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## Exploring Collaborative Practice Agreements Between Nurse Practitioners And Physicians

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# Exploring Collaborative Practice Agreements Between Nurse Practitioners And Physicians

## Abstract

### Purpose

Twenty states, including Florida, require nurse practitioners to maintain a collaborative practice agreement (CPA) with a physician as a component of state occupational licensure. Occupational licensure can raise prices and limit access to services. Details regarding the terms and cost of participation in a CPA for providers are poorly understood. This study addressed three specific aims: 1) Examine the effects of collaborative practice agreements and similar models of health professional regulation on the cost and delivery of health services. 2) Describe variation in the collaborative services provided by physicians to nurse practitioners under collaborative practice agreements and explore associations between nurse practitioner employer, practice setting, and health professional shortage area (HPSA) with no physician terms in the CPA in Florida. 3) Describe variation in the cost of collaborative practice agreements provided by physicians to nurse practitioners and explore associations between nurse practitioner employer, practice setting, and HPSA with payment by the nurse practitioner for the CPA in Florida.

### Methods

A multi-methods study with distribution of an electronic survey to nurse practitioners in Florida with two-steps of recruitment at the Florida Nurse Practitioner Network Annual Conference and via email utilizing publically available licensure. Data analysis included descriptive statistics, chi-squares, and qualitative descriptive methodology.

### Results

Structures of regulation similar to CPAs in various health disciplines increase the cost of health services and decrease the number of health professionals delivering care. CPAs include vague language, and 24% of nurse practitioners in Florida report no terms of physician collaboration in the agreement. Ten percent of nurse practitioners report paying a physician for participation in a CPA. Nurse practitioner self-employment and non-hospital practice setting were associated with no terms for physician collaboration and payment to the physician for participation in the CPA. Collaborative practice agreements with no terms for physician collaboration were associated with payment to a physician for the CPA. Associations with HPSA demonstrate non-significant findings.

### Conclusions

This dissertation increased our understanding of the structure, terms and cost of CPAs in Florida. Variability in the terms and cost of CPAs do not promote equitable conditions for nurse practitioner and physician collaboration.

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EXPLORING COLLABORATIVE PRACTICE AGREEMENTS BETWEEN NURSE  
PRACTITIONERS AND PHYSICIANS

Ashley Z. Ritter

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Nursing

Presented to the Faculties of the University of Pennsylvania

in

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Degree of Doctor of Philosophy

2018

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EXPLORING COLLABORATIVE PRACTICE AGREEMENTS BETWEEN NURSE  
PRACTITIONERS AND PHYSICIANS

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*To Fred, Willa, and Rosalie*

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## ABSTRACT

### EXPLORING COLLABORATIVE PRACTICE AGREEMENTS BETWEEN NURSE PRACTITIONERS AND PHYSICIANS

Ashley Z. Ritter

Julie A. Fairman

Kathryn H. Bowles

#### Purpose

Twenty states, including Florida, require nurse practitioners to maintain a collaborative practice agreement (CPA) with a physician as a component of state occupational licensure. Occupational licensure can raise prices and limit access to services. Details regarding the terms and cost of participation in a CPA for providers are poorly understood. This study addressed three specific aims: 1) Examine the effects of collaborative practice agreements and similar models of health professional regulation on the cost and delivery of health services. 2) Describe variation in the collaborative services provided by physicians to nurse practitioners under collaborative practice agreements and explore associations between nurse practitioner employer, practice setting, and health professional shortage area (HPSA) with no physician terms in the CPA in Florida. 3) Describe variation in the cost of collaborative practice agreements provided by physicians to nurse practitioners and explore associations between nurse practitioner employer, practice setting, and HPSA with payment by the nurse practitioner for the CPA in Florida.

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## Conclusions

This dissertation increased our understanding of the structure, terms and cost of CPAs in Florida. Variability in the terms and cost of CPAs do not promote equitable conditions for nurse practitioner and physician collaboration.

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## CHAPTER 1: INTRODUCTION

### **Introduction to the Problem**

This dissertation explores collaborative practice agreements (CPA) among nurse practitioners in the state of Florida. A CPA is a written agreement between a nurse practitioner and a physician required by law as a prerequisite to patient care delivery by a nurse practitioner (McClellan, Hansen-Turton & Ware, 2010). Collaborative practice agreements should outline the tasks a nurse practitioner may perform such as prescribing medications and the treatment of medical conditions as well as the model and amount of physician oversight of nurse practitioner care delivery (Fauteux, Brand, Fink, Frelick, & Werrlein, 2017). While 20 states require nurse practitioners to maintain a CPA as a condition of occupational licensure (National Council of State Boards of Nursing, 2018), very little is known about the specifics or terms of the agreements, cost to the provider, and application in practice. This dissertation and future studies are necessary and important because professional licensure requirements, in excess of substantiated consumer safety concerns, present opportunities for anticompetitive conduct across disciplines (Federal Trade Commission & United States Department of Justice, 2004).

### **Background and Significance**

Occupational licensure laws vary by state and profession and work best when requirements are only as restrictive as consumer protection requires, facilitating the benefits of market competition while protecting consumers from substantiated safety concerns (Department of the Treasury Office of Economic Policy, Council of Economic Advisors, & Department of Labor, 2015). Occupational licensure laws are intended to

promote transparent information on the quality of service providers while remaining narrowly tailored (Department of the Treasury Office of Economic Policy et al., 2015). Occupational licensure laws more restrictive than what is required to maintain patient safety increase the price of services, decrease the availability of services, and constrain innovative approaches to service delivery (Federal Trade Commission & United States Department of Justice, 2004; Kleiner, 2016).

The specifics of CPAs vary by state. Many states have liberalized nurse practitioner occupational licensure over the past 15 years, removing the requirement for a CPA for the duration of a nurse practitioner's career after a specified period of supervision (Phillips, 2017). However, Florida and 19 other states continue to require nurse practitioners to maintain a CPA (National Council of State Boards of Nursing, 2018). In Florida, a nurse practitioner is required to enter into a CPA with a physician to perform general diagnosis and treatment of medical conditions and to prescribe medications. Details pertaining to the filing and maintenance of CPAs also vary by state. In Florida, agreements are maintained at the nurse practitioner's practice site. The agreements are not filed with the Board of Nursing, thereby bypassing oversight by Nursing (Florida Statutes, 2017). However, Florida physicians participating in a CPA are required to report their CPAs to the Board of Medicine. The state stipulates the number of nurse practitioners and locations the physician may oversee (Florida Statutes, 2010). The degree and method of physician supervision is not defined in Florida statute (Florida Statutes, 2010; Florida Statutes, 2017), with variability in the implementation of physician oversight in practice (Rudner & Kung, 2017).

The terms, or requirements outlined for nurse practitioner and physician responsibilities in a CPA are minimally understood. Collaborative practice agreements

lack standardization across and within states (Phillips, 2017; Rudner & Kung, 2017), although differences across practice setting, provider supply, and different employers have not been evaluated. Each nurse practitioner-physician dyad signs a unique CPA with varying permission, methods of physician oversight, and frequency of oversight. Collaborative practice agreements in areas with few physicians, such as health professional shortage areas (HPSA), community settings, and among self-employed nurse practitioners may create greater barriers to practice than environments with abundant physician services such as specialty practice and hospitals (National Academy of Medicine, 2011).

The National Academy of Medicine, National Governors Association, and the Federal Trade Commission have all raised concerns that CPAs present barriers to the efficient delivery of patient care by nurse practitioners. The *Future of Nursing* report calls for the removal of all regulatory barriers to enable nurses to practice to the full extent of their education and training (National Academy of Medicine, 2011). Amidst an aging population and shortages of health providers in many states, the National Governors Association promotes regulatory reform to enable nurse practitioners to fill gaps in patient care delivery facing their constituents (National Governors Association, 2012). The Federal Trade Commission (2014) promotes further evaluation of nurse practitioner supervision requirements citing evidence of increased efficiency and equitable patient care outcomes in states with fewer regulatory restrictions on nurse practitioner care delivery (Kurtzman, et al., 2017; Perloff, DesRoches & Buerhaus, 2017; Traczynski & Udalova, 2018; Xue, Ye, Brewer & Spetz, 2016). State level studies also highlight the negative financial impact of restrictive nurse practitioner licensure on state economies (Unruh, Rutherford & Schirle, 2016).

## **Gaps in the Literature**

Very few studies explicitly examine CPAs among nurse practitioners and physicians. The CPA is one component of state occupational licensure for nurse practitioners, with similar mechanisms existing for other health professionals. In addition to CPAs, nurse practitioners must also maintain education and certification standards set in each state under occupational licensure requirements. Previous studies compare the effects of restrictive nurse practitioner occupational licensure on the size and productivity of the nurse practitioner workforce. States with less restrictive occupational licensure show increased growth in the number of nurse practitioners (Barnes, et al., 2016; Kuo, Loresto, Rounds, & Goodwin, 2013; Reagan & Salsberry, 2013), increased production of health services by nurse practitioners (Stange, 2014), and decreased healthcare costs compared to states with more restrictive occupational licensure (Kleiner, Marier, Park, & Wing, 2014; Traczynski & Udalova, 2014). Similar trends are noted in other health professions including dental hygienists, certified registered nurse anesthetists, pharmacists, and certified nurse midwives where restrictive occupational licensure mirrors the supervision imposed by a CPA (Adams, Ekelund, & Jackson, 2003; Kalist, Molinari, & Spurr, 2011; Kleiner & Kudrle, 2000; Markowitz, Adams, Lewitt, & Dunlop, 2016; Wing & Marier, 2014). With the exception of Reagan and Salsberry (2013), these studies all examined clusters of restrictive occupational licensure mechanisms, and do not specifically point to the effects of CPAs.

The frequency of physician participation in CPAs and the cost to the nurse practitioners for physician participation are unknown. The few studies that have evaluated CPAs specifically suggest variability in the development of agreements with minimal capacity to improve the quality of healthcare delivery (Fauteux, et al., 2017;

Lowery, Scott, & Swanson, 2016; Rudner & Kung, 2017). Proponents of CPAs state agreements are required to preserve team-based care and to address proposed, though unsubstantiated, consumer safety risks. Commentary pieces suggest the limited capacity of nurse practitioner CPAs to improve the quality of patient care while raising cost and ethical concerns (Fauteux, et al., 2017; Gilman & Fairman, 2014). Although state requirements for CPAs occur in practice across the nation, the details of provider agreements are unregulated (Bakanas, 2010; Fauteux, et al., 2017; Gilman & Fairman, 2014; Tumulo, 2016). Policy-makers and stakeholders need further study of the structure, terms and effects of nurse practitioner CPAs in order to determine how the agreements meet or do not meet standards outlined by the Federal Trade Commission for addressing substantiated consumer risks with narrowly tailored occupational licensure regulations (Federal Trade Commission& United States Department of Justice, 2004).

### **Purpose and Specific Aims**

This study aims to describe the collaborative and financial terms stipulated by CPAs in a sample of nurse practitioners practicing in the state of Florida. Florida provides an appropriate sample for analysis of CPAs as all nurse practitioners in the state are required to maintain a CPA for the entirety of their career. Additionally, licensure records of all health professionals are publically available through the Florida Department of Health - Health Care Practitioner Data Portal (Florida Department of Health, 2017). Evaluation of nurse practitioners in a single state controls for differences in regulatory language across states and facilitates more rigorous sampling as no national listing of all nurse practitioners exists. Development of a comprehensive understanding of regulatory mechanisms like CPAs from the perspective of occupational

licensure and competition policy provide context for the design and implications of this study. The resulting exploratory cross-sectional study examines CPAs via an electronic survey of nurse practitioners in the state of Florida utilizing structured multiple choice questions and free text responses. Using both quantitative and qualitative methodology, descriptive findings provide a foundation of empirical evidence to understand the variation in the terms and cost of CPAs in practice.

This dissertation addresses the following aims in a three paper format:

1. Examine the effects of collaborative practice agreements and similar models of health professional regulation on the cost and delivery of health services.
2. Describe variation in the collaborative services provided by physicians to nurse practitioners under collaborative practice agreements and explore associations between nurse practitioner employer, practice setting, and HPSA with no physician terms in the CPA in Florida.
3. Describe variation in the cost of collaborative practice agreements provided by physicians to nurse practitioners and explore associations between nurse practitioner employer, practice setting, and HPSA with payment by the nurse practitioner for the CPA in Florida.

Chapter Two-Paper One: *Legally Required Supervision of Nurse Practitioners and other Health Professionals*

This paper is a policy analysis derived from an extensive review of the literature to address aim 1. The regulatory mechanisms of supervision between health professionals and researched effects on the cost and delivery of patient care are

deconstructed. The analysis provides background regarding the structure of legally required supervision for nurse practitioners, certified registered nurse anesthetists, certified nurse midwives, dental hygienists, and pharmacists. This paper was submitted for publication to Nursing Outlook in the winter of 2018, received a favorable peer review and is currently being revised for resubmission.

