessing how to assist in transitioning PAs into a new role with an organization but have implications regarding the PA profession at large. On a greater scale, they contribute to translational and organizational/team science by displaying the utility of translational methods and the application of organizational theory.

Themes of PA and Physician Interaction

The study findings suggest that PA–physician collaboration in the emergency department is framed and facilitated by the 5 Ps: perspective, place, preparation, process, and progression. Perspective encompasses how the PA and physician view the role of the PA in general practice as well as their own respective roles within the PA–physician dyad. The theme of place revealed that institutional expectations and the context or setting of the PA–physician interaction was crucial to defining the role and function of the dyad. Preparation represents the influence of prior experience and training in establishing normative behaviors and expectations for both physicians and PAs. Process was notable in that the initiation and interaction of staffing patients between PAs and physicians is often at the discretion of the PA, which reveals an unexpected shift in the power dynamic between the providers. Finally, progression asserts the importance of relationship memory in how physicians gauge the perception of a PA's competence and the essential nature of physician feedback to the PA in enabling clear understanding of the PA's self-efficacy and status. These themes formed the foundation of the PA–physician complex adaptive system upon which the proposed conceptual model for negotiated autonomy was constructed. When explored in the context of the theoretical underpinnings of negotiated order there were further implications that arose that are influential for future translational research considerations.

PA Identity and Role

The notion of perspective regarding the PA's role within the medical system at large or at a given institution is a core component of the PA–physician dyad. Perspective reflects how both PAs and physicians view their respective roles within both the medical

system and their functional relationship. This study suggests it is not a simple matter of giving the PA a rote definition of their role, but rather demands a deeper dialogue between the PA and physician. This exchange would involve determining the PA's practice goals as well as their intended institutional or departmental role. It is an individualized dialogue not easily defined or generalized and depends on aligning three unique, and at times conflicting, perspectives: the PA's, the physician's, and the organization's. It is essential that these varied perspectives be balanced and consistent. At the study outset, negotiated order was applied as an underpinning theoretical framework to better comprehend the motivating forces forging negotiation within the PA–physician dyad. Though the importance of open dialogue was acknowledged, many participants felt that negotiation was often inconspicuous. Rather than overtly salient, behaviors between providers seemed largely based on peer modeling, following a tacit institutional pattern not explicit either in training or in policy. Additionally, interaction between PAs and physicians often mirrors the resident–attending physician relationship. As this study reflects practice within academic emergency departments, such a correlation was expected. What was unexpected, however, was the potential negative consequences such a mirroring would entail. Through the course of the study, it became apparent that the combination of these elements led some PA participants to experience a sense of deleterious identity confusion.

Negotiated order postulates that when there is uncertainty regarding professional roles, negotiation occurs at the intersections of the ambiguity to reduce confusion and clarify task delegation within the division of labor (Degeling & Maxwell, 2004). This is supported by this study's findings, which often revealed ambiguity surrounding the

respective PA and physician roles, both in their professional relationship and in the medical system. The systemic PA role was acknowledged by participants, and the subsequent focus group, to be predominately defined at the institutional level. The PA–physician dyad is deployed within an organizational context to achieve a goal, such as improved patient throughput efficiency, better outcomes, improved educational opportunities for residents, or cognitive/work offloading of the physician group. However, the understanding of how the PA–physician interaction would labor toward achieving that role or the myriad goals is generally ill-defined. These findings suggest the resultant opaque atmosphere is a primary motivator of PA–physician interaction, but also contributes to frustrations for both parties. For example, physicians reported hesitancy to engage with teaching as prior personal experiences with PAs where they had trained suggested PAs preferred more autonomy with reduced oversight. Though this might have been true at their prior workplace, which might have been composed of more experienced PAs, it did not reflect well the experiences and preferences of early career PAs within their organization. This led to surprise among some physicians when they were informed that the PAs they were working with felt they were not getting sufficient learning opportunities. The generalization of prior work experience contributed to a misunderstanding that might have been avoided with open dialogue at the outset to better clarify expectations. The negotiation process was more efficient in circumstances where the roles of both providers were clearly defined, to the benefit of both physicians and PAs. Such an effort was repeatedly noted to be best accomplished at the institutional level.

PA participants generally accepted that their physician colleagues functioned as the final arbiters of medical decision-making. This applied especially to higher acuity settings where PAs and physicians worked in very close or direct proximity. Circumstances where early career PAs worked more independently, with little to no physician interaction, occurred in lower acuity settings such as fast-track or urgent care areas. In settings of intense collaboration, PAs expressed feeling an innate pressure to replicate their supervising physician's decision-making process. In a sense, PAs felt their decisions should mirror those they anticipated their physician making. Therefore, if the attending physician in question had a reputation for conservative practice, tending to order more tests or pursue evaluations for less likely diagnoses, the PAs felt innately pressured to order tests reflecting this tendency. In contrast, if the physician was less diagnostically aggressive, the PA might refrain from ordering tests they might otherwise have considered out of concern for not aligning with physician's practice pattern. This pattern of anticipatory mimicry could well impair the development and evolution of the PA's personal practice pattern. Rather than developing their own style and approach, the PA is mired in efforts to mirror the physician. It also insulates the PA from taking responsibility for their medical practice by providing a degree of separation from their own decisions. This is further complicated by the large pool of collaborative physicians PAs work with in their practice. The PA must then try to learn, remember, and implement the practice patterns of 10 or 20 different physicians. Such a scattered, heterogeneous approach to work can have harmful effects on the PA's work experience. This process of collaboration could be improved through the implementation of a structured onboarding process to emphasize an organizational approach to commonly encountered clinical

scenarios. The onboarding would be developed with input from both physicians and PAs to generate mutual expectations and liberate the PA to engage in independent decision-making while achieving a physician-sanctioned departmental standard of care. Implementation of such a process would have the dual effect of reducing cognitive burden for both parties and enhancing the PA's agency and autonomy.

PA and Resident Physician Identity

This study focused on academic medical centers with participants working in close proximity to resident physicians. The functional similarities between residents and PAs are apparent, as both operate under attending physician supervision and typically review patients to obtain feedback and approval of diagnostic and therapeutic plans. As they accrue increasing experience and trust, residents and PAs can both assume broad autonomous latitude in their respective departments. The PA and resident roles can be so similar that some PA participants during interviews described members of their profession as being permanent resident physicians. One even stated the director of their department still thought they were a resident. Some PAs felt being adjacent to resident physicians influenced their decision to work at an academic center, as they anticipated working with attending physicians accustomed to teaching residents would foster an enhanced learning environment. The impression was that physicians comfortable with teaching residents would be equally comfortable and dedicated to teaching PAs. Though both physicians and PAs recognized the role similarity, this study suggests key differences that should influence models describing PA work environments at academic centers.

PAs sensed a greater intimacy between attending and resident physicians than between attending physicians and PAs. This may be attributable to more face-to-face exposure, as physicians and residents frequently interact outside of regular ER shift work. These interfaces occur during a residency program's structured learning environment and include activities like grand rounds presentations, simulation center learning classes, and lectures or small group sessions. Additionally, physicians and residents share a unique epistemology through the mutual experience of medical school and residency. The shared training experience fosters enhanced familiarity between these two groups. In contrast, physicians interviewed admitted limited-to-no understanding of a PA's training or background experience. At its inception, the PA profession was intended to operate in a mentor–protégé model akin to that of attending and resident physicians. This construct may persist in certain practice settings where PAs work with a small number of supervising physicians. This enclosed team structure and intimacy permits the working relationship to crystallize over time. However, larger urban emergency departments employing many attending physicians and PAs make it difficult to develop these one-on-one relationships due to the sheer number of providers. There are solutions for this issue, such as structuring the staffing to match groups of PAs with regular groups of attending physicians, but the reality of frequent turnover makes this a difficult administrative task. In an economical sense, the resident–physician interaction seems to exist in an educational sphere while the PA–physician interaction appears more transactional. Fundamentally, PA–physician relationships, at least in their early stages, are more practical and professional.