Chapter Three-Paper Two: *Variation in Terms of Collaborative Practice Agreements between Nurse Practitioners and Physicians.*

This paper addresses aim 2 and provides a description of the provider terms of participation in a CPA. Analysis of text and structured responses provides description of nurse practitioner and physician terms for collaboration under a CPA. Association between nurse practice environment, employer, and HPSA with the absence of physician terms for collaboration in the CPA are examined. This manuscript is prepared for submission to Policy, Politics, and Nursing Practice.

Chapter Four-Paper Three: *The Cost of Collaborative Practice Agreements between Nurse Practitioners and Physicians.*

This paper addresses aim 3 to provide the first empiric information regarding the proportion of nurse practitioners who pay for their CPA, the structure of payment for their CPA, and variation in the cost of the CPA. Nurse practitioners who pay for their CPA are compared to nurse practitioners who do not pay for their agreement. Associations between employer, practice setting, and HPSA with payment for a CPA by the nurse practitioner are explored. The average cost to a nurse practitioner to maintain a CPA in the state of Florida is calculated. This paper is prepared for publication to the Journal of Nursing Regulation.

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## CHAPTER 2: LEGALLY REQUIRED SUPERVISION OF NURSE PRACTITIONERS AND OTHER HEALTH PROFESSIONALS

### **Abstract**

**Background:** The use of legally required supervision occurs across health professionals who provide similar services. Legally required supervision has the potential to disrupt the production of high quality, cost efficient, accessible health services across disciplines.

**Purpose:** This paper examines the effects of nurse practitioner collaborative practice agreements and similar models of health professional regulation, defined as legally required supervision, on the cost and delivery of health services.

**Methods:** A policy analysis examines empirical, policy, and law literature between two health professionals providing a similar service. Analysis includes literature on dental hygienists, dentists, certified registered nurse anesthetists, midwives, nurse practitioners, physicians and pharmacists.

**Discussion:** A framework for legally required supervision across health professionals is presented. Antecedents of legally required supervision include occupational licensure, reimbursement policy, and institutional policy. Legally required supervision inhibits provider entry to practice and the production of health services by supervised providers. The cost of care increases under legally required supervision. Costs are measured by wages for providers and the price of services for patients.

**Conclusion:** This paper and proposed framework summarize the antecedents and consequences of legally required supervision. Discipline specific antecedents and provider characteristics must be considered when calculating the full effect of legally required supervision on the delivery and cost of health services.

Keywords: competition, legally required supervision, nurse practitioner, regulation, occupational licensure

## Introduction

The capacity of qualified providers to deliver timely, safe, and efficient health services against the backdrop of an aging population, rising healthcare spending, and disparities in healthcare access relies upon the regulatory framework. The scope of services health professionals are trained to provide often overlap. A variety of providers in addition to physicians and dentists are trained to provide oral health screenings, the management of medication regimens, and primary health care. Regulatory requirements often influence the application of a professional's skills in practice. Regulatory requirements that necessitate one group of professionals to oversee the practice of another professional with the skills and training to provide a similar service are referred to as legally required supervision. Legally required supervision exceeding what is required to protect patients weakens the economic and non-cost benefits of healthy competition between health service providers (Gilman & Fairman, 2014; Kleiner, 2016). This paper deconstructs what is currently known about legally required supervision in healthcare to develop a framework for examining its effects on the delivery of health services and the cost of care.

Legally required supervision refers to all relationships where one health professional is required to oversee the practice of another professional as a condition of service delivery. The terms supervise, delegate, collaborate, and consult are all used within various laws and regulations to define the terms of a supervisory relationship between two healthcare providers (McClellan, Hansen-Turton, & Ware, 2010; Phillips, 2017; Safriet, 1992). Collaborative practice agreements, a common mechanism of legally required supervision across health professionals, define the terms of supervisory relationships between providers. Nurse practitioners and pharmacists often have written

collaborative practice agreements outlining a relationship with a supervising physician (Adams & Weaver, 2016; Albert, 2012; Fauteux, Brand, Fink, Frelick, & Werrlein, 2017). Other disciplines such as certified registered nurse anesthetists and dental hygienists may not have a written agreement, but state, federal, and/or institutional regulations require a supervisory relationship (Kalist, Molinari, & Spurr, 2011; Wing & Marier, 2014). Legally required supervision results from both written collaborative practice agreements and other regulations that require one type of professional to supervise or oversee another type of professional.

In the absence of consumer safety concerns, the availability, willingness, and cost of entering legally required supervision with a supervising provider could potentially disrupt the distribution of supervised health professionals and subsequently the cost of care, especially in areas with shortages of providers. Service delivery remains dependent on supervising providers despite their availability and willingness to participate in legally required supervision, potentially influencing where and how supervised providers deliver health services. Regulatory models in excess of what is required to protect consumer safety hinder competition between providers that promote lower prices, foster innovation, and improve the quality of services (Federal Trade Commission & United States Department of Justice, 2004). Overall costs theoretically increase in markets with disrupted competition (Department of the Treasury Office of Economic Policy, Council of Economic Advisors, & Department of Labor, 2015; Federal Trade Commission & United States Department of Justice, 2004). A robust pool of literature demonstrates the effects of restrictive licensure regulations on the production of services as outlined above, although examinations focus on single disciplines and are not always germane to the delivery of health services.

This policy analysis provides a summary of the effect of legally required supervision among health professionals who provide a similar service on the delivery and cost of health care. To complete this policy analysis, a literature review focused on the intersection of occupational licensure, scope of practice, and legally required supervision within the peer reviewed and gray literature of health professionals. The use of keywords and MeSH terms included literature published in the United States from the year 2000 to the present. CINAHL, PubMed, Healthstar, ABI/INFORM, Lexisnexis, and Web of Science were searched using a combination of search terms including agreement, collaborate, collaboration, advanced practice, cost, policy, nurse, nursing, non-physician provider, cooperative behavior, physicians, economics, regulation, occupational license, and licensure. Gray literature was searched again with the assistance of Google Scholar. Relevant references were also pulled from review articles yielded from search terms.

Peer reviewed and gray literature on this topic spans professional boundaries including economics, law, policy, politics, and clinical care. Law and review articles provide a sweeping overview of the complex structures of occupational licensure, competition policy, and the structure of legally required supervision in various health disciplines. Empirical studies, most of which are peer-reviewed, are critically analyzed to derive the effects of legally required supervision on the delivery and cost of health services. Providers include nurse practitioners, certified registered nurse anesthetists, certified nurse midwives, dental hygienists, dentists, pharmacists and physicians who all demonstrate elements of legally required supervision. Physician assistants are notably absent in this analysis. Requirements for physician assistant legally required supervision in all states preclude empirical studies of the effect of regulations for physician assistants

with and without legally required supervision (Scope of Practice Policy, 2018). The resulting framework describing the antecedents and consequences of legally required supervision among health professionals is presented in Figure 1.

### **Antecedents of Legally Required Supervision**

Legally required supervision results from various policies that require supervision of one health professional by another health professional (Gilman & Fairman, 2014; Kleiner, 2016). Antecedents inducing legally required supervision include occupational licensure, reimbursement policy, and institutional policy. For some professionals, all three mechanisms give rise to legally required supervision. Review of the laws and regulations that result in legally required supervision provides background on the structure of occupational licensure, reimbursement policy, and institutional policy as well as how they are related.

#### **Occupational Licensure**

Health professionals in many states practice under legally required supervision as a condition of state occupational licensure. More than 80% of health professionals maintain an occupational license (Kleiner, 2016). Occupational licensure defines standards for entry into a given profession in a specific state (Federal Trade Commission, & United States Department of Justice, 2004). The rationale for occupational licensure rests on the premise that setting the minimum qualifications for education, certification, and training required to practice protects the public from low quality providers and associated harm (Department of the Treasury Office of Economic Policy, et al., 2015; Federal Trade Commission, 2014). Prior to obtaining occupational licensure, individuals must first provide evidence of training and skills in the form of

academic degrees and/or professional certifications to the respective state regulatory body (Department of the Treasury Office of Economic Policy, et al., 2015). State occupational licensure laws are often more restrictive than the skill sets a healthcare professional is trained and competent to perform, and vary significantly across states (Gavil & Koslov, 2016; Kleiner, 2016).

Occupational licensure requirements to maintain a collaborative practice agreement present one example of legally required supervision. A collaborative practice agreement is a written agreement between two providers that outlines the services a supervised professional may provide at a particular time and place, and the terms of involvement of the supervising professional (Albert, 2012; McClellan, et al., 2010; Mertz, Lindler, & Dower, 2011). For example, occupational licensure regulations require nurse practitioners to maintain legally required supervision via a collaborative practice agreement in 20 states (National Council of State Boards of Nursing, 2018). Pharmacists also maintain collaborative practice agreements with a physician in some states to prescribe and manage medication therapy (Adams & Weaver, 2016; Albert, 2012). Dental hygienists must maintain a written collaborative practice agreement with a dentist in some states, though not in all states (Mertz, Lindler, & Dower, 2011). Supervised professionals are unable to provide health services without a collaborative practice agreement when required by occupational licensure. Little information about the development, terms, and maintenance of collaborative practice agreements exists.

### **Reimbursement Policy**

Payment models directly impose legally required supervision when professionals are unable to bill for services without involvement of another professional.

Reimbursement policies defined by Medicare, Medicaid, commercial insurers, and

various other state and federal statutes determine how providers are paid for the services they perform (Albert, 2012; Chapman, Wides, & Spetz, 2010; Gilman & Fairman, 2014). Reimbursement policies that tether payment for services to the involvement of a supervising provider give rise to legally required supervision (Albert, 2012; Carthon, Barnes, & Sarik, 2015; Poghosyan & Carthon, 2017). For example, reimbursement via Medicare payments for anesthesia care delivered by certified registered nurse anesthetists is linked to physician supervision in 17 states that have not opted out of this supervisory model of practice with anesthesiologists (Quraishi, Jordan, & Hoyem, 2017). Dental hygienists are not permitted to receive direct reimbursement for their services from Medicaid in many states, necessitating involvement of a physician (American Dental Association, 2017). Federal and state reimbursement policies hinder the capacity of pharmacists to directly and independently deliver medication therapy management (Albert, 2012). Health professionals unable to independently bill for services depend upon legally required supervision to preserve their reimbursement for service delivery.

Reimbursement policies often financially favor legally required supervision, though not necessarily efficiency or quality in care delivery. Billing models exist that attribute services provided by supervised providers to supervising providers, often reimbursed at a rate higher than independent billing by the supervised professional (Poghosyan & Carthon, 2017; Quraishi, et al., 2017). Reimbursement policies that favor legally required supervision perpetuate models of care that on a per case basis financially benefit from legally required supervision. Both occupational licensure and reimbursement policy, causes of legally required supervision, influence the delivery and

cost of health services and must be considered when examining the origin of legally required supervision (Barnes, et al., 2016; Kalist, et al., 2011).

### **Institutional Policy**

Institutional decisions on how to employ the workforce of health professionals must comply with requirements of occupational licensure and reimbursement policy. Rigid occupational licensure and reimbursement policy requirements limit the flexibility of institutions to hire and deploy health professionals. Compliance with legally required supervision requires administrative oversight and employment of supervising providers, likely at a considerable cost (Safriet, 1992). Institutions are unlikely to adopt practice models that rely on legally required supervision if compliance with the regulations are complicated or financial efficiency is not possible, creating a barrier to practice entry for supervised providers.

Institutions may implement the requirements of legally required supervision with significant variation in models at the practice level. Institutions may adopt more stringent requirements for legally required supervision than outlined by state occupational licensure or reimbursement policy (Poghosyan, Boyd, & Clarke, 2016). Professional dominance within the institution may precipitate additional requirements for supervision of documentation, order entry, and admitting privileges not specified in occupational licensure or reimbursement policy (Kalist, et al., 2011; Rudner & Kung, 2017). Minimal research has focused on the role of institutions in the implementation of legally required supervision.

## **Consequences of Legally Required Supervision**

Legally required supervision alters the delivery of health services in two general ways - restricting the entry of supervised providers to practice and constricting service production by supervised providers. Supervised providers unable to attain and maintain legally required supervision are not permitted to provide patient care services, thereby limiting the number of those professionals in specific practice settings. The professional tethers introduced by legally required supervision constrain efficiency and flexibility in service delivery, often without demonstrated patient safety benefits (Kleiner & Kudrle; 2000; Kleiner, Marier, Park, & Wing, 2014; Markowitz, Adams, Lewitt, & Dunlop, 2016). Consistent with economic theory, the cost of care increases under legally required supervision. The increased cost of care is demonstrated by higher wages for providers and increased consumer prices across studies of various health professionals (Kleiner & Kudrle, 2000; Kleiner, et al., 2014; Wing & Marier, 2014).