Through the course of the interviews, the most influential distinction made between residents and PAs was their role perceptions within the department's division of labor. PAs often identified themselves as professionals who required on-the-job training and learning. There was a consistent expectation that by working at academic medical centers, PAs would be granted near equivalent learning opportunities to those of residents. Participants openly acknowledged the tension this approach might induce as PAs who engage in limited learning opportunities such as invasive procedures might be seen as detracting from the resident educational experience. The view of the PA as a professional learner often clashed with physician study participants, who reported a sense among their peers that PAs were professionals who had completed their training and therefore carried a reduced expectation for dedicated learning opportunities. This expectation also seemed to stem from some physicians' interactions with PAs during their own training. These participants noted that the PAs they worked with during their residency training were older, seasoned providers who had little to no interaction with supervising physicians. As such, these physicians were afraid of offending their PA colleagues by implying they needed or wanted physician oversight. Whether viewing the PAs as professionals who did not need or want learning opportunities or a desire to avoid insulting respected colleagues, the result was the same: PAs had an expectation of additional learning that they were largely not receiving. One would expect this difference between expectation and reality would have negative consequences on the PA's work experience.

PAs and resident physicians have clear functional parallels in the urban, academic emergency medical department setting. The similarities are such that both PAs and

physicians openly acknowledged that PAs are at times indistinguishable from residents during standard departmental workflow. However, PAs and resident physicians differ both in professional and relational status with attending physician colleagues. The physician–resident relationship has a unique mentor–protégé structure built upon mutual experience, training, and understanding inaccessible to the PA. Though an academic medical center is designed for learning at all levels, with the omnipresence of students from various fields, it is particularly geared toward resident physicians. Though PAs identify functionally with residents, this study suggests they are not afforded comparable educational attention. This can position them in competition with residents and may provoke friction between the two groups. It’s also notable that the study emphasizes the outsize influence a physician’s experience with PAs during their residency training has on their long-term work relationships with PAs. It is therefore beneficial to have PAs in academic settings not just for their participation in the system, but also for the benefit of the resident physician learning in a collaborative, multidisciplinary environment. A PA entering this environment with expectations of high-yield learning opportunities will likely be disappointed. Such discontent contributes to provider burnout and excessive staff turnover wherein the cycle further repeats itself. A solution to these issues would be enhanced open dialogue between all parties along with a clearly established and mutually accepted role for PAs that embraces their distinction from resident physicians. The application of the proposed model would further such discussion and provide a clear perception of the driving forces. Further study exploring the unique relationship between PAs and resident physicians is warranted to ascertain the implications of these findings.

Autonomy and Collaboration: A New Paradigm

Autonomy is the degree to which a PA may act in an independent fashion, in both the ordering and interpretation of diagnostic testing and the initiation of therapy. From its inception, the PA profession has operated under a structure of supervised practice. As the brainchild of physicians, the PA profession likely would not exist, nor have the same degree of public acceptance, without the tethering of the PA to the supervision of a physician. However, this study notes that PAs in practice do not appear to simply execute the will of physicians. Rather than being supervisory, the relationship was described by both PAs and physicians as collegial and collaborative. Instead of functioning as an extension of the physician, PAs work closely with their physician colleagues to define their own limitations and forge a mutually agreed upon framework for the PA to practice. In a manner unique to PAs, this framework is amorphous and shifts over time as the PA gains additional experience and trust from the physician. Schneller (1978) expressed that this negotiated autonomy is a type of performance autonomy in that demonstrated competence was the predominate means through which supervising physicians gauged the capacity of PAs. However, this study suggests that it is not just the observation of demonstrated competence that influences this notion; the reality is more nuanced.

The literature review noted how reciprocal influence and power instability within a relationship impacts care delivery in medical teams (Beach & Inui, 2006). Power is related to how one member of a care team, here applied to the PA–physician dyad, can influence or compel the other to alter an outcome or behavior (Comeau-Vallee & Langley, 2019). Traditional understanding suggests the physician wields outsized power within this relationship dynamic as they are regarded as the supervisor within the role

structure. However, this study suggests the power dynamic shifts in unexpected ways. PAs acknowledged that the initiation of the physician's involvement in many circumstances is left to their discretion. This tilts power toward the PA. Once engaged, the physician exerts greater power, but this can also be influenced by their understanding of the PA's competence and background. The reciprocal and iterative nature of this dynamic was reinforced by the study findings. Negotiated order acknowledges that there is not a static order within these systems, but rather an ever-shifting complex system searching for balance (Allen, 1997). This is further in line with the research that shows inter-provider relationships are what produce behaviors both at the micro (individual) and meso (institutional) levels (Bourgeault & Mulvale, 2014; Thompson et al., 2016). Therefore, much of the power in this setting is determined by the act of engagement and the additional variables that contribute to the relationship between the PA and physician. These variables are noted in the resultant conceptual model and include patient complexity, direct inter-provider experience, organizational staffing requirements, and role identities. The conceptualization of the adaptive system generated from this study's findings is reinforced by these links to the research in the literature review.

Participants expressed a generally agreed upon understanding that the final determiner of practice autonomy within their professional structure is the physician. However, the study also reveals that in practice the relationship exists not strictly within a supervisory or collaborative framework. Supervision implies a direct observational quality, as the performance of the PA would be closely scrutinized in real time by the physician. Such a design would be logistically infeasible in a high-volume, urban, academic emergency department. When working in higher acuity settings, often adjacent

to resident physicians, the PA directly interacts with the physician in a performative sense, but it seems rare that direct observation occurs. If not supervisory, then perhaps a collaborative relationship exists within this setting. Collaboration, though, would imply an even exchange between providers with a balanced power dynamic. Yet this study again suggests the collaborative relationship is not rigidly defined and power distribution exists across a dynamic and elastic spectrum. Instead of a blanket structure covering all interactions, the autonomy fluctuates across micro-interactions and can shift with each patient encounter. The general structure of the department and the employing organization frames the PA–physician relationship, which spontaneously adjusts to meet the demands of the physical setting. For example, in higher acuity circumstances with clinically complex presentations, participants described the relationship as highly collaborative and at times approaching supervisory. The PA would typically review their treatment plans with the attending physicians in detail. Some noted at times the physician, or a senior resident, would initiate the diagnostic/therapeutic process prior to the PA's direct involvement. In lower acuity settings PAs would function nearly independently from their physician colleagues. Physician engagement was reserved for circumstances when the PA felt it was necessary. Rather than being supervisory or collaborative, such a structure appears consultative and more akin to a general practitioner requesting the input of a specialist for a condition they may not feel fully equipped to handle. The onus in this circumstance is placed on the PA to proactively engage with their physician colleagues.

The PA–physician dyad in this study proves difficult to define as it is nebulous and dependent on a complex interplay of organizational structure, patient complexity,

emergency department volume, and the individual relationship between the PA and physician. In this context, the negotiation within the negotiated autonomy construct is the process of determining the nature of the relationship itself rather than the specific actions of the PA. It is not a granular process of the PA requesting clearance to perform specific acts within the diagnostic/therapeutic process. Rather, it is a process wherein the PA and physician must decide, naturally and at the point of care, whether their relationship at a particular moment is supervisory, collaborative, or consultative. Given that the relationship between specific providers itself has memory and history, the PA–physician dyad will often traverse through this spectrum and may at times shift from one element to the other but typically with an evolution toward enhanced independence for the PA. A PA who is capable of safely working within the consultative mode would represent the highest degree of efficiency for their employing organization and provide the desired cognitive offloading for their physician colleagues. This is often referred to as a PA practicing at the "peak of their license." The framework created and developed at the conclusion of this study embraces this underlying complexity and identifies variables that can be enhanced and reinforced to evolve the PA–physician dyad in such a fashion to the betterment of the PA, the physician, and their employing organization.