### **Entry of Providers**

Legally required supervision of healthcare providers reduces the number of supervised providers in practice. Legally required supervision may include clauses that delineate geographic proximity to a supervising provider, on-site supervision, charges for supervisory services, or define a specific population of service delivery (Adams & Weaver, 2017; Fauteux, et al., 2017; Phillips, 2017; Rudner & Kung, 2017). Legally required supervision acts as barriers to entry into a given profession or market. Finding a supervising provider to fulfill requirements may prove difficult in areas already facing provider shortages, leading supervised professionals to practice elsewhere or not at all (Gilman & Fairman, 2014; Reagan & Salsberry, 2013).

Legally required supervision also inhibits entry of supervised providers to newer care delivery models across disciplines (Dower, Moore, & Langelier, 2013; Safriet, 1992). The capacity of pharmacists and dentists to enter practice in specific clinical and geographic markets depends upon compliance with legally required supervision, despite unmet patient needs. For example, pharmacists in most states may provide medication management to patients, generally under a collaborative practice agreement (Adams & Weaver, 2016). Pharmacist collaborative practice agreements are authorized at the state level with heterogeneity in the practice protocols, pharmacist autonomy in decision-making, and practice settings where the service can be provided (Adams & Weaver, 2016). As a result, the settings and disease processes for which pharmacists provide medication management directly with patients varies by state (Albert, 2012). In many states, dental hygienists are unable to provide preventative dental services, such as teeth cleaning, outside of a dentist's office (Gilman & Fairman, 2014). The de facto supervision of dental therapists inhibits the expansion of preventative dental services in more convenient and accessible locations by trained providers (Kleiner & Kudrle, 2000).

State laws requiring nurse practitioners to maintain legally required supervision prevent entry of providers required for the expansion of retail clinics (Hoffmann, 2010). Retail clinics save consumers time while opening up appointments in primary care offices for more complex patients. Retail clinics consist of a few patient exam rooms located within a retail establishment, such as a drug store, staffed primarily by nurse practitioners who provide protocol-based treatment from a set list of common health issues. Retail clinics provide lower cost services when compared to traditional care delivery (Spetz, Parente, Town, & Bazarko, 2013). Furthermore, they increase access to care in locations convenient to consumers at highly transparent, affordable prices

(Hoffmann, 2010). As of 2014, more than 1,700 retail clinics operated in the United States (Carthon, Sammarco, Pancir, Chittams, & Wiltse Nicely, 2017). State laws requiring on-site physician supervision of nurse practitioners, geographic proximity to supervising physicians, and limitations on the number of nurse practitioners a physician may supervise constrain wider adoption of retail clinics

Practice environments without legally required supervision demonstrate higher numbers of supervised health professionals delivering patient care services when compared to environments maintaining legally required supervision, specifically among nurse practitioners. In states without legally required supervision, utilization of nurse practitioners in the delivery of primary care services outpaces states with restrictions on practice (Kuo, Loresto, Rounds & Goodwin, 2013; Reagan & Salsberry, 2013; Stange, 2013). Barnes et al. (2016) found the odds of a nurse practitioner working in primary care to be 13% higher in states with full scope of practice and 100% reimbursement of nurse practitioners by Medicaid when compared to states with legally required supervision and inequitable nurse practitioner reimbursement when compared to physicians. Kuo et al. (2013) studied Medicare charges to determine the amount of primary care delivered by nurse practitioners. Patients living in states allowing prescriptive authority and practice without legally required supervision were 2.5 times more likely to have a nurse practitioner as their primary care provider when compared to patients in states with restrictive regulations. Reagan and Salsberry (2013), the only national study looking specifically at legally required supervision via a collaborative practice agreement using the Area Resource File found a 25% reduction in the growth of nurse practitioners providing primary care in states requiring nurse practitioners to

maintain a collaborative practice agreement for prescribing or the diagnosis and treatment of illness.

### **Production of Services**

Legally required supervision limits essential functions of a healthcare provider, altering their ability to produce or deliver health services (Kalist et al., 2011; Kleiner & Kudrle, 2000; Markowitz et al., 2016; Stange, 2014; Wing & Marier, 2014). For example, a nurse practitioner unable to write prescriptions or diagnose and treat patients without the supervision of a physician likely provides a different volume of services than one able to function autonomously. Across the examined disciplines, productivity of health professionals is measured by market share for a given service, working hours per week, and the amount of a given task provided by a given provider (Adams, Ekeland & Jackson, 2003; Kalist et al., 2011; Wing & Marier, 2014). When examining the impact of legally required supervision on the production of health services, the context of the professional is quite important. Practice level characteristics moderate the effect size of legally required supervision on the production of health services by supervised providers. Productivity is moderated by practice level characteristics such as practice model, hospital privileges, academic affiliation, institutional characteristics, gender, prescriptive authority, and level of reimbursement (Adams, et al., 2003; Kalist et al., 2011; Markowitz, et al., 2016). Practice model refers to the heterogeneity of disciplines working together and how they are organized. Hospital privileges refer to the permission granted by an inpatient facility to a provider to independently admit and manage patients. Academic affiliation refers to the presence of a relationship of a provider with a teaching institution. Institutional characteristics include the size and location of a practice.

Insurance claims data are most often utilized to appraise changes in the production of services under legally required supervision (Kleiner, et al., 2014; Kuo, et al., 2013; Wing & Marier, 2014). The total volume of care, who provided the care, and charge for the care are summarized by insurance claims data. Comparisons between supervised and supervising providers are made for specific services that both providers are permitted to perform. Many preventative and routine services were included, such as dental cleaning, well-child visits, and childbirth.

Across disciplines, less restrictive legally required supervision increased productivity of supervised providers. Regulations allowing dental hygienists to perform preventative dental procedures without supervision by a dentist increased production and utilization of basic dental services (Wing & Marier, 2014). Adams and colleagues (2003) found a similar trend among certified nurse midwives, reporting an increased proportion of births attended by certified nurse midwives in states with minimal restrictions when compared to more restrictive states. The regulations deemed restrictive in this study and the following study of certified registered nurse anesthetists included lack of prescriptive authority and legally required supervision by a physician. Kalist et al. (2011) suggests that market share moderates the relationship between restrictive regulations such as legally required supervision and productivity. When the market share of certified registered nurse anesthetists exceeded 50% percent, the efforts of anesthesiologists to limit competition with certified registered nurse anesthetists through physician oversight and other methods decreased (Kalist et al., 2011). This may be due to increased demand for anesthesia services in areas not served by anesthesiologists and the subsequent loss of competitive power of

anesthesiologists as the proportion of service delivery by certified registered nurse anesthetists increases.

### **Cost of Health Services**

Legally required supervision constrains entry to practice and the production of health services by supervised professionals, with a subsequent increase in the cost of care. When fewer providers are able to deliver health services, provider supply and the production of health services remain stagnant despite changes in the demand for services allowing for increased provider wages and service prices (Federal Trade Commission & United States Department of Justice, 2004; Kleiner, 2016). Empirical evidence suggests legally required supervision among health professionals increases healthcare costs across disciplines (Kleiner & Kudrle, 2000; Kleiner, et al., 2014; Wing & Marier, 2014). The regulatory mechanism of legally required supervision is different in each study, although the trends across disciplines are consistent for provider and patient costs. Empirical studies looking at the effects of legally required supervision on the cost of services do so by isolating specific services delivered by two professionals. Cost outcomes include the wages of providers and the prices of services to patients. Econometric studies aim to control for factors that would make two practice environments different. Practice characteristics include prescriptive authority, reimbursement rates, size and specialty of clinical practice, wages and educational attainment (Kleiner & Kudrle, 2000; Wing & Marier, 2014).

Legally required supervision increases the wages of supervising providers and consumer prices. Stricter requirements for legally required supervision of dental hygienists resulted in higher hourly wages for dentists (Kleiner & Kudrle, 2000). Utilizing insurance claims data, Wing and Mariner (2014) note a similar finding in the field of

dentistry, reporting the price of seven basic dental services approximately twelve percent higher under legally required supervision of dental hygienists. Kleiner and colleagues (2014), using national claims data, reported an increase in the price of well-child medical exams by three to sixteen percent in states with legally required supervision of nurse practitioners by physicians. Claims data used in the analysis of cost demonstrate only services that create a claim or bill.

Claims data do not always attribute service provision to the provider who actually delivered the services. For example, many studies utilize claims data to identify nurse practitioner-delivered care, although, claims data only represent services nurse practitioners bill for independently (Barnes et al., 2016; Graves et al., 2016; Kuo et al., 2013; Spetz et al., 2013). Billing practices lacking transparency in the service provider obfuscate the cumulative productivity and cost of services of the supervised provider when claims fall under the supervising provider (Buerhaus, DesRoches, Dittus, & Donelan, 2015; Buerhaus, et al., 2018; Kuo et al., 2013).

It is difficult to calculate how shifts in the production of care by a higher proportion of supervised providers would alter the cost of care delivery. Many studies draw their sample from independent state level files (Hooker & Muchow, 2015; Conover, & Richards, 2015). These studies may not be generalizable, as the projections are based on state-specific and profession-specific data and trends. That said, provider payments by third party insurers represent nearly one-quarter of healthcare expenditures (Centers for Disease Control and Prevention, 2017). Using a more expensive provider in higher proportions increases overall healthcare costs with evidence that costs are passed down to the consumer (Federal Trade Commission & United States Department of Justice, 2004; Kleiner, 2016).

## Discussion

Multiple studies examine the effect of legally required supervision on the delivery and cost of health services across health professionals, including nurse practitioners. Policy levers resulting in legally required supervision include occupational licensure, reimbursement policy, and institutional policy. Legally required supervision impairs entry of supervised providers, decreases production of services by supervised providers, and increases the cost of care evidenced by the price of services and provider wages. Findings across disciplines highlight consistent effects of legally required supervision on the delivery and cost of health services while illuminating discipline specific factors relevant to understanding a single profession and practice setting. Findings inform future investigation of collaborative practice agreements specifically, within the context of regulation and competition policy.

The combined analysis of empirical, policy, review, and commentary papers across disciplines provides a summary and framework of the effects of legally required supervision on the delivery of health services and the cost of care. Figure 1 presents a model relevant across disciplines for further analysis of legally required supervision. Policies that impose legally required supervision via occupational licensure, reimbursement policy, or institutional policies can constrain the delivery of health services utilizing the existing workforce with documented financial impacts. When proposing policy solutions, all antecedents for legally required supervision must be considered.

For many providers, including nurse practitioners, a combination of occupational licensure, reimbursement, and institutional policies result in legally required supervision. Studies often combine all advanced practice nurses including certified registered nurse

anesthetists, certified nurse midwives, clinical nurse specialists, and nurse practitioners. The occupational licensure, reimbursement, and institutional policies for these professionals and subsequent requirements for legally required supervision differ for each group. Analysis of studies distinguishing the type of advance practice nurse demonstrate the intricacies of legally required supervision and additional factors to consider when measuring its effects on service production and cost.

To date, very little research has focused on the development of legally required supervision in practice and the supervisory services being provided to supervised providers. The study by Kalist and colleagues (2011) highlights non-regulatory factors that influence variations in the development of legally required supervision in practice. The supervising provider may exert control of the terms, cost, and the availability of the agreement, as the supervised party is unable to practice without complying with the terms of legally required supervision. Proposals to remove regulatory requirements for legally required supervision are often vehemently opposed by stakeholders who stand to benefit financially or politically from this model of practice. Deleterious consequences on patient safety are most frequently cited, although typically without supporting data, as the reason to maintain legally required supervision. While the effect of legally required supervision on the quality of care is not the focus of this paper, multiple studies recognize the limited capacity of legally required supervision, specifically occupational licensure mechanisms, to improve the quality of care (Dower, et al., 2013; Kleiner & Kudrle, 2000; Kleiner, et al., 2014; Lowery, Scott. & Swanson, 2015; Markowitz, et al., 2016).

Examination of the terms of provider participation in legally required supervision and associated provider costs would provide a more comprehensive understanding of

the capacity of legally required supervision to meet the intended goals of improved patient safety in light of documented shortcomings. The frequency, cost, and model of payment for supervisory services are unknown although anecdotally discussed (Fauteaux et al., 2017). Studies of the structure of legally required supervision suggest variability in the terms and development of collaborative practice agreements (Adams & Weaver, 2016; Rudner & Kung, 2017). No studies have examined the costs of legally required supervision to the supervised provider or institutions hiring supervised providers. Legally required supervision may provide a revenue stream for supervising providers who may charge unregulated or rent-seeking fees for the agreements (Bakanas, 2010; Buppert, 2010). Charges to the employer or supervised professional to maintain legally required supervision could deter providers from entering specific geographic or service delivery markets in spite of demand for services. Recruiting supervised providers could also be deterred by difficulty finding and retaining supervising providers. Financial incentives, professional power, and administrative complexity could impose further restraints in employing supervised professionals.

The use of insurance claims data as a proxy to measure the effect of legally required supervision on the cost and amount of services delivered and by whom likely underestimate the effects of legally required supervision on entry to practice, the production of services, and subsequently the cost of care. Current estimates do not take into account the division of labor in practices employing both supervised and supervising providers and billing that attributes service provision by a supervised provider to a supervising provider. Existing studies also fail to capture the indirect costs prompted by legally required supervision including increased administrative costs for employers, payments to supervising providers, and repeat visits for services dependent upon the

supervising provider and agreement provisions, such as prescriptions or referral to other health professionals when the supervised provider cannot independently provide these services themselves.

Groups such as the Federal Trade Commission, National Governors Association, and National Academy of Medicine encourage further inquiry to determine the least restrictive regulations in each discipline while maintaining patient safety (National Academy of Medicine, 2011; Federal Trade Commission & United States Department of Justice, 2004; National Governors Association, 2012). Evaluation of the effect of legally required supervision via occupational licensure, reimbursement policy, and institutional policy on the quality of services must equally consider those who go without services when barriers to entry and the production of services preclude care delivery to those in the greatest need (Kleiner, 2016).

The majority of empirical studies examine preventative and primary care services, with documented provider shortages in many areas. Legally required supervision may disproportionately affect vulnerable populations where an alternative health professional is not available (Poghosyan & Carthon, 2017). Legally required supervision could substantially limit the capacity of supervised professionals to mitigate shortages of patient care services.

### **Conclusion**

Existing literature suggests that legally required supervision disrupts the delivery of health services by constraining entry of health professionals to practice, decreasing the production of health services, and by increasing cost of care evident in provider wages and service prices. While the policies giving rise to legally required supervision differ by profession, workforce, and market, the effects are evident across disciplines.

The cost of legally required supervision to providers and patients is most often measured in markets where two providers have the skills and training to provide a similar service, such as preventative health care. The implementation of legally required supervision between provider dyads and among employing institutions could further influence the economic market effects demonstrated in existing studies. Increased demand for health services due to population aging and shortages in care providers will only emphasize the need to restructure regulations that impair professionals from utilizing their full set of skills across disciplines and practice settings.

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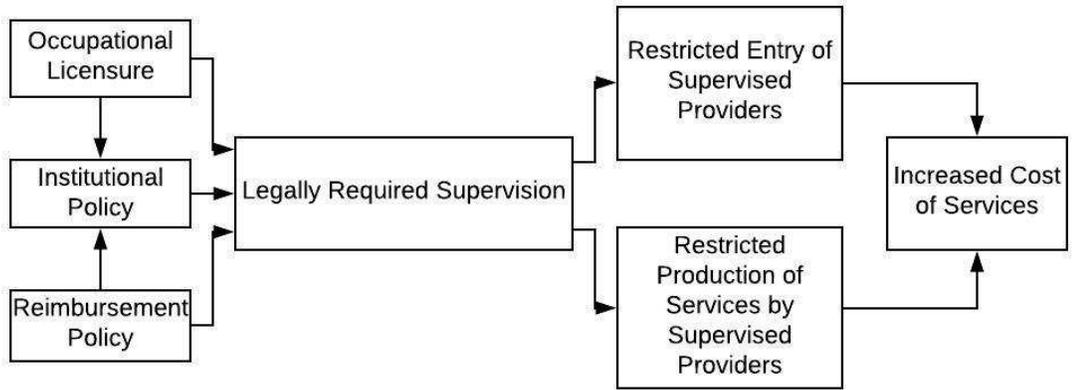
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Figure 2.1

*Legally Required Supervision and the Delivery of Health Services*



## CHAPTER 3: VARIATION IN THE TERMS OF COLLABORATIVE PRACTICE AGREEMENTS BETWEEN NURSING PRACTITIONERS AND PHYSICIANS

### Abstract

**Background:** Nurse practitioner occupational licensure includes a requirement for a collaborative practice agreement (CPA) in Florida and 19 other states. The specific provider requirements in CPAs, terms, are not standardized under state laws presenting opportunity for variation across agreements.

**Main Purpose:** This study explores the terms outlined in CPAs between nurse practitioners and physicians in Florida.

**Methods:** A cross-sectional electronic survey sent to nurse practitioners licensed in Florida. Using mixed methodology, descriptive statistics summarize the terms outlined in CPAs. Free text responses are analyzed using a qualitative descriptive approach. Differences in the terms of CPAs across nurse practitioner practice setting, employer, and health professional shortage area are examined.

**Overall Results:** Responses from 1,444 nurse practitioners demonstrate variability in the terms of CPAs. Collaborative practice agreements describe the duties of the nurse practitioner and collaborating physician, and refer to other mechanisms of credentialing and regulation, although use vague language. Twenty-four percent of respondents reported no physician terms in the CPA. Nurse practitioners in hospitals report no terms for supervision significantly less than those in other settings ( $p < 0.001$ ). Self-employed nurse practitioners report no terms in their CPA twice as often as non-self-employed ( $p < 0.001$ ).

Discussion: Collaborative practice agreements demonstrate variable capacity to deliver collaboration between providers, their intended purpose. Vague language and/or agreements with no terms fail to outline the responsibilities of providers. Variability within a single state jurisdiction suggests CPAs in practice are not narrowly tailored, a tenant of competition policy.

Keywords: nurse practitioner, regulation, collaborative practice agreement, occupational licensure

## Introduction

Collaborative practice agreements (CPA), one component of nurse practitioner occupational licensure required in 20 states including Florida (National Council of State Boards of Nursing, 2018), shape care delivery by nurse practitioners. Collaborative practice agreements are written contracts between a physician and a nurse practitioner that outline tasks, defined as terms, that a nurse practitioner may perform as well as the type and amount of physician involvement in care delivered by the nurse practitioner (Fauteux, Brand, Fink, Frelick, & Werrlein, 2017; McClellan, Hansen-Turton, & Ware, 2010). The Federal Trade Commission, National Academy of Medicine, and the National Governors Association recommend thorough evaluation of nurse practitioner occupational licensing requirements, and removal of restrictions that are superfluous to patient safety concerns amidst shortages in patient care services and an absence of evidence suggesting nurse practitioner care is unsafe (Federal Trade Commission, 2014; National Academy of Medicine, 2011; National Governors Association, 2012). The capacity of CPAs to deliver collaboration between physicians and nurse practitioners remains unknown, necessitating further inquiry into this specific occupational licensure mechanism.

In many states, nurse practitioner practice parameters outlined under state occupational licensure are narrower than their education and training. State occupational licensure regulations define education, training, and practice standards professionals must meet prior to providing a given service and differ in every state (Department of the Treasury Office of Economic Policy, Council of Economic Advisors, & Department of Labor, 2015). While the medical profession describes restrictive nurse practitioner occupational licensure as a needed mechanism to protect patients from low quality

providers, excessive occupational licensure requirements also decrease the number of available service providers (Kuo, Loresto, Rounds & Goodwin, 2013; Reagan & Salsberry, 2013), increase the cost of services (Kleiner, Marier, Park & Wing, 2014; Traczynski & Udalova, 2014), and hinder solutions to alleviating provider shortages (Barnes, et al., 2016; Buerhaus, DesRoches, Dittus, & Donelan, 2015; Xue, Ye, Brewer & Spetz, 2016). A multitude of studies reinforce the demonstrated capacity of nurse practitioners to deliver safe patient care (Kurtzman, et al., 2017; Laurant, et al., 2005; Newhouse, et al., 2011; Oliver, Pennington, Revelle, & Rantz, 2014). Requirements for nurse practitioners to maintain a CPA with a physician for the duration of their career conflict with the tenants of competition policy if they impose restrictions on the delivery of patient care more strictly than patient protection requires or if the regulatory mechanism is inefficient in delivering the proposed improvement to patient safety (Federal Trade Commission, 2014; Gilman & Fairman, 2014).

Florida offers a single regulatory environment for inquiry because it requires all nurse practitioners to maintain a CPA for the duration of their practice for both general practice and prescribing (Florida Statutes, 2017). Additionally, Florida public licensure data facilitates study recruitment from all nurse practitioners (Florida Department of Health, 2017). Florida statute states a written, signed, mutually agreeable CPA must be maintained at the practice location of the nurse practitioner between a nurse practitioner and a physician or dentist (Florida Statutes, 2017). The [sample agreement](#) provided on the Florida Board of Nursing (2016) website may be voluntarily used as a template, or not used at all. Proposed sections of the sample agreement include involved parties, the delineation of terms (nature of practice, duties of the nurse practitioner, duties of the physician, requirements for direct evaluation), and provider signatures.

Very little information exists regarding how CPAs are operationalized in practice and the actual terms explicated in the contracts between physicians and nurse practitioners. National studies of nurse practitioners question the capacity of CPAs to enhance the delivery of patient care via physician collaboration (Lowery, Scott, & Swanson, 2016), although do not address or describe variability in the contracts. The terms outlined in CPAs also vary significantly within states (Rudner & Kung, 2017). The development, maintenance, and terms of CPAs may vary significantly depending upon contextual factors of the physician, nurse practitioner, institution, or specific market (National Academy of Medicine, 2011).

To help fill the gap in knowledge, this study examines the terms that comprise CPAs in the state of Florida, as well as their potential variability across nurse practitioner practice setting, employer, and within Health Professional Shortage Areas (HPSA). Utilizing mixed methods in a cross sectional web-based survey, licensed nurse practitioners in the state of Florida provide description of their CPA terms. Structured multiple choice and unstructured text responses provide additional information regarding the specific structure and terms of CPAs to guide further policy analysis of the benefits and burdens of nurse practitioner CPAs.

## **Methods**

### **Survey Instrument and Reliability Testing**

Experts in nursing, law, and state regulation wrote an initial bank of 129 survey questions based on literature synthesis that reflected nine domains of inquiry representative of themes in the competition, occupational licensure, and nurse practitioner scope of practice literature. A statistician reviewed multiple choice items to

ensure feasible data analysis. A senior qualitative researcher reviewed qualitative probes to assess bias in survey items (Creswell & Plano Clark, 2011). Focus groups with experts in content and survey methodology yielded 83 items. The majority of consolidation in survey items reflect removal of several free text response options and streamlined items based on survey domains.

Ten nurse practitioners with diverse clinical experience and extensive comprehension of state laws participated in cognitive interviewing to assess attitudes toward and comprehension of survey items and to ensure reliability of responses (Groves et al., 2011). Problematic survey items were then discussed. Topics discussed included nurse practitioner recall, item display, and inclusion of two of the nine domains. Subsequently, two domains were removed from the survey, provider reimbursement and employment contracts, due to concern of recall bias and length of the survey. The survey instrument was then built in Qualtrics and reviewed with a Qualtrics expert for survey flow and data management.

The final 48-item survey instrument contains questions on seven domains: 1) nurse practitioner characteristics, 2) practice characteristics, 3) collaborative practice agreement, 4) payment, 5) terms, 6) impact on practice, and 7) maintenance. Instructions provided at the start of each section intend to improve understanding of purpose (Groves, et al., 2011). The survey items are primarily structured multiple choice questions with additional free text qualitative responses for pertinent items to enhance understanding of complex topics (Creswell & Plano Clark, 2011). Throughout the survey, the option "I do not know" is offered to avoid forced response on topics the respondent does not recall (Groves et al., 2011). Using Qualtrics, 54 nurse practitioners from the Robert Wood Johnson Foundation Future of Nursing Scholars program completed the

survey to test reliability of responses, data generation and data management (Groves et al., 2011). Average survey completion time was six minutes. Pilot data distributions were reviewed for systematic response error and missing data. The final survey can be viewed in Appendix A.

## **Sample**

After obtaining approval from the University of Pennsylvania IRB, recruitment of nurse practitioners with an active Florida license occurred using two phases of data collection, in person recruitment at the Florida Nurse Practitioner Network (FNPN) Annual Conference and via email outreach utilizing the public licensure data available through the Florida Department of Health. Figure 3.1 summarizes recruitment through data analysis.

In the first phase, undertaken in August of 2017, nurse practitioners attending the FNPN Annual Conference received information about the survey from the primary investigator in Orlando, Florida and completed the survey while at the conference. The FNPN is the largest professional organization of nurse practitioners across all specialties and settings in the state of Florida with nearly 1,400 members (Florida Nurse Practitioner Network, 2017). Survey distribution with sanctioned participation of a professional organization increases response rates (Dillman, Smyth, & Christian, 2009). Two hundred and four individuals registered for the two-day conference. The sampling frame included 120 nurse practitioners after removing student nurse practitioners, nurse practitioners not in active practice, and those out of state based on conference registration data. Recruitment for the study took place using email outreach to conference attendees at the start of the conference with a link to the survey, announcements each day of the conference at group sessions, distribution of paper URL cards, and availability of a

paper version of the survey (Dillman, et al., 2009). The primary investigator was present on-site for the duration of the conference and entered the paper survey responses, 37 in all, to Qualtrics.