Place and Progression

Beyond the provider role perception and identity, the study findings emphasized the importance of place and progression. Place refers to not just the physical layout of the department itself, but also the organizational structure. This is not to say that proximity and layout are inconsequential. Literature such as Geller et al. (1998) has suggested that written guidelines and the physical proximity of the supervising physician influenced the

capacity of independent PA practice. The findings of this study reinforced this importance, as both PAs and physicians acknowledged that clear practice expectations and roles eliminated ambiguity and set realistic expectations. Findings also affirmed that the proximity of the providers was important, as closer proximity encouraged dialogue between providers. Therefore, organizations should be cognizant not just of the relationship, but of the layout of departments to foster collaboration. Implementation science models such as the CFIR (consolidated framework for implementation research) state that structural and cultural contexts are as influential as individual factors when considering integration of healthcare innovations at the practice level (Damschroder et al., 2009).

Physician and PA participants were in near universal agreement that the primary influencing factor of the PA–physician dyad was organizational framing. Despite this acknowledgment of the organization's central role in influencing how PAs and physicians interact, there was as much consensus that most organizations lacked clarity on what those goals were. PAs and physicians both stated that PA autonomy varied greatly from one organization to the next, but also expressed that this was rarely clearly codified. This left it up to the PAs and physicians to determine, generally through subtle processes like peer modeling, how to perform within a particular organization. A primary finding in this study, reinforced by the Phase 2 focus group findings, is that clarity regarding the PA and physician roles within an organization was paramount. These findings are again further reinforced by implementation science literature as CFIR acknowledges the central role of organizational context (Damschroeder et al., 2009). This

meso-context requires input from all relevant stakeholders so that goals of each appropriately align.

This study reinforces that the notion of place is essential and highly influential on the progression of the PA–physician provider relationship. Chumbler et al. (2001) revealed that the number of years a PA spent practicing with a specific physician had a greater influence on autonomy than just the number of years a PA practiced alone. The findings of this study align with this notion, as both PAs and physicians felt that the progression of the relationship between providers was essential as each became increasingly comfortable with the practice pattern of the other. A sense of competence then is not based solely on an individual's direct clinical experience, but on their clinical experience coupled with the experience of working with the other member of the dyad. There is the individual experience and history gained with medical practice and then there is the relational experience of working with the other individual. It is a reciprocal, iterative relationship that evolves over time and fosters trust. This trust enables the PA's autonomy, as a physician who has direct experience with a PA understands their practice pattern and thus has heightened comfort with their work. In a similar fashion, the PA understands the practice patterns and expectations of their physician colleague and can better align their practice with these expectations. This again displays the progression and evolution of the functional relationship from supervisory, to collaborative, and then ultimately to consultative.

Preparation: Foundations for Success

A central research question of Phase 2 asked how insights into the mechanisms of negotiated autonomy at the point of care would inform the development of onboarding

training programs. Onboarding is the process of transitioning a new-hire employee into a full-time employee at an organization. It is during this process that expectations and practice patterns for an organization are communicated to the new employee. Polansky (2011) suggested that the relationship between the PA and the physician was the most influential aspect of on-the-job learning for PAs. But the expectations for learning from the PA aspect needs to be balanced by how much of an obligation physicians feel toward teaching PAs. This study showed that though physicians regard PAs in much the same way they do residents, the expectation for the need to teach the PA in a similar manner to the resident is not so clear. Morgan et al. (2020) revealed that many new graduates are interested in employment opportunities that will provide them with structured mentorship. PA interview participants reiterated this preference, but also reported a sense that there was not a structure in place to facilitate this type of mentorship in their academic medical center setting. Physicians also expressed there was a lack of structure to support these expectations. A path forward would include the further development and implementation of structured onboarding programs that have been developed but remain without a substantial literature base to support them. Physicians notably focus much of their structured educational attention on resident physicians, which should be expected. A corrective measure in this sense would be encouraging a structured educational system for PAs with physician involvement but with mentorship provided by senior PAs. This would potentially enhance peer modeling while providing junior PAs with a senior PA mentor. Mentorship, particularly from a peer, has been cited as a preferential strategy for onboarding (Anglin et al., 2021).

The theme of preparation emerged, revealing that early career and training impressions for both PAs and physicians were highly influential on future practice patterns. Physicians expressed the notion that their exposure, or lack thereof, to PAs in their residency training framed much of their understanding of PA practice and autonomy. Whatever gaps existed in this understanding were filled by peer modeling and observing the general practice patterns within the department. It was readily acknowledged this was not a clearly communicated notion. Interestingly, PAs did not express having the same degree of peer modeling, mostly because they felt somewhat insulated from their PA peers in practice. Rather, their modeling came from either resident physicians, who fill a similar functional role, or from physicians they held in high regard. For both PAs and physicians, it was felt that there was a gap in the preparation for their functional relationship and thus the relationship generally developed spontaneously. Onboarding training programs would serve the function of clearly communicating roles for both PAs and physicians at the outset. By reducing ambiguity, the iterative process of trust building and reciprocal learning would likely be more efficient and expedite progression of PAs from neophyte providers to practicing at the peak of their license. Such a development would have the dual effect of improving physician cognitive offloading, an element of PA practice that physicians hold in high regard, and increasing departmental throughput. Both developments would be key organizational success.

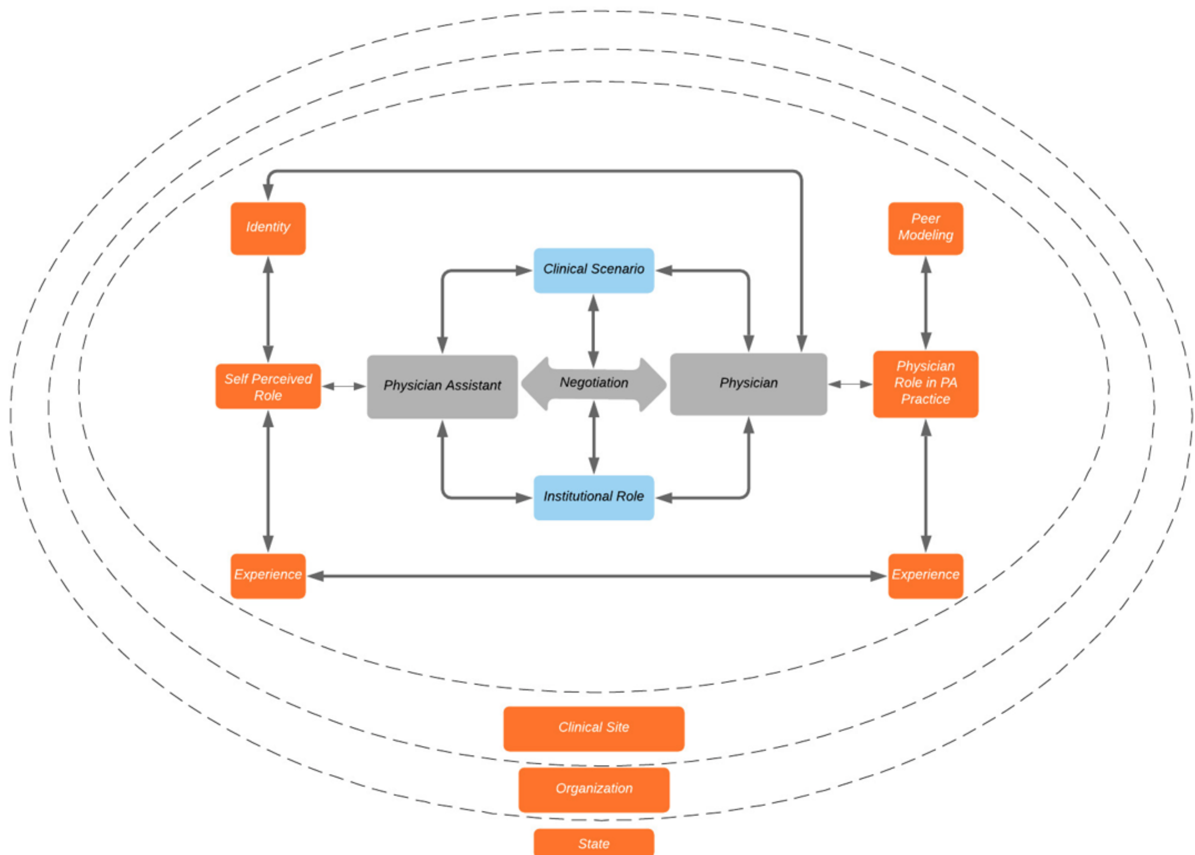
Recommendations

This study translated the experiences and perceptions of practicing PAs and physicians into the first functional model of PA–physician collaboration and negotiated

autonomy. The individual variables and the relationships that link them can be leveraged to design structured onboarding training for new-hire PAs and physicians with the multi-faceted goal of enhancing inter-provider collaboration and improving department efficiency. The proposed framework can also be utilized by organizations to review their current PA–physician practice and collaboration patterns and identify areas for improvement and modification. There is utility even if the utilization of the model only instigates dialogue among PAs and physicians, as a lack of clarity regarding roles and responsibilities was frequently cited among study participants. To review, the model is shown again here:

Figure 7

Framework for PA—Physician Collaboration



Having a clearly defined role at both the organizational level and the personal level is both integral and provider specific. Once the PA–physician dyad is engaged with a clinical scenario (evaluating, diagnosing, and treating a patient) a complex adaptive system its initiated. The negotiation at the center entails the direct collaborative interaction between the PA and the physician. The degree to which that negotiation tilts and carries cognitive weight might shift. For example, a high acuity patient presentation might draw a high degree of scrutiny from the physician and tilt the power dynamic away from the PA. The degree to which this power dynamic shifting occurs would presumably lessen over time as the PA develops increasing competence and comfort asserting themselves. The physician, having observed this competence, would also be more confident in the PA's skill set. This displays how these interrelated elements of the model interact in real time, but attention can also be paid to how this can be translated into practice.

The orange-colored elements and how they interact in the model represent those elements that can be specifically targeted with onboarding training programs and clarified at the organizational level. Specifically clarifying the self-perceived role for PAs and the physician role in practice by clearly delineating these roles at the organizational level would enhance these variables and have a positive effect on PA identity, which also feeds into the relationship the PA has with the physician. "Experience" in this sense is not just the direct encounters of these clinical scenarios, but also those for which the PA–physician team has been specifically trained. The organization can set expectations and roles for providers specific to each clinical site under their purview. Organizations should then seek to establish clearly defined skills and knowledge areas for their PAs with

defined performance benchmarks while also establishing a framework for performance feedback to enable positive progression. The core elements of this model provide the road map for any number of potential interventions. The model also provides varied avenues and variables to target, making it highly versatile. Once the model is implemented, the organization can then enable PAs and physicians to collaborate administratively to identify clinical and administrative leadership ladders for practicing PAs, as this will foster a sense of shared oversight and a career trajectory for PAs while enhancing peer mentorship and role modeling.

A practical example of how these findings could be translated directly into practice would include a review of the model with physician and PA leaders at a particular organization. The resultant discussion would focus on clearly defining the specific role of the PA within the organization including guidance on the acuity level of patients a PA may independently manage. This can consider the background of the individual PA and may be informed by the PA's experience level and institutional knowledge allowing for autonomy growth with increased practice and exposure. Specific guidance would also be provided for physicians regarding the level of competence and skillset they may reasonably expect from PAs within their organization. This can include the level of organizational-specific training provided to the PAs. This training could include a standardized onboarding training program targeted to the organizational role of the PA and tailored to common clinical scenarios they would reasonably expected to independently manage. As PAs advance within the organization, a clear autonomous progression could be defined to include fostering and developing PA-to-PA peer mentorship further enhancing potential career growth opportunities for PAs within the

organization. The proposed model would act as an instigator for dialogue between PAs and physicians, enabling mutually beneficial program development.

Future research should explore the applicability of this model in practice. Specifically, the degree to which it would inform the administration and evaluation of onboarding training should be investigated. Outcomes that may considered in such research would be elements like productivity and retention. It is hypothesized that enhanced PA autonomy would have the effect of improving care delivery and efficiency while also enhancing the work experience of both PAs and physicians. This assertion needs to be further studied to support the application of this type of care model for PAs. If supported, such a model could then be used as a framework for specialties outside of emergency medicine. Provider burnout can be viewed as a key contributing factor to provider turnover. The degree to which a structured, theory-based approach to onboarding training might reduce PA provider burnout would also be a key area of study. PAs, particularly those early in their careers, may have a particular interest in working at academic medical centers. This study suggests that the proximity to resident physicians has compelling implications on PA–physician collaboration, which would also be a realm of potential inquiry. Ultimately, there are myriad areas of potential future study suggested by these findings that require further investigation in order to ascertain their degree of import.

Implications for Translational Health Science Research

The field of translational health science explores how to develop and progress innovations in medical practice from bench to bedside, bedside to practice, and practice to policy. In this study, a gap in the knowledge of PA–physician collaboration was

explored to reveal how this concept could be defined and then translated into a framework to facilitate practice innovation. The knowledge to action framework shows that the development of new knowledge must then be applied in a systematic fashion to facilitate change (Graham et al., 2006). This study is an example of this progression in practice. There was not an established base of literature regarding PA–physician collaboration in the Science-of-Team-Science literature, but there was existing literature regarding the dynamics of dyadic relationships. These were used to inform the design and approach of the study to provide a starting point for theory development. The findings reinforce and contribute to existing organizational theory literature regarding dyadic relationships while supplying a theoretical structure for future translational study of PA practice.

Liden et al. (2016) asserted that the dyad is the primary unit of interpersonal relationships and is greatly influenced by each individual's perceived similarity, value alignment, and respect. This study reinforces this notion, as the degree of alignment regarding the interpersonal role perception was felt to be of key importance. In particular, the emphasis on the bidirectional and dynamic interplay was also reflected in the findings of the study through the shifting relationship between the PA and the physician (Liden et al., 2016). This has also been noted in relationship-centered care models, which have observed the reciprocal nature of dyad interaction that arises from unstable power structures (Beach & Inui, 2006). Though the presented findings in this study align with this notion in a general sense, the nature of the power instability is curious. Power is frequently believed to relate to a disparity of influence (how much one component of the dyad can influence the actions of the other); however, if the PA does not engage directly

with the physician, then the power dynamic shifts toward the PA. This study revealed a progression of the PA–physician relationship as cycling between supervisory, collaborative, and consultative. In a consultative relationship, where the PA engages with the physician only when the PA deems their input is needed, the power dynamic shifts as the capacity for influence rests on the determination of the PA. There are limitations to this capacity, which was noted by physicians when observed performance of the PA does not align with their preconceived notion, leading to a rapid "pulling of the reins" in which the physician reasserts their power in the relationship by restricting the PA's autonomy. This is consistent with the concept of psychological contract breach in the organizational/team science literature that also describes how a sudden reframing of the relationship can occur if there is an unexpected violation of the trust relationship between providers (Zhao et al., 2007).

This study appears to be the first to apply organizational and team-based science concepts to the dyadic PA–physician relationship. Though there are unique facets of the PA–physician relationship, there is consistency with the findings of this study and the proposed nature of professional dyads established in organizational literature (Liden et al., 2016). Translational research generally focuses on how best to integrate and implement practice innovations, but it has been noted to start from observations that exist without a current theory (Austin, 2021). It is therefore necessary for the translational scientist to explore existing literature and develop empirical study of these observations to foster a theory that may then be applied to enable the exploration and application of potential innovations. This study noted a gap in the literature regarding a lack of theoretical grounding for the PA–physician collaborative dyad. Utilizing grounded theory

techniques, a functional model was developed to guide innovations targeting this relationship. It then went a step further by convening an expert panel to anticipate potential applications and modifications. It is an initial blueprint for how translational concepts may be applied to PA–physician collaborative practice and will enable future translational research.