Seventy-five nurse practitioners completed the survey for a 62.5% response rate among this group. For this wave of data collection, a voluntary response box was added for respondents to provide their email address. The email address was utilized to enter respondents into a raffle for a \$50 Visa Gift Card and to remove respondents from the second wave of email outreach. Five individuals chosen by random number received a Visa Gift card at the conclusion of the conference. Conference attendees do not adequately represent all nurse practitioners in the state of Florida, containing disproportionate numbers of specialty nurse practitioners and geographic proximity to Orlando, Florida.

In the second wave of recruitment, a unique link to the same survey instrument was sent via email to all nurse practitioners with an active license in the state of Florida. Ninety-one percent of nurse practitioners in the public licensure file included an email address. Assuming a 10% response rate among roughly 16,000 nurse practitioners actively practicing in the state of Florida with accurate contact information, we expect responses from 1,600 nurse practitioners. This response rate ensures a confidence interval of 95% with a 3% margin of error assuming maximal variation for a single outcome, such as the absence of physician terms in a CPA (Fowler, 2009).

Public licensure data available through the Florida Department of Health, the Registered Nurse- ARNP only file, updated by the state on August 17th, 2017 included all licensed Advanced Registered Nurse Practitioners (ARNP) in the state of Florida defined as nurse midwives, nurse anesthetists, and nurse practitioners and includes the

email and practice address for each individual. This study included only nurse practitioners as the regulatory mechanisms inducing supervision by a physician are different for each discipline at the federal and institutional level (Carthon, Barnes & Sarik, 2015; Poghosyan, Boyd & Clark, 2016). Nurse midwives and nurse anesthetists coded in the file were removed prior to recruitment in addition to nurse practitioners with an inactive license and those practicing only outside the state of Florida. Respondents who completed the survey at the FNP conference were removed using email address identity prior to secondary outreach to prevent repeat responses (Dillman et al., 2009).

Initial email outreach included text on the purpose and significance of the study with a unique link to the survey instrument. Two rounds of follow up to non-responders occurred within a 3-week window to enhance response rates (Dillman, et al., 2009). The use of unique URLs sent via email to each participant allowed completion of the survey only once per participant and facilitated follow up with non-responders (Qualtrics, 2017). All respondents who completed the survey via email were entered in a raffle for five \$50 Visa gift cards with winners chosen by random number.

### **Independent Variables**

Independent variables are factors that may influence the terms of CPAs within a single state, including the practice setting, employer, and geographic location of the nurse practitioner (National Academy of Medicine, 2011). Nurse practitioner practice setting and employer represent institutional factors that may influence the development of CPAs (\*Ritter, Bowles, O'Sullivan, Carthon, Fairman, 2018 (in revision)). Geographic location has an impact on the supply of providers, and differs between nurse practitioner and physicians (Buerhaus, et al., 2015; Graves, et al., 2016). A shortage of physicians in a geographic or practice setting could alter the availability of a collaborating physician

and ultimately the terms of that agreement (Stange, 2013; Gilman & Fairman, 2014). Practice setting and employer are self-reported responses in the survey. Practice setting is defined as hospital, primary care, ambulatory non-primary care (e.g. specialty practice outpatient office, emergency department), and other. Employer is dichotomized to self-employed and non self-employed. The Health Resources and Services Administration classification of HPSA for primary care delineates geographic areas with a shortage of primary health care providers. Health professional shortage areas, reported as a dichotomous variable were calculated using the practice street address provided in the Florida Department of Health licensure file and then linked to respondents using the anonymous response ID.

### **Dependent Variables**

Outcome variables focused on further description of the terms outlined in CPAs. Outcomes include outlined terms of collaboration for the nurse practitioner and physician providers, models of collaboration, and the amount of physician oversight required by the CPA. The model of physician oversight is reported as a multiple choice categorical variable that reflects possible terms, including on-site collaboration, remote collaboration, and documentation review. An additional variable was created, “no terms”, to represent CPAs without nurse practitioner report of physician oversight via on-site collaboration, remote collaboration, or documentation review in the CPA. Data to create the no terms variable came from a structured multiple choice response. To provide further clarity regarding the nurse practitioner terms of collaboration and model of collaboration, free text responses to the question “Please specify the services covered by protocols in your collaborative practice agreement” were analyzed utilizing a

qualitative descriptive approach effective in eliciting a comprehensive understanding of a phenomena from the perspective of the participants (Sandelowski, 2010).

## **Data Analysis**

Mixed methods data analysis included descriptive statistics, qualitative descriptive analysis of selected free text responses, and chi-square testing to detect differences in the response of no physician terms by nurse practitioner practice setting, employer, and HPSA. Bar charts and tables summarize pertinent differences between the terms included in CPAs across groups. Cross tabulations and chi-square testing examining the frequency of no terms by practice setting, employer, and HPSA are reported for statistical significance. For text responses, in-vivo line by line coding by the primary investigator utilizing conventional content analysis produced meaning units derived from the data (Graneheim & Lundman, 2004; Hsieh & Shannon, 2005). Secondary coding allowed categories and subsequently themes to emerge. All coding was reviewed with a research assistant and the dissertation committee to meet consensus on categories and themes (Guba, 1981; Morgan, 2018). Triangulation took place with the Advanced Qualitative Consortium at the University of Pennsylvania School of Nursing (Abboud et al., 2017) to ensure rigor in the approach and reliability of major themes (Hsieh & Shannon, 2005). The combination of methodology provides robust analysis of CPAs to meet the study purpose of describing the terms outlined in the agreements for providers and variability across agreements. Qualtrics, SPSS, and Atlas.ti version 8 software packages aided the process of data analytics.

## **Results**

1,611 participants completed the survey for a response rate of 10.17%. The sample size conservatively achieves a three-point margin of error at a 95% confidence

level (Fowler, 2009). The results of this study summarize the responses of 1,444 nurse practitioners who practice in the state of Florida. The sample demographics are summarized in Table 3.1.

Roughly 90% of the sample is female, consistent with previous studies examining nurse practitioners in Florida (Florida Center for Nursing, 2016; Rudner & Kung, 2017). Population statistic estimates are derived from Florida's Advanced Registered Nurse Practitioner (ARNP) Supply: 2014-2015 Workforce Characteristics and Trends (2016). Sample distribution across age is consistent with the Florida ARNP Supply report (Florida Center for Nursing, 2016). This sample of nurse practitioners reported white race more often, 86.4% versus 69.7% (Florida Center for Nursing, 2016). Over 93% of the sample maintains a national certification.

The sample of nurse practitioners varied by practice setting, employer, and practice within a HPSA. Nurse practitioners in primary care settings comprised 23.4% (n = 335) of the sample. Hospital nurse practitioners accounted for 22.8% (n = 327), slightly less than studies of all ARNPs in the state of Florida (Florida Center for Nursing, 2016). Nurse practitioners working in ambulatory settings such as specialty clinics and emergency departments comprised 21.1% (n = 303) of the sample. The remainder of the sample reported other practice settings including correctional facilities, assisted living facilities, home health, insurance companies, skilled nursing facilities, occupational health, public health, and school health. Ninety-five respondents (6.6%) report self-employment. Roughly 60% (n = 898) of nurse practitioner respondents' practice in a designated HPSA for primary care services.

Four themes derived from qualitative analysis of free text responses guide the display of results and are summarized in Table 3.2. Findings reveal CPAs outline the

duties of the nurse practitioner and the duties of the collaborating physician. The absence of physician terms of supervision within a CPA is significantly associated with nurse practitioner practice setting and employer, though not HPSA. Respondents link terms of the CPA with other forms of credentialing or regulations such as institutional policy and national certification. In many cases, vague language utilized in the CPA result in broad protocols.

### **Duties of the Nurse Practitioner**

Free text responses illustrate the duties of the nurse practitioner outlined by the CPA. The duties of the nurse practitioner denote the population served by the nurse practitioner, procedures the nurse practitioner is permitted to perform, and the formulary of pharmacologic agents the nurse practitioner is permitted to prescribe. Not all responses explicate all three categories. At a minimum, respondents report their CPA outlines the population served by the nurse practitioner. This includes broad populations such as “adult primary care” as well as more specific populations, sometimes only in a specific setting such as “hospital based neonatology services”. Nurse practitioners in primary care and specialty practice describe broad and specific descriptions of procedures. Some respondents broadly describe procedures they are permitted to perform, such as “ICU procedures,” while other are more explicit, using descriptors such as “Vent management, Central lines, Chest tube insertion, Arterial line insertion”. Respondents rarely provided details about prescribing duties in their CPA, although some occasionally list classes of pharmacologic agents they are permitted to prescribe such as psychopharmacology, chemotherapy, and contraceptives.

### **Duties of the Collaborating Physician**

Nurse practitioner respondents specify the method and frequency of physician collaboration as outlined by the CPA more often in structured responses than free text, though the models of physician oversight are consistent across structured survey items and free text responses including on-site or remote oversight and documentation review. The duties of the nurse practitioner (n = 175) are mentioned five times more often than duties of the collaborating physician (n = 35) when examining free text responses. When explicated, respondents explain the duties of the physician with relation to the amount and model of physician oversight of their practice. Free text responses frequently reflect collaboration with the physician on an “as needed” basis. Less frequently, respondents describe very specific parameters for collaboration, such as “The doctor has to sign off on all my orders and consults. We meet on a daily basis to review patient's assessment and plans.”

Structured responses to survey questions reveal varied methods of physician oversight of nurse practitioners. On-site physician collaboration is reported by 36.6% (n = 528) of the sample, 29.6% (n = 428) cite remote physician collaboration. Lastly, 25.7% of respondents (n = 313) report documentation review as a required element of physician oversight outlined in the CPA. Overall, 76% (n = 1097) mention at least one of the above methods of physician oversight outlined in their CPA. Documentation review is the most common service requiring physician oversight by on-site or remote supervision. The amount of documentation review required by the CPA ranged from less than 25% up to 100%, with most respondents, 86% (n = 271) at one extreme value or the other.

### **Associations between Terms and Nurse Practitioner Characteristics**

The absence of terms defining the duties of the collaborating physician, 24% (n = 347) of the sample, are significantly associated with nurse practitioner self-employment

and practice setting, though not practice in a HPSA. Absence of terms is defined as nurse practitioners report of no physician oversight via on-site collaboration, remote collaboration, or documentation review in the CPA. Self-employed nurse practitioners report no terms in their CPA almost twice as often as non self-employed nurse practitioners ( $p < 0.001$ ), shown in Figure 3.2. Fewer nurse practitioners in hospitals report no terms for collaboration when compared to non-hospital settings ( $p < 0.001$ ), shown in Figure 3.3. Nurse practitioners report equal occurrence of no terms in their CPA in HPSAs and non HPSAs (24.2%), shown in Figure 3.4. Additional analysis of HPSA split by practice setting demonstrate nurse practitioners working in hospitals in a HPSA report no terms in their agreement less often than hospital nurse practitioners in non HPSA locations ( $p = 0.009$ ), though non-significant findings persist in the other settings.

### **Reference to another Form of Credentialing or Regulation**

Other forms of credentialing and regulation are cited in the CPA by 70 respondents. Practice authority of the nurse practitioner in some cases defers to practice standards defined by other jurisdictions, such as clinical practice guidelines or institutional privileges. Respondents reference compliance with state regulatory policy such as the Florida Nurse Practice Act and nurse practitioner prescribing of controlled substances in the state of Florida. Federal requirements for practice denoted in the CPA include involvement of the collaborating physician for services a nurse practitioner may not perform under Medicare reimbursement policy such as home health orders and prescribing shoes for people with diabetes. Collaborative practice agreements also list requirements for professional certification, including CPR certification and national nurse practitioner certification to care for a given population.

Reference to institutional policies occur in multiple agreements, with mention of credentialing, professional privileges, and institution specific policies. Respondents describe reference to institutional privileging within their CPA, such as “Services in accordance with the job description and/or delineation of privileges approved by the credentialing committees at each facility.” Reports from nurse practitioners demonstrate instances where CPAs induce greater restrictions than what is outlined in state law. For example, a respondent reported, “Diagnosis and treatment of psychiatric illness excluding prescription of controlled drugs even though allowed by my state.” Legislation passed in 2016 allows nurse practitioners in Florida to prescribe controlled substances beginning January 1, 2017 (Florida Statutes, 2017).

### **Broad Protocols**

The most common finding of qualitative free text analysis describes broad protocols, including indiscriminate respondent language and reference to “loose” or “general” structure when describing the agreement. The words “Interview, obtain history, physical assessment, order diagnostic tests, diagnose, manage care, refer, maintain health record” and “under the general supervision of xxx” without further description do not explicitly define the responsibilities of the nurse practitioner or the collaborating physician within the agreement. Similarly, nurse practitioners often described the services covered in the CPA as “very broad” or “just general things, nothing specific”. The following quotation demonstrates vague language that allows for broad interpretation of the CPA:

“Under the general supervision of xxxxx and his designee, the ARNP may perform medical acts of diagnosis, and develop a treatment plan for such diagnosis, based upon the history, physical examination, assessment and diagnostic findings. These medical acts may take place in several settings,

outpatient, inpatient, volunteer settings, and other health care organizations as deemed necessary by xxxxxx.”