Limitations

This study has several limitations. PA practice extends across the full spectrum of medical care and subspecialties, and each carry unique collaborative structures with physicians. The findings of this study are limited in applicability to emergency medical practice and may be difficult to extend to different specialties. Additionally, urban, academic medical centers are unique areas of practice. Their high patient volumes (when compared to more rural or suburban regions of practice) combined with often high complexity/acuity caseloads inform much of the PA–physician dyad function and would likely have a confounding effect on the application of the model in rural or suburban practice. The study draws from three different clinical sites/organizations. Though this provides a diverse group of practicing PAs, it also potentially limits transferability and introduces a degree of selection bias. As a former practicing emergency medicine PA in an academic medical center, there is additionally potential for confirmation bias as I carry personal opinions regarding PA-physician collaboration in this setting that may have influenced the coding and thematic development. Member checking, self-auditing through memo keeping, and coding review by the methodologist mitigated this concern but did not eliminate it. Participants may also have been subject to social desirability bias wherein they may have responded in a manner they felt was socially acceptable rather

than a reflection of their true feelings. Additionally, Phase 1 participants were aware that they were matched with a physician or PA from their institution. Though the study was careful to ensure confidentiality throughout the process, there is the possibility participants were less open about their opinions out of concern that their opinions might be communicated in some way to their matched participant.

Conclusion

PAs are an essential component of the American medical system infrastructure and are a growing professional group. Despite their widespread and rapidly expanding presence in healthcare, there is a paucity of literature that explores the nature of how PAs practice with their collaborating physicians. There is ongoing dialogue at the state and national levels about how best to leverage PAs in current practice. This study shows the development of a systematic, theory-based understanding of PA–physician collaboration and is the first attempt to create a functional model of negotiated autonomy at the point of care. The potential applications of these findings include enabling conversations among organizations on how better to reinforce PA practice and providing the foundational groundwork for the development and evaluation of PA onboarding training. Furthermore, these findings can be extended to exploring the underpinnings of PA–physician collaborative practice at its essence. The rapid expansion of team-based care models demands further inquiry into how individual providers interact in a rapidly changing healthcare environment. The findings of this study represent a tentative first step toward further exploring this heretofore uncharted realm. Though more research is needed to further validate its potential utility, this new understanding is of great import to medical practice and the PA profession.

References

Allen, D. (1997). The nursing-medical boundary: A negotiated order? *Sociology of Health and Illness*, *18*(4), 498–520. https://doi.org/10.1111/j.1467-9566.1997.tb00415.x

American Academy of Physician Assistants. (2017). *Full practice authority and responsibility survey report: A report to the Joint Task Force on the Future of PA Practice Authority*. https://www.aapa.org/wp-content/uploads/2018/07/fpar-report-state-final.pdf

Anderson, R. A., & McDaniel, R. R. (2000). Managing health care organizations: Where professionalism meets complexity science. *Health Care Management*, *25*(1), 83–92. https://doi.org/10.1097/00004010-200001000-00010

Anglin, L., Sanchez, M., Butterfield, R., Rana, R., Everett, C. M., & Morgan, P. (2021). Emerging practices in onboarding programs for PAs: Strategies for onboarding. *Journal of the American Academy of Physician Assistants*, *34*(1), 32–38. https://doi.org/10.1097/01.JAA.0000723932.21395.74

Austin, C. P. (2021). Opportunities and challenges in translational science. *Clinical Translational Science*, *14*(5), 1629–1647. https://doi.org/10.1111/cts.13055

Bauer, T., Bodner, T., Erdogan, B., Truxillo, D. M., & Tucker, J. S. (2007). Newcomer adjustment during organizational socialization: A meta-analytic review of antecedents, outcomes, and methods. *Journal of Applied Psychology*, *92*(3), 707–721. https://doi.org/10.1037/0021-9010.92.3.707

Bauer, M. S., Damschroder, L., Hagedorn, H., Smith, J., & Kilbourne, A. M. (2015). An introduction to implementation science for the non-specialist. *BMC Psychology, 3*(1), 32. https://doi.org/10.1186/s40359-015-0089-9

Beach, M., & Inui, T. (2006). Relationship-centered care: A constructive reframing. *Journal of General Internal Medicine*, *21*(Suppl 1), S3–S8. https://doi.org/10.1111/j.1525-1497.2006.00302.x

Bechky, B. A. (2011). Making organizational theory work: Institutions, occupations, and negotiated orders. *Organization Science*, *22*(5), 1157–1167. https://doi.org/10.1287/orsc.1100.0603

Bourgeault, I. L., & Mulvale, G. (2014). Collaborative health care teams in Canada and the USA: Confronting the structural embeddedness of medical dominance. *Health Sociology Review*, *15*(5), 481–495. https://doi.org/10.5172/hesr.2006.15.5.481

Bowen, G. A. (2009). Supporting a grounded theory with an audit trail: An illustration. *International Journal of Social Research Methodology*, *12*(4), 305–316. https://doi.org/10.1080/13645570802156196

Brook, C., Chomut, A., & Jeanmonod, R. (2012). Physician assistants contribution to emergency department productivity. *Western Journal of Emergency Medicine*, *13*(2), 181–185. https://doi.org/10.5811/westjem.2011.6.6746

Bushardt, R. L. (2015). Autonomy and accountability. *Journal of the American Academy of Physician Assistants*, *28*(1), 16–17. https://doi.org/10.1097/01.JAA.0000458862.55688.e9

Cawley, J. F., & Bush, E. (2015). Levels of supervision among practicing physician assistants. *Journal of the American Academy of Physician Assistants*, *28*(1), 61–62. https://doi.org/10.1097/01.JAA.0000458869.93806.0d

Center for Practice Improvement & Innovation. (2010). *Hiring a physician assistant or nurse practitioner*. American College of Physicians. https://www.acponline.org/sites/default/files/documents/running_practice/practice_management/human_resources/panp2.pdf

Chiovitti, R. F., & Piran, N. (2003). Rigour and grounded theory research. *Journal of Advanced Nursing*, *44*(4), 427–435. https://doi.org/10.1046/j.0309-2402.2003.02822.x

Comeau-Vallee, M., & Langley, A. (2019). The interplay of inter- and intraprofessional boundary work in multidisciplinary teams. *Organization Studies*, *41*(12), 1649–1672. https://doi.org/ 10.1177/0170840619848020

Chumbler, N. R., Weier, A. W., & Geller, J. M. (2001). Practice autonomy among primary care physician assistants: The predictive abilities of selected practice attributes. *Journal of Allied Health, 30*(1), 2–10.

Coombs, J. M., & Pedersen, D. M. (2017). Crafting a profession: Moving from innovative model programs to a successful national profession. *Journal of the American Academy of Physician Assistants*, *28*(3S), S7–S13. https://doi.org/10.1097/JPA.0000000000000134

Corbin, J., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, *13*(1), 3–21. https://doi.org/10.1007/BF00988593

Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (4th ed.). Sage.

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). Sage.

Damschroder, L., Aron, D., Keith, R., Kirsh, S., Alexander, J., & Lowery, J. (2009). Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implementation Science*, *4*(50), 1–15. https://doi.org/10.1186/1748-5908-4-50

Degeling, P., & Maxwell, S. (2004). The negotiated order of health care. *Journal of Health Services Research and Policy*, *8*(2), 119–121. https://doi.org/10.1258/135581904322987544

Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and factors affecting implementation. *American Journal of Community Psychology*, *41*(3–4), 327–350. https://doi.org/10.1007/s10464-008-9165-0

Field, B., Booth, A., Ilott, I., & Gerrish, K. (2014). Using the knowledge to action framework in practice: A citation analysis and systematic review. *Implementation Science*, *9*, Article 172. https://doi.org/10.1186/s13012-014-0172-2

Foley, G., & Timonen, V. (2015). Using grounded theory method to capture and analyze health care experiences. *Health Services Research*, *50*(4), 1195–1210. https://doi.org/10.1111/1475-6773.12275

Forister, J., & Chlup, D. (2017). Novice physician assistant learning during the transition to practice: A Q study. *The Journal of Physician Assistant Education*, *28*(1), 18–26. https://doi.org/10.1097/JPA.0000000000000102

Freidson, E. (1970). *Profession of medicine: A study of the sociology of applied knowledge*. Harper & Row.

Gelb Safron, D., Miller, W., & Beckman, H. (2006). Organizational dimensions of relationship-centered care: Theory, evidence, and practice. *Journal of General Internal Medicine*, *21*(S1), S9–S15. https://doi.org/10.1111/j.1525-1497.2006.00303.x

Geller, J. M., Weier, A., Muus, K. J., & Hart, L. G. (1998). Understanding the interactions between physician assistants and their supervising physicians in the provision of patient care. *Journal of Allied Health*, *27*(4), 188–195.