Broad agreements lack details pertaining to the duties of the nurse practitioner and/or the duties of the collaborating physician in the collaborative relationship.

## **Discussion**

This descriptive mixed methods study intended to explain the structure, terms and variability of CPAs between nurse practitioners and physicians. Findings from this study demonstrate extensive variation in the terms of CPAs within a single state.

Variation in the interpretation of what constitutes an appropriate CPA presents opportunity for vague agreements lacking purpose and restrictive agreements that create unfounded barriers to the delivery of patient care. The absence of physician terms within a CPA is associated with practice setting and employer of the nurse practitioner. The lack of nurse practitioner and physician terms, and the use of broad language in CPAs raise further questions about the value of CPAs in assuring patient safety and supporting collaboration between providers.

### **Broad Language of Agreements**

The use of broad language defining the duties of both the nurse practitioner and the collaborating physician in CPAs fails to define the collaborative relationship and thereby weakens the tenants of a well-constructed contract and limits the capacity for this occupational licensure mechanism to protect patients or providers. Broad, vague language utilized in CPAs do meet Florida’s statutory requirements. Instead, broad language tethers nurse practitioners and physicians without demonstrated evidence of standardized benchmarks for collaboration. The American Medical Association posits nurse practitioner CPAs ensure team based care with the inclusion of physicians to protect patient safety (National Academy of Medicine, 2011). Results from this study

demonstrating the vague construction of CPAs further destabilize claims that the presence of a CPA equates collaboration between providers.

### **Variability in Terms**

The variability of terms seen in CPAs indicates that CPAs are based on standards unrelated to state laws. Collaborative practice agreements in Florida demonstrate extensive variability inconsistent with recommendations from the Federal Trade Commission and others to narrowly tailor occupational licensure mechanisms (Federal Trade Commission, 2014; Federal Trade Commission & United States Department of Justice, 2004). Expanding upon the work of Rudner and Kung (2017), this study corroborates substantial variation in the structure and terms of CPAs under ubiquitous state statute requirements. Unlike previous studies, this examination describes the terms of participation in a CPA for both the nurse practitioner and the physician integrating text and structured data to provide a thorough synopsis of this common mechanism of occupational licensure. Significant variation exists in both the permission granted to the nurse practitioner to deliver patient care services and the level of physician involvement in the care delivered by the nurse practitioner. Variation occurs across nurse practitioners educated and certified to provide similar types of services, such as primary care, revealing subjectivity in the terms included in agreements and minimizing the utility of state regulations requiring CPAs.

### **Lack of Terms**

Rarely did the CPAs explicitly address all duties of the health providers referenced in the Florida template agreement (Florida Board of Nursing, 2016). When included, terms outlining the duties of the providers in the CPA only intermittently address the population served by the nurse practitioner, the procedures a nurse

practitioner may perform, the drugs a nurse practitioner may prescribe, the structure of physician oversight, and the amount of physician involvement. Additionally, terms delimiting the duties of the nurse practitioner exceed description of the responsibilities of the physician placing the burden of compliance on the nurse practitioner. Significant associations between the absence of terms for physician supervision and the practice setting and self-employment of nurse practitioners demonstrate the potential influence of extra regulatory factors on the development of agreements. Extra regulatory factors include institutional policies, provider preferences, billing structures, and the supply of providers in a given setting (Kalist, Molinari, & Spurr, 2011; National Academy of Medicine, 2011). In hospitals, CPAs likely fit into a tapestry of regulations embedded in institutional policies including professional privileges, specialty practice, and team-based care. Among self-employed nurse practitioners, CPAs more often lack detail regarding the collaborative roles of the nurse practitioner and physician, suggesting the agreements meet statutory requirements without providing collaborative services.

Provider shortage areas, designated as HPSAs, do not seem to have an influence on the development of CPAs. As HPSAs represent areas with fewer healthcare providers, we expected the decreased supply of providers to promote differences in the terms of the CPA from areas with an adequate number of providers. Non-significant results display an even split between nurse practitioner without terms in their CPA in HPSAs and non HPSAs. When also considering practice setting, nurse practitioners working within HPSAs in a hospital more often report terms in their agreements than non HPSA hospital nurse practitioners. Perhaps, the absence of physicians in hospitals within HPSAs results in structured CPAs formulated by physicians and institutions, minimizing nurse practitioner involvement in negotiations. Nurse practitioners provide

care for a larger number of patients in HPSAs when compared to physicians (Grumbach, Hart, Mertz, Coffman & Palazzo, 2003). Few other studies evaluate nurse practitioner practice in a designated HPSAs, though results support further analysis of this data source and the utilization of nurse practitioners in HPSAs.

### **Limitations**

This study was done in one state among one segment of ARNPs to maximize understanding within a defined regulatory environment. Results in total may not be generalizable to other professional groups or states. Our 10% response rate and sample of 1,444 nurse practitioners adequately addresses variability in the terms of agreements, though may not represent additional perspectives of under sampled groups including non-white nurse practitioners. The cross-sectional data obtained in this study does not allow for causal inference. That said, our descriptive findings and associations inform future research and policy analyses examining the benefits and burden of utilizing CPAs as a mechanism for state occupational licensure to fulfill the purpose of patient safety. This study solicited the perspective of nurse practitioners only. Obtaining the perspective of collaborating physicians and institutions or individuals employing nurse practitioners would further explain the purpose and maintenance of CPAs to other invested stakeholders.

### **Implications**

Collaborative practice agreements between nurse practitioners and physicians in Florida are not consistently defining collaborative services to nurse practitioners, which is their intended purpose. Occupational licensure mechanisms such as CPAs, the most restrictive form of professional regulation (Federal Trade Commission & United States Department of Justice, 2004), with poorly defined terms amplify anticompetitive concerns

of occupational licensure while failing to address patient safety concerns. Collaborative practice agreements without terms also fail to deliver the intended interactive synergistic relationship between providers implied by collaboration and instead may act only as a barrier to patient care services. Broad nurse practitioner CPAs deficient of terms fulfill Florida state requirements, though lack substantive guidelines for the duties of the nurse practitioner and physician engaged in the agreement.

To date, most research around nurse practitioner occupational regulation has focused on state level mechanisms and broad studies looking at occupational licensure as a whole, not an individual feature such as CPAs. Broad examinations may miss critical issues with CPAs that impact access to care and the utilization of the health workforce. Inconsistency in the implementation of state law to regulate practice suggests additional factors influence the development of agreements. Nurse practitioners from Florida report federal and institutional regulatory mechanisms that further constrain practice under a CPA (Carthon, Barnes, & Sarik, 2015). Institutional regulations are likely specific to practice settings, though they have the potential to induce barriers to patient care. Variation in the terms of CPAs have the potential to disproportionately disrupt practice in rural health settings (Graves, et al., 2016) and emerging innovative care delivery models (Auerbach, Chen, Friedberg, Reid, Lau, Buerhaus, & Mehotra, 2013; Spetz, Parente, Town, & Bazarko, 2013). Further evaluation of the development of CPAs in specific practice settings would provide additional knowledge regarding the role of CPAs as well as institutional and federal regulations in shaping care delivery models. The development of CPAs from the perspective of health systems, employers, governmental agencies, physicians, and patients necessitates further evaluation.

## **Conclusion**

Evaluation of the terms included in CPAs in the state of Florida reveal variability and vagueness in the terms of collaboration between physicians and nurse practitioners. State requirements for CPAs do not imply standardized collaboration between providers. Instead, evidence suggests the agreements provide opportunities for broad agreements without purpose or restrictive agreements limiting nurse practitioner care delivery, both of which fail to meet the intended policy goals of narrowly tailored occupational licensure regulations that do not induce harm. Instead, the agreements demonstrate variability within a single state, often lacking details to offset the known risks of restrictive occupational licensure on patient access to care, fluidity of the workforce, and care redesign. Unmet need for health services in Florida and across the country should unite a variety of stakeholders dedicated to improving healthcare access, constraining cost, improving quality, and innovating care delivery. Findings from this study present new evidence relevant to patient care delivery amidst a robust pool of evidence demonstrating the pitfalls of overly restrictive occupational licensure and the demonstrated capacity of nurse practitioner to deliver safe care.

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Figure 3.1

*Participant Recruitment Flowchart*

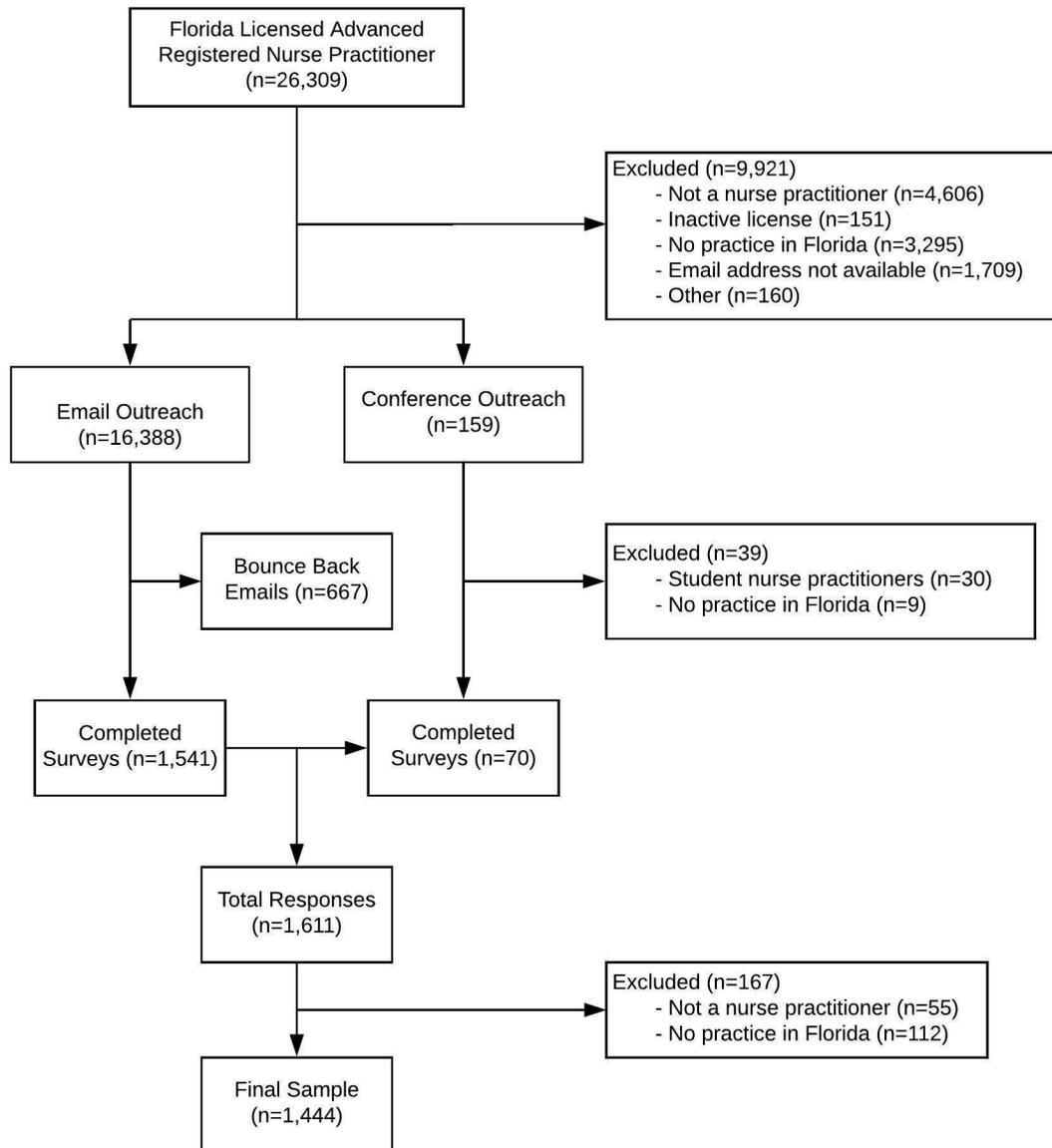


Table 3.1

*Characteristics of Nurse Practitioner Survey Respondents in Florida*

Variable	Sample (%)	Florida Population (%)
Female Gender	89.8	90.8
Age		
Under 40	25.6	29.3
41-60	56.9	54.9
61 and older	17.5	15.8
Race/Ethnicity		
White	86.4	69.7 *
Hispanic	12.4	11.3
Black or African American	9.3	12.2
Asian	3.1	4.4
Practice Setting		
Hospital	22.8	44.3 *
Ambulatory	44.6	31.5
Other †	32.5	18.0

*Note:* Florida population statistics obtained from The Florida Center for Nursing Report, “Florida’s Advanced Registered Nurse Practitioner Supply: 2014-2015 Workforce Characteristics and Trends. Florida population statistics for practice setting are based on all Advanced Registered Nurse Practitioners, including Certified Nurse Midwives and Certified Registered Nurse Anesthetists.

\* signifies statistically significant difference between groups with  $\alpha = 0.05$

† Other is defined as correctional facilities, home health, insurance companies, long term care, occupational health, public health, school health, and other in both the sample and the population.

Table 3.2

*Major Themes of Qualitative Analysis, "Please specify the services covered by protocols in your collaborative practice agreement."*

Theme	Definition	Raw Count
Broad Protocols	Agreement lacking in details with vague language describing the duties of the nurse practitioner or physician or the use of phrases explaining an unspecified agreement	249
Duties of the Nurse Practitioner	Outlines practice responsibilities of the nurse practitioner including but not limited to, population, procedures, and/or prescribing	175
Duties of the Collaborating Physician	Outlines supervision responsibilities of the collaborating physician including but not limited to documentation review, in-person consultation, remote consultation	34
Reference to another form of credentialing or regulation	CPA refers to another method of skill verification including but not limited to educational attainment, national certification, institutional privileges, state law, published clinical practice guideline	70

Figure 3.2

*Percentage of Respondents with No Physician Terms in CPA by Nurse Practitioner Employer*

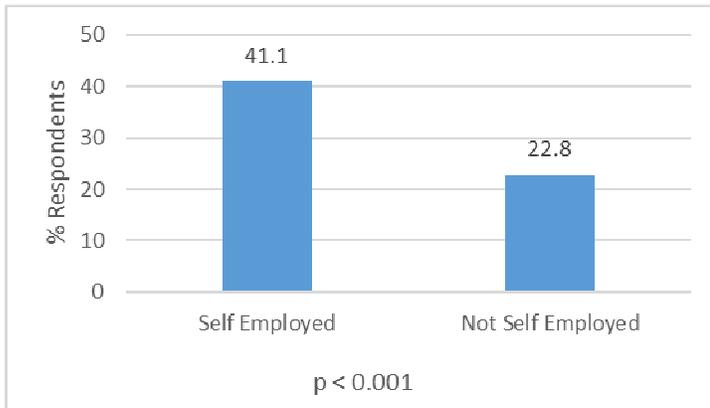


Figure 3.3

*Percentage of Respondents with No Physician Terms in CPA by Nurse Practitioner Practice*

*Setting*

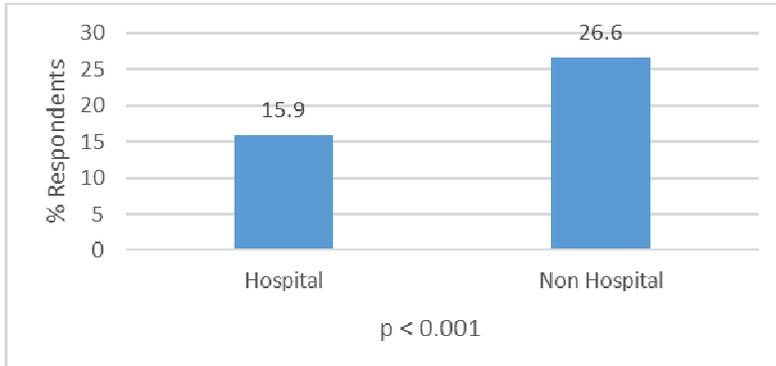
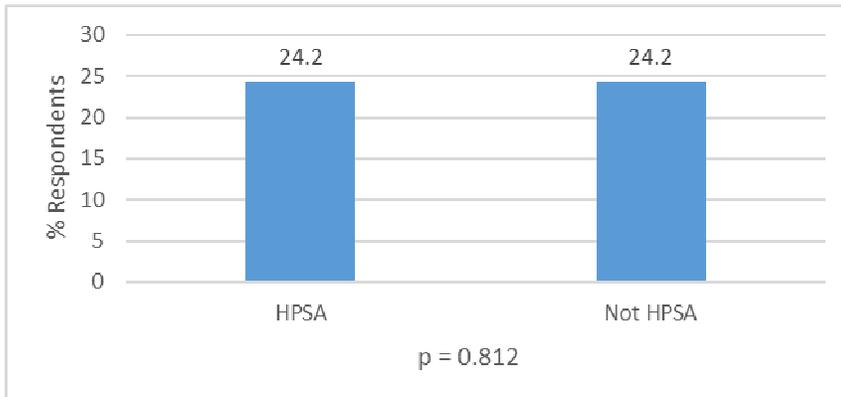


Figure 3.4

*Percentage of Respondents with No Physician Terms by HPSA Designation*



## CHAPTER 4: THE COST OF COLLABORATIVE PRACTICE AGREEMENTS TO NURSE PRACTITIONERS

### Abstract

**Purpose:** This study explores nurse practitioners who pay for their collaborative practice agreement (CPA) by identifying who pays, the structure of payment, and the cost of the agreement to nurse practitioners in the state of Florida.

**Methods:** Multi-methods analysis of multiple choice and free text responses from a cross sectional electronic survey sent to all licensed nurse practitioners in the state of Florida in 2017.

**Results:** 9.2% of nurse practitioners in the state of Florida report payment for their CPA. The proportion reporting payment for a CPA varied significantly among employer and practice setting, though not among health professional shortage area (HPSA). Payment models included monetary fees and service exchange. Nurse practitioners also report payment by their employers to the collaborating physician.

**Conclusions:** Not all nurse practitioners pay for their CPA. Payment occurs more often in non-hospital settings and among self –employed nurse practitioners. Payment can account on average for 10% of the nurse practitioner’s salary.

**Implications:** Payment made by nurse practitioners to physicians for participation in a CPA are not regulated or standardized, and are variously determined, leaving the nurse practitioner susceptible to costs lacking substantiated rationale. Further inquiry regarding indirect costs to the nurse practitioner, cost to the employer, and examination in specific practice settings would advance understanding of this common regulatory mechanism, the CPA.

Keywords: nurse practitioner, collaborative practice agreement, regulation, cost

## Introduction

Nurse practitioner occupational licensure tethers service delivery by a nurse practitioner to physician participation in a collaborative practice agreement (CPA) in 20 states (National Council of State Boards of Nursing, 2018). Written CPAs are intended to define the services a nurse practitioner may provide, the amount of physician involvement in the care delivered by a nurse practitioner, and the structure of physician oversight with the stated rationale of protecting patient safety (McClellan, Hansen-Turton & Ware, 2010). In practice, CPAs often lack details describing the responsibilities of the nurse practitioner and physician limiting their capacity to guarantee interdisciplinary collaboration (Ritter, Bowles, O'Sullivan, & Fairman, 2018; Rudner & Kung, 2017). The potential exists for occupational licensure requirements such as CPAs to create financial relationships between professionals that inhibit efforts to innovate the delivery of health services and decrease overall healthcare costs (Gilman & Fairman, 2014; Kleiner, 2016). Commentary pieces and anecdotal case reports across the country report direct payments made to physicians for participation in a CPA with a nurse practitioner (Bakanas, 2010; Fauteux, Brand, Fink, Frelick, & Werrlein, 2017). Previous studies do not capture the proportion of nurse practitioners paying a physician to participate in a CPA or the structure of compensation, requiring further examination of payment to physicians for participation in CPAs to better understand the role and implications of these agreements in practice.

Occupational licensure defines minimum qualifications for individuals entering a given profession with the stated goal of protecting consumers from unqualified providers (Department of the Treasury Office of Economic Policy, Council of Economic Advisors, & Department of Labor, 2015). In the state of Florida, nurse practitioners must complete an

accredited master's degree program or higher and pass a national board certification exam for a specific patient population prior to applying for occupational licensure (Florida Statutes, 2017). In addition to education and certification requirements, Florida requires nurse practitioners to maintain a CPA with a physician as a component of their occupational licensure for their entire career (National Council of State Boards of Nursing, 2018). Multiple studies demonstrate the safety and efficiency of nurse practitioner care delivery (Kurtzman, et al., 2017; Laurant, et al., 2005; Newhouse, et al., 2011; Oliver, Pennington, Revelle, & Rantz, 2014) and the capacity for nurse practitioners to alleviate unmet patient care needs (Xue, Ye, Brewer, & Spetz, 2016). Conversely, studies across multiple healthcare disciplines demonstrate the capacity of occupational licensure mechanisms like CPAs to constrain the number of health professionals in practice and increase the overall cost of health services (\*Ritter, Bowles, O'Sullivan, Carthon, & Fairman, 2018 (in revision)).

Collaborative practice agreements may facilitate fees paid by nurse practitioners to physicians that create a revenue stream for physicians (Fauteux, et al., 2017; Gilman & Fairman, 2014). Monetary payments or collateral exchanges made to physicians may exceed reasonable charges to provide supervision, and are referred to as economic rents (Furman, 2015). In the state of Florida, payment by nurse practitioners to physicians to participate in a CPA are not regulated and open to institution or provider interpretation and negotiation (Fauteux, et al., 2017; Phillips, 2017). Physicians may refuse to collaborate and are under no obligation to provide collaborative services to nurse practitioners (Buppert, 2010). The regulatory dependence of nurse practitioners on physicians in states that require a CPA create significant costs to state economies, specifically in Florida (Unruh, Rutherford, & Schirle, 2016).

Utilizing multi-method analysis of survey data, this descriptive cross sectional study explores payment for CPAs from the perspective of actively practicing nurse practitioners in the state of Florida. This study aims to understand compensation to the collaborating physician for participation in a CPA. The analysis provides the first structured description of who pays for nurse practitioner CPAs, the frequency of this practice, the method of payment for the CPA, and variation in the cost of the CPA. Associations between nurse practitioner employer, practice setting, and health professional shortage area (HPSA) designation and payment for the CPA are also explored.

### **Methods**

The Institutional Review Board at the University of Pennsylvania approved this study, classified as exempt.

### **Survey Instrument**

Detailed information regarding survey development and reliability testing are extensively described in a recent publication (\*Ritter, Bowles, O'Sullivan, & Fairman, 2018). The 48-item survey instrument designed by this research team utilized primarily structured multiple choice questions with select free text options to minimize recall bias (Groves, et al., 2011). The use of select unstructured free text allowed for descriptive responses to concepts poorly understood in practice, specifically, the model of payment to physicians for the CPA (Creswell & Plano Clark, 2011). Iterative content reliability testing took place via focus groups, cognitive interviewing, and pilot testing prior to data collection (Groves, et al., 2011). Data obtained in section four of the survey, *Payment for*

*Collaborative Practice Agreement*, are discussed in this paper. The Qualtrics platform aided survey distribution and data management.

## **Sample**

All licensed nurse practitioners in the state of Florida are included in the sampling frame, 16,388 individuals in total. Based on pilot data obtained in the reliability testing of the survey, approximately 10% of nurse practitioners pay for their agreement. Analysis in the state of Florida presented an optimal environment for inquiry as Florida requires all nurse practitioners to maintain a CPA with a physician for the duration of their clinical practice as per state occupational licensure regulations (Florida Statutes, 2017). Publically available occupational licensure data in Florida provides a complete listing of all nurse practitioners with a license in the state (Florida Department of Health, 2017). This data set includes the email address and practice address of Florida nurse practitioners, updated on August 17th, 2017. Email contact information is provided for 91% of the study population. Advanced practice nurses in the state of Florida are called advanced registered nurse practitioners (ARNPs). This includes nurse practitioners, certified registered nurse anesthetists, and certified nurse midwives. This study focuses on actively licensed nurse practitioners only as institutional and federal regulations differ for certified nurse midwives and certified registered nurse anesthetists. Nurse practitioners with an inactive license, and those practicing outside of the state of Florida were removed prior to email outreach.

## **Variables**

Independent variables include nurse practitioner practice setting, employer, and practice in a HPSA. Commentary from self-employed nurse practitioners commonly

report payment to physicians for participation in a CPA (Buppert, 2010). Fees charged to nurse practitioners in HPSAs and environments more frequently served by nurse practitioners versus physicians may prevent the delivery of patient care in underserved populations (Gilman & Fairman, 2014). Unregulated fees charged to nurse practitioners for physician participation in a CPA may be driven by institutional and physician preferences (Kalist, et al., 2011).