Gifford, A., Hyde, M., & Stoehr, J. D. (2011). PAs in the ED: Do physicians think they increase the malpractice risk? *Journal of the American Academy of Physician Assistants*, *24*(6), 36–38. https://doi.org/10.1097/01720610-201106000-00007

Ginde, A. A., & Camargo, C. A. (2010). Trends in midlevel provider utilization. *The Society for Academic Emergency Medicine*, *17*(3), 344. https://doi.org/10.1111/j.1553-2712.2010.00686.x

Graham, I., Logan, J., Harrison, M., Strauss, S., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: Time for a map? *The Journal of Continuing Education in the Health Professions*, *26*(1), 13–24. https://doi.org/10.1002/chp.47

Grover, S. L. (2014). Unraveling respect in organization studies. *Human Relations*, *67*(1), 127–151. https://doi.org/10.1177/0018726713484944

Halter, M., Drennan, V., Chattopadhyay, K., Carneiro, W., Yiallouros, J., de Lusignan, S., Gage, H., Gabe, J., & Grant, R. (2013). The contribution of physician assistants in primary care: A systematic review. *BMC Health Services Research*, *13*, Article 223. https://doi.org/10.1186/1472-6963-13-223

Halter, M., Wheeler, C., Pelone, F., de Lusignan, S., Parle, J., Grant, R., Gabe, J., Nice, L., & Drennan, V. M. (2018). Contribution of physician assistants/associates to secondary care: A systematic review. *BMJ Open*, *8*(6), 2–21. https://doi.org/10.1136/bmjopen-2017-019573

Holden, L. (2005). Complex adaptive systems: Concept analysis. *Nursing Theory and Concept Development or Analysis*, *52*(6), 651–657. https://doi.org/10.1111/j.1365-2648.2005.03638.x

Holt, N. (1998). "Confusion's masterpiece": The development of the physician assistant profession. *Bulletin of the History of Medicine*, *72*(2), 246–278. https://doi.org/10.1353/bhm.1998.0106

Hooker, R. S., Cawley, J. F., & Everett, C. M. (2017). *Physician assistants: Policy and practice* (4th ed.). F. A. Davis Company.

Hooker, R. S., Cawley, J. F., & Leinweber, W. (2010). Career flexibility of physicians assistants and the potential for more primary care. *Health Affairs*, *29*(5). https://doi.org/10.1377/hlthaff.2009.0884

Hooker, R. S., Klocko, D. J., & Larkin, G. L. (2010). Physician assistants in emergency medicine: The impact of their role. *Academic Emergency Medicine*, *18*(1), 72–77. https://doi.org/10.1111/j.1553-2712.2010.00953.x

Katz, J. A. (2017). Optimal team practice: Keeping PAs competitive in the marketplace. *Journal of the American Academy of Physician Assistants*, *30*(6), 1–2. https://doi.org/10.1097/01.JAA.0000516348.35514.09

Kennedy, T. J., & Lingard, L. A. (2006). Making sense of grounded theory in medical education. *Medical Education*, *40*(2), 101–108. https://doi.org/10.1111/j.1365-2929.2005.02378.x

Kidd, V. D., Cawley, J. F., Cloutier, D., & Tankersley, D. (2019). Optimal team practice: The way forward. *Journal of Orthopaedics for Physician Assistants*, *7*(2), e0010. https://doi.org/ 10.2103/JBJS.JOPA.19.00010

LaDonna, K. A., Field, E., Watling, C., Lingard, L., Haddara, W., & Cristancho, S. M. (2018). Navigating complexity in team-based clinical settings. *Medical Education*, *52*(11), 1125–1137. https://doi.org/10.1111/medu.13671

Lang, E., Wyer, P., Eskin, B., Tselios, C., Afilalo, M., & Adams, J. (2007). The development of the Academic Emergency Medicine consensus conference project on knowledge translation. *Academic Emergency Medicine*, *14*(11), 919–923. https://doi.org/10.1197/j.aem.2007.07.002

Laurant, M., Harmsen, M., Wollersheim, H., Grol, R., Faber, M., & Sibbald, B. (2009). The impact of nonphysician clinicians: Do they improve the quality and cost-effectiveness of health care services? *Med Care Res Rev*, *66*(6 suppl): 36S–89S. https://doi.org/10.1177/1077558709346277

Liden, R. C., Anand, S., & Vidyarthi, P. (2016). Dyadic relationships. *Annual Review of Organizational Psychology and Organizational Behavior*, *3*, 139–166. https://doi.org/10.1146/annurev-orgpsych-041015-062452

Liden, R. C., Erdogan, B., & Wayne, S. J. (2006). Leader-member exchange, differentiation, and task interdependence: Implications for individual and group performance. *Journal of Organizational Behavior*, *27*(6), 723–746. https://doi.org/10.1002/job.409

Lotrecchiano, G. R. (2013). The Science-of-Team-Science, transdisciplinary capacity, and shifting paradigms for translational professionals. *Journal of Translational Medicine and Epidemiology, 1*(1), 1001–1009.

Malterud, K. (2001). Qualitative research: Standards, challenges, and guidelines. *Qualitative Research Series*, *358*(9280), 483–488. https://doi.org/10.1016/S0140-6736(01)05627-6

Manson, S. M. (2001). Simplifying complexity: A review of complexity theory. *Geoforum*, *32*(3), 405–414. https://doi.org/10.1016/S0016-7185(00)00035-X

Menchine, M. D., Wiechmann, W., & Rudkin, S. (2009). Trends in midlevel provider utilization in emergency departments from 1997 to 2006. *Academic Emergency Medicine*, *16*(10), 936–969. https://doi.org/10.1111/j.1553-2712.2009.00521.x

Miller, W. L., Crabtree, R., McDaniel, K. C., & Stange, K. C. (1998). Understanding change in primary care practice using complexity theory. *Journal of Family Practice*, *46*(5), 369–376.

Morgan, P., Barnes, H., Batchelder, H. R., Tuttle, B., Covelli, A. F., Everett, C., Jackson, G. L., Anglin, L., Pate, N. O., Dieter, P., & Bludorn, J. (2023). NP and PA transition to practice: A scoping review of fellowships and onboarding programs. *Journal of the American Academy of Physician Assistants*, *36*(12), 1–9. https://doi.org/10.1097/01.JAA.0000991352.36720.09

Morgan, P., Sanchez, M., Anglin, L., Rana, R., Butterfield, R., & Everett, C. M. (2020). Emerging practices in onboarding programs for PAs and NPs. *Journal of the American Academy of Physician Assistants*, *33*(3), 40–46. https://doi.org/10.1097/01.JAA.0000654016.94204.2e

National Commission on Certification of Physician Assistants. (2019). *2018 statistical profile of certified physician assistants by specialty*.

Nelson, M. (2016, March 9). *Stakeholder summit: The first domino*. Physician Assistant Education Association.

Nugus, P. (2019). Re-structuring the negotiated order of the hospital. *Sociology of Health & Illness*, *41*(2), 378–394. https://doi.org/10.1111/1467-9566.12838

Nugus, P., Carroll, K., Hewett, D. G., Short, A., Forero, R., & Braithwaite, J. (2010). Integrated care in the emergency department: A complex adaptive systems perspective. *Social Science & Medicine*, *71*(11), 1997–2004. https://doi.org/10.1016/j.socscimed.2010.08.013

Nugus, P., Greenfield, D., Travaglia, J., Westbrook, J., & Brathwaite, J. (2010). How and where clinicians exercise power: Interprofessional relations in health care. *Social Science & Medicine*, *71*(5), 898–909. https://doi.org/10.1016/j.socscimed.2010.05.029

Nundy, S., & Oswald, J. (2014). Relationship-centered care: A new paradigm for population health management. *Healthcare*, *2*(4), 216–219. https://doi.org/10.1016/j.hjdsi.2014.09.003

O'Brien, B. C., Harris, I. B., Beckman, T. J., Reed, D. A., & Cook, D. A. (2014). Standards for reporting qualitative research: A synthesis of recommendations. *Academic Medicine*, *89*(9), 1245–1251. https://doi.org/10.1097/ACM.0000000000000388

Phillips, A. W., Klauer, K. M., & Kessler, C. S. (2018). Emergency physician evaluation of PA and NP practice patterns. *Journal of the American Academy of Physician Assistants*, *31*(5), 38–43. https://doi.org/10.1097/01.JAA.0000532118.98379.f1

Pittman, P., Leach, B., Everett, C., Han, X., & McElroy, D. (2020). NP and PA privileging in acute care settings: Do scope of practice laws matter? *Medical Care Research and Review*, *77*(2), 112–120. https://doi.org/10.1177/1077558718760333

Polansky, M. (2011). Strategies for workplace learning used by entry-level physician assistants. *The Journal of Physician Assistant Education*, *22*(3), 43–50. https://doi.org/10.1097/01367895-201122030-00008

Pype, P., Krystallidou, D., Deveugele, M., Mertens, F., Rubinelli, S., & Devisch, I. (2017). Healthcare teams as complex adaptive systems: Focus on interpersonal interaction. *Patient Education and Counseling*, *100*(11), 2028–2034. https://doi.org/10.1016/j.pec.2017.06.029

Pype, P., Mertens, F., Helewaut, F., & Krystallidou, D. (2018). Healthcare teams as complex adaptive systems: Understanding team behavior through team members' perception of interpersonal interaction. *BMC Health Services Research*, *18*(570), 1–13. https://doi.org/10.1186/s12913-018-3392-3

Roy, C. L., Liang, C. L., Lund, M., Boyd, C., Katz, J. T., McKean, S., & Schnipper, J. L. (2008). Implementation of a physician assistant/hospitalist service in an academic medical center: Impact on efficiency and patient outcomes. *Journal of Hospital Medicine*, *3*(5), 361–368. https://doi.org/10.1002/jhm.352

Runyon, M. S., Sawe, H. R., Levine, A. C., Pousson, A., House, D. R., Agrawal, P., Osei-Ampofo, M., Weiner, S. G., & Douglass, K. (2013). Clinical and translational research in global health and emergency care: A research agenda. *Academy of Emergency Medicine*, *20*(12), 1272–1277. https://doi.org/10.1111/acem.12268

Sadler, A. M., & Davis, A. (2017). How PAs became licensed to practice in the United States. *Journal of the American Academy of Physician Assistants*, *30*(7), 46–49. https://doi.org/10.1097/01.JAA.0000520540.23452.06

Salancik, G. J., & Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. *Administrative Science Quarterly*, *23*(2), 224–253. https://doi.org/10.2307/2392563

Saldana, J. (2014). Coding and analysis strategies. In P. Leavy (Ed.), *The Oxford handbook of qualitative research* (pp. 581–605). Oxford University Press.

Sawyer, B. T., & Ginde, A. A. (2014). Scope of practice and autonomy of physician assistants in rural versus urban emergency departments. *Academic Emergency Medicine*, *21*(5), 520–525. https://doi.org/10.1111/acem.12367

Schneller, E. S. (1978). *The physician's assistant: Innovation in the medical division of labor*. Lexington Books.

Starr, P. (1982). *The social transformation of American medicine: The rise of a sovereign profession and the making of a vast industry*. Basic Books.

Suchman, A. L. (2006). A new theoretical foundation for relationship-centered care: Complex responsive processes of relating. *Journal of General Internal Medicine*, *21*(Suppl 1): S40–S44. https://doi.org/10.1111/j.1525-1497.2006.00308.x

Svensson, R. (1996). The interplay between doctors and nurses—a negotiated order perspective. *Sociology of Health & Illness*, *18*(3), 379–398. https://doi.org/10.1111/1467-9566.ep10934735

Tavender, E., Bosch, M., Fiander, M., Knott, J., Gruen, R., & O'Connor, D. (2016). Implementation research in emergency medicine: A systematic scoping review. *Emergency Medicine Journal*, *33*, 652–659. https://doi.org/10.1136/emermed-2015-205053

Thompson, D. S., Fazio, X., Kustra, E., Patrick, L., & Stanley, D. (2016). Scoping review of complexity theory in health services research. *BMC Health Services Research*, *16*, Article 87. https://doi.org/10.1186/s12913-016-1343-4

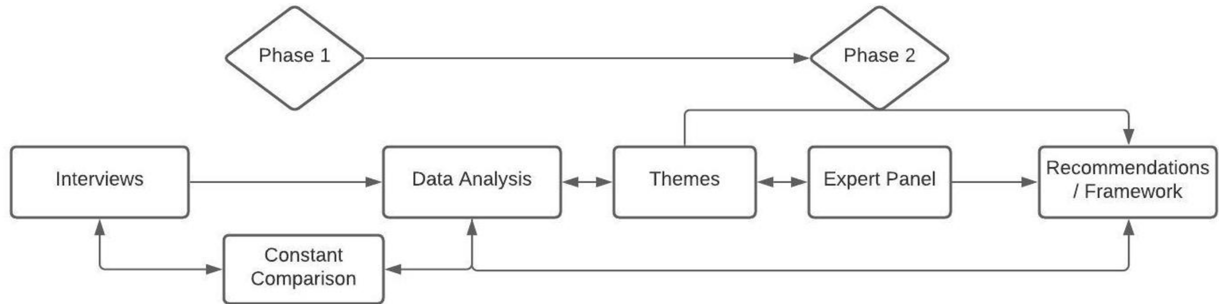
Widmer, M. A., Swanson, R. C., Zink, B. J., & Pines, J. M. (2017). Complex systems thinking in emergency medicine: A novel paradigm for a rapidly changing and interconnected health care landscape. *Journal of Evaluation in Clinical Practice*, *24*(3), 629–634. https://doi.org/10.1111/jep.12862

Wilkinson, S. (1998). Focus group methodology: A review. *International Journal of Social Research Methodology*, *1*(3), 181–203. https://doi.org/10.1080/13645579.1998.10846874

Zhao, H., Wayne, S. J., Glibkowski, B. C., & Bravo, J. (2007). The impact of psychological contract breach on work-related outcomes: A meta-analysis. *Personnel Psychology*, *60*(3), 3647–3680. https://doi.org/10.1111/j.1744-6570.2007.00087.x