Respondents self-reported employer and practice setting in structured multiple choice responses. Employer, a dichotomous variable, is defined as self-employed and not self-employed. Practice setting, a categorical variable, includes ambulatory care, hospital, and other. Other practice settings denoted in structured multiple choice responses include correctional facilities, assisted living facilities, home health, insurance companies, skilled nursing facilities, occupational health, public health, and school health. Designation of practice in a primary care HPSA was derived from the practice address provided in Florida's publically available licensure data and dichotomized to yes or no responses. The dependent variable, payment for CPA, was obtained from a structured multiple choice question. Cost per month, a continuous variable, was reported by nurse practitioners who pay for their CPA. We created a new variable to account for the annual cost to the nurse practitioner as a proportion of salary by multiplying cost per month by 12 and dividing by the nurse practitioner's self-reported salary. Qualitative analysis focused on responses to the prompt, "Yes, I pay under a different structure".

### **Data Collection**

Data collection occurred using a two-step approach using in person and email outreach (Dillman, Smyth & Christian, 2009) described in further detail in a previous publication (\* Ritter, Bowles, O'Sullivan, & Fairman, 2018). Mixed-mode survey

approaches include a variety of outreach strategies to ensure responses from a representative group of the population (Dillman & Smyth, & Christian, 2009). In the first approach, the primary investigator attended the Florida Nurse Practitioner Network (FNPN) Annual Conference in August of 2017 and elicited 70 completed surveys, a 58% response rate among this group. The second approach involved unique email outreach to nurse practitioners with an active license in the state of Florida, and took place in October of 2017 utilizing the email address derived from the Florida Department of Health public licensure file. Before sending the email survey, the respondents from the FNPN Annual Conference were removed. Use of a unique link allowed for targeted follow up of non-responders (Qualtrics, 2017). Two rounds of follow up emails sent to non-responders within a 3 week window enhanced response rates (Dillman, et al., 2009). Participants at the FNPN Annual Conference and those recruited via email received the same survey. Five study participants were chosen by random number to receive a \$50 Visa Gift Card at the end of the FNPN conference and again at the close of email outreach.

### **Data Analysis**

Data analysis includes descriptive statistics, cross-tabulations with chi square testing, and a qualitative descriptive approach utilizing conventional content analysis. The software packages Atlas.ti version 8 and SPSS facilitated data analytics. Nurse practitioners who pay for their CPA versus those who do not pay for their CPA are examined across nurse practitioner employer, practice setting, and HPSA. Statistically significant differences between nurse practitioners who pay for their agreement and those who do not are reported utilizing chi-square testing. Fisher's exact test is utilized for cells representing less than five percent of the sample. Fisher's exact test assesses

statistical association between categorical variables without underlying assumptions about the sample distribution. (Moore, McCabe, & Craig, 2014). Nurse practitioners reporting payment for their CPA are further examined to determine the method of payment and the annual amount. Descriptive statistics outline the monetary cost of the CPAs including the interquartile range, mean, and median to demonstrate the range of payment and the cost as a proportion of nurse practitioner annual salary.

Responses from nurse practitioners who pay for their CPA are further examined to determine the mechanism of payment to the physician for participation in a CPA. Responses to the prompt, “Yes, I pay under a different structure” are analyzed using a qualitative descriptive approach. This approach elicits a comprehensive understanding of events from the perspective of participants (Sandelowski, 2010). In-vivo line by line coding produced meaning units derived from the data (Graneheim & Lundman, 2004; Hsieh & Shannon, 2005). Secondary coding by the primary investigator and a research assistant allowed categories to emerge (Morgan, 2017). Triangulation took place with the Advanced Qualitative Collective at the University of Pennsylvania School of Nursing (Abboud, et al., 2017) and the research team to ensure trustworthiness of findings (Hsieh & Shannon, 2005). Differences in coding were discussed to reach consensus (Guba, 1981). A final descriptive summary yields major categories regarding payment structures for CPAs to physicians from the perspective of nurse practitioners.

## **Results**

A sample of 1,611 nurse practitioners achieved a response rate of 10.17%, reaching a three-point margin of error with a 95% confidence interval assuming maximal variation in the practice of paying for a CPA (Fowler, 2009). Of the 1,611 respondents, 1,444 represent nurse practitioners actively practicing in the state of Florida. Of the

1,444 nurse practitioners included in data analysis, 1,365 provide responses to the item “Do you pay to maintain your CPA?” The overall sample of nurse practitioners is not statistically different from the population of nurse practitioners in the state of Florida when comparing sex and age (Florida Center for Nursing, 2016). Respondents more often report white race (86.4% versus 69.7%) and less often report hospital practice (22.8% versus 44.3%). Population estimates are drawn from studies of all ARNPs in Florida (Florida Center for Nursing, 2016), including certified registered nurse anesthetists and certified nurse midwives, and likely overestimate the number of nurse practitioners working in hospital settings.

### **Payment for CPA**

Within the sample, 9.16% (n=124) individuals report payment for their CPA. Table 4.1 demonstrates differences between nurse practitioners who pay for their CPA versus nurse practitioners who report not paying for their CPA. Nearly half of nurse practitioners who pay for their CPA work in ambulatory care (n = 56), including primary care, specialty practice, and urgent care. Sixty-four (51.6%) who pay report practice in other settings, described as assisted living facilities, correctional facilities, home health, occupational health, public health, skilled nursing facilities, and school health. Only four nurse practitioners working in hospitals reported payment for their CPA. Seventy-nine (5.5%) of the respondents were unsure if they paid for their CPA, none reporting self-employment.

Reports of payment for the CPA differed significantly across practice setting, employer, and HPSA. In the hospital setting, 98.6% of nurse practitioners do not pay for their CPA; significantly higher than all other practice settings ( $p < 0.001$ ) and confirmed with Fisher’s exact test of statistical significance given the uneven distribution with a

small number of respondents in the hospital subgroup reporting payment for their CPA. Nurse practitioners working in other settings report the highest proportion of payment for their CPA, 15.5%. One particular practice setting, assisted living facilities and extended care stands out with 33% (n = 18) of nurse practitioners reporting payment for their CPA. Half of nurse practitioners who report self-employment pay for their CPA compared to only 6.6% of non self-employed nurse practitioners ( $p < 0.01$ ). Seventy-one nurse practitioners (8.3%) with a practice address in a primary care HPSA pay for their CPA, less than the overall rate of payment within the sample, although this was not statistically significant.

Of the 124 nurse practitioners who pay for their CPA, 37.6% (n = 47) report no terms for physician oversight in their CPA depicted in Figure 4.1. No terms is defined as no physician terms for on-site or remote collaboration and no documentation review documented in the CPA. This group of nurse practitioners are paying a collaborating physician to participate in the agreement without any written delineation of the services delivered to the nurse practitioner by the physician. Of this group, 51% practice in other settings with the remainder practicing in ambulatory care. One half of nurse practitioners reporting no terms for physician supervision and payment to a collaborating physician for participation in the agreement are self-employed.

### **Models of Payment**

Both structured multiple-choice and free text responses describe models of payment to the physician participating in the CPA. Figure 4.2 identifies models of payment to the collaborating physician including payment of a flat fee, payment as a percentage of billing, payment when the collaborating physician is consulted and payment under a different structure. Fifty percent of nurse practitioners who pay for their

CPA report paying a flat rate. Payment of a fee only when the collaborating physician is consulted may be a low estimate in structured responses as this model of payment also came up in free text responses such as “pay per chart review”.

Additional models of payment illustrated in free text responses from 34 nurse practitioners reporting payment under a different structure, further described in Table 4.2, include payment to the collaborating physician via exchange of services and payment to the collaborating physician by someone other than the nurse practitioner. The exchange of services from a nurse practitioner to a collaborating physician for participation in a CPA took various forms, including nurse practitioner payment for office resources available to the physician, referral of patients to physician practices, and the exchange of nurse practitioner time and skills. Two respondents report sharing office space and personnel used by the collaborating physician although the nurse practitioner pays for these overhead costs. This included costs such as “Rent, utilities, salaries” of shared space and personnel. The exchange of services included uncompensated patient care delivery by the nurse practitioner and coverage for the physician during vacations. The amount of service exchange was not consistently shared, but referenced weekly nurse practitioner service provision in multiple cases.

Some nurse practitioner respondents reported other parties were involved in payment to the collaborating physician for CPA participation, defined as, “I do not pay personally”. Employers, the most frequently referenced group, commonly paid a collaborating physicians to participate in a CPA. Payments made to the physician for participating in a CPA with a nurse practitioner included salary compensation as well as monthly fees. Others reported payment to a practice management group that provides medical provider credentialing management. While most respondents did not quantify

the amount paid to the physician by the employer or practice management company in free text responses, one respondent stated “Employer hospital pays the collaborator 750 per APP per month”. The respondent abbreviation APP likely refers to advanced practice professional in this response, which includes nurse practitioners.

### **Description of Monetary Payments**

Of the 90 respondents who provide the cost per month of their CPA, nurse practitioners paid their collaborating physician on average \$846.92 per month for participation in a CPA with a median on \$725. Monthly payments ranged from zero dollars to \$6000 per month, with an inter quartile range of \$800. The distribution of fees is demonstrated in Figure 4.3. Half of respondents reported payment for their CPA as more than 8% of their salary, with a maximum rate of 72% of salary, further depicted in Figure 4.4. When considering both the salary of the nurse practitioner and the cost paid per month, payment for the CPA accounted for approximately 10% of the nurse practitioner’s salary on average. Twelve respondents reported monthly payment for their CPA greater than \$2000 per month, more than three times the inter quartile range. Of these extreme responses, four are self-employed. Six of the twelve report practice settings not in ambulatory care or hospitals. One works in a hospital. One response was excluded from data analysis due to the implausible report of cost per month in relation to salary, likely a response error.

### **Discussion**

This study quantifies the proportion of Florida nurse practitioners paying their collaborating physician to participate in a CPA, finding approximately 10% of nurse practitioners in the state of Florida pay. Significant associations with nurse practitioners’ report of payment for their CPA include practice setting and employer, with very few

nurse practitioners in hospital settings and half of self-employed nurse practitioners paying for their agreement. Monetary cost to nurse practitioners who pay varied from zero dollars to several thousand per month, with annual payments made by nurse practitioners who pay for their CPA consuming on average 10% of their annual salary. The inclusion of qualitative data analysis reveals additional parties involved in compensation to physicians for participation in mandatory CPAs as well as non-monetary service exchange. Findings from this study corroborate anecdotal reports of payment to physicians for collaborative services (Fauteux, et al., 2017; Gilman & Fairman, 2014; Buppert, 2010) and identify markets where this practice should be further investigated given the higher proportion of nurse practitioners who pay for the agreement in non-hospital settings.

This study provides the first empiric estimates of the proportion of nurse practitioners who pay a collaborating physician to participate in a CPA, the structure of physician compensation, as well as the amount. Qualitative and quantitative analysis of both structured and unstructured survey responses reveal facets of nurse practitioner payment for CPAs not previously captured in grey or academic literature. Previous research studies examining physician oversight of nurse practitioners acknowledge the practice of payment for physician collaborative services but do not specifically analyze direct costs to nurse practitioners or other stakeholders (Lowery, Scott, & Swanson, 2016; Rudner & Kung, 2017). The advanced understanding of payment to physicians for participation in a CPA provided in this study should inform further inquiry of the total cost of this regulatory mechanism and identification of practice settings predisposed to anticompetitive concerns.

Nurse practitioners delivering care in HPSAs do not report payment for their CPA in higher proportions than nurse practitioners in non-HPSAs, despite the relative deficit of physician providers in these areas. The deficit of physicians in HPSAs could hypothetically present opportunities for physicians to charge nurse practitioners high fees for their collaborative services and stifle the ability of nurse practitioners to negotiate the cost. Results do not suggest significant rent-seeking by physicians in HPSAs. Examination of workforce trends in other disciplines with similar occupational licensure suggest the high proportion of care delivery by nurse practitioners in underserved settings (Buerhaus, DesRoches, Dittus, & Donelan, 2015) may preclude anticompetitive conduct of physicians in HPSAs (Kalist, et al., 2011). That said, requirements for CPAs prevent nurse practitioners from practicing in HPSAs and closing gaps in patient access to primary care (Xue, et al., 2018).

Payment to physicians for participation in CPAs that do not include any terms for physician collaboration result in agreements with no contracted service provision to nurse practitioners, and financially impact nurse practitioners. Nearly 40% of nurse practitioners with no terms in their CPA report payment to the collaborating physician for participation in the CPA, a significant finding demonstrating both the skeletal nature of some agreements and evidence for the anticompetitive capacity of state required CPAs. The use of occupational licensure often increase the price of services, limit access to services, and decrease innovation in care delivery and should only be used to address well substantiated consumer safety concerns with regulations that are capable of addressing substantiated concerns (Department of the Treasury Office of Economic Policy, et al., 2015; Federal Trade Commission & United States Department of Justice, 2004). Collaborative practice agreements without terms do not deliver their intended

purpose of collaboration with a physician. The charges to nurse practitioners are not substantiated by service provision by the physician. Furthermore, payment for CPAs without physician terms create financial relationships between nurse practitioners and physicians that could stifle productive dialogue between providers in the interest of patient safety. Nurse practitioners are unlikely to call collaborating physicians if they are charged