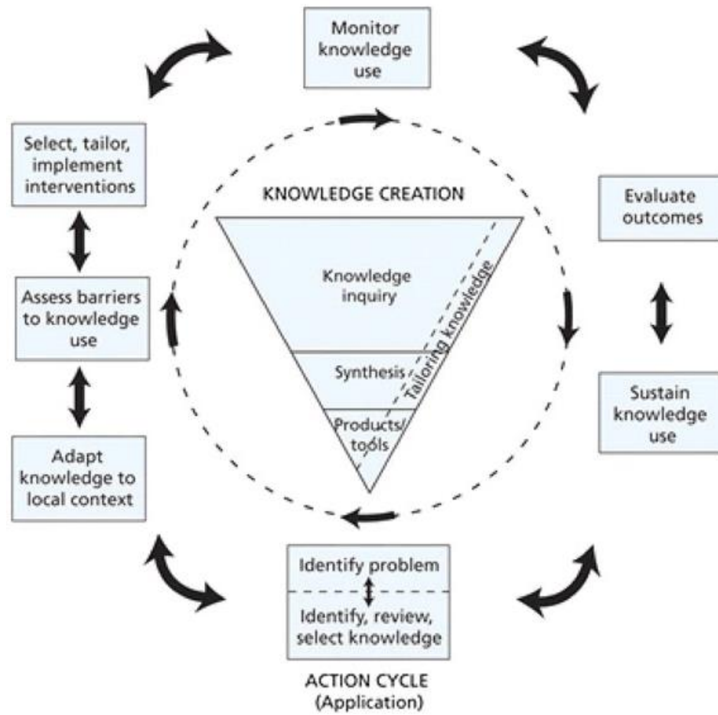
Appendix A

Study Design



Appendix B

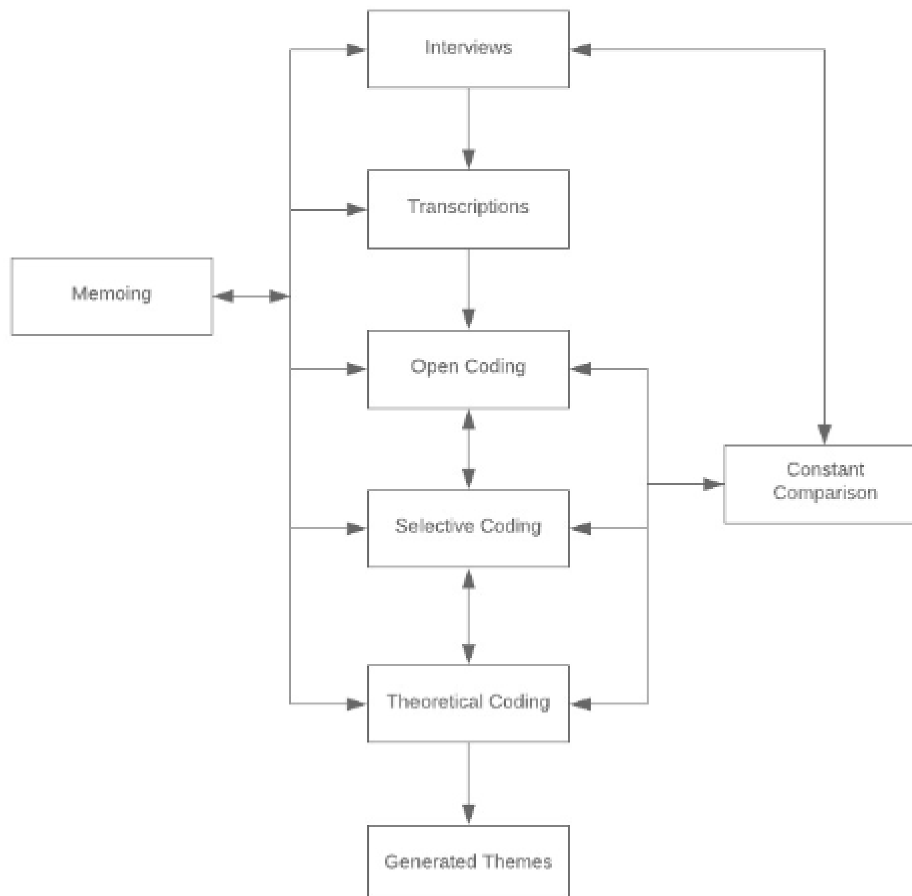
Knowledge to Action Framework



The Knowledge to Action Framework. From Graham I, Logan J, Harrison M, Strauss S, Tetroe J, Caswell W, Robinson N: Lost in knowledge translation: time for a map? *The Journal of Continuing Education in the Health Professions* 2006, 26, p. 19. Reprinted with permission from John Wiley and Sons.

Appendix C

Phase 1 research procedure



Appendix D

Phase 2 focus group guide

My name is Stephen Robie and I'm a physician assistant and doctoral candidate in translational health science at The George Washington University. Today's focus group will explore how the PA–physician relationship can be conceptualized to reflect current PA practice and inform the design of onboarding training for new-hire PAs. For those of you who are not familiar with the term, onboarding is a structured introductory training process with the goal of successfully integrating new-hire PAs into an organization's practice.

Interview Guide: Focus Group (Phase 2)

Focus group interview will focus on the following research question:

- How can insight related to physician assistant and physician collaboration as it relates to negotiated autonomy inform the implementation and integration of new-hire physician assistants in an emergency department?
    - Questions will be refined based on themes derived from Phase 1 findings.
        - What is your experience preparing physicians and PAs to collaborate?
        - How do you determine the level of autonomy to grant new-hire PAs?
            - Do you have training that focuses on interprofessional collaboration?
        - Review of themes from Phase 1 study:

- Based on your experience, how do you feel these themes interact and influence your understanding of PA–physician collaboration?

How do you see these findings influencing new-hire onboarding training of PAs?

Appendix E

Interview Guide: Physician Assistants (Phase 1)

My name is Stephen Robie and I'm a physician assistant and doctoral candidate in translational health science at The George Washington University. Today's interview will explore the phenomenon of physician assistant negotiated autonomy and its implications for current PA–physician collaboration and practice. Physician assistants practice medicine under the supervision of a physician. Their autonomy is determined at the point of care by their physician colleagues through a process referred to as "negotiated autonomy." We are hoping to explore this concept and its implications on PA–physician collaboration and PA practice. You are not required to answer any questions that make you uncomfortable. Participation in this study is voluntary and you may withdraw at any point.

Opening Questions:

- Describe your role in the emergency department.
    - When you were first hired, what kind of department-focused training did you receive?
    - How did your role evolve over the first year?
- What kind of medical experience did you have before going to PA school?

Central Questions (relating to study objectives):

- This study explores how the relationship between physicians and physician assistants during patient care in emergency medical practice influences physician assistant practice.
    - Relationship:

        - Describe how you view the role of the PA–physician relationship in your professional practice.
            - Are you required to staff your patients with the physician?
            - Do you feel that the physician *supervises* you or *collaborates with* you?
        - Are there interpersonal factors that influence your relationship with your physicians?
            - Examples would include age, professional reputation, gender, etc.
        - Does your organization frame or influence the PA–physician relationship in a particular way?
        - Do you work alongside residents?
            - If so, how would you distinguish the PA–physician relationship from the resident/attending physician relationship?
                - How are these relationships similar or different?
    - Process:
        - How do you engage your physician colleagues in your decision-making process?
            - Explore style of engagement: formal vs. conversational.
        - Does the identity of your physician colleague during a shift influence your approach to patient care?

        - How does a patient's clinical presentation influence your process of collaboration?
        - Discuss how self-confidence related to your previous experience influences how you engage with physicians.
            - Does the clinical topic—an example would be a patient with a cardiac complaint—influence this interaction for you?
    - Setting/Context:
        - Describe the layout of your department.
            - Are you stationed in close proximity to your physician colleagues?
            - Does the physical layout of your department influence your interactions?
            - Do you engage in casual conversation during your shifts?

Closing Questions:

- Is there anything else you would like to add?
- How do you envision the future of physician assistant and physician collaboration?

Appendix F

Interview Guide: Physicians (Phase 1)

My name is Stephen Robie and I'm a physician assistant and doctoral candidate in translational health science at The George Washington University. Today's interview will explore the phenomenon of physician assistant negotiated autonomy and its implications for current PA–physician collaboration and practice. Physician assistants practice medicine under the supervision of a physician. Their autonomy is determined at the point of care by their physician colleagues through a process referred to as "negotiated autonomy." We are hoping to explore this concept and its implications on PA–physician collaboration and PA practice. You are not required to answer any questions that make you uncomfortable. Participation in this study is voluntary and you may withdraw at any point.

Opening Question:

- Tell me a little about your personal and educational background.

Central Questions (relating to study objectives):

- This study explores how the relationship between physicians and physician assistants during patient care in emergency medical practice influences physician assistant practice.
    - Relationship:
        - How do you view your role in PA practice?
            - Do you feel you *supervise* or *collaborate with* your PA colleagues?
        - What does trust between you and a PA mean to you?

        - How is it developed?
    - How does the identity of the individual PA influence your interaction?
    - Do you feel your relationship with PAs is similar to your relationship with resident physicians?
- Process:
    - How do you interact with the PAs in your department?
    - Are there patients that your organization *requires* you to be involved with?
    - Who usually initiates the process of collaboration? Does the PA come to you or do you go to the PA?
    - Does the complexity of the patient influence your interaction with the PA?
    - What do you feel is the ideal level of PA autonomy?
    - How would you like to see the process of PA–physician interaction improved?
- Setting/Context:
    - Describe the layout of your department.
        - Are you stationed in close proximity to your PA colleagues?
        - Does the physical layout of your department influence your interactions?
        - Do you engage in casual conversation during your shifts?

Closing Questions:

- Is there anything else you would like to add?
- How do you envision the future of physician assistant and physician collaboration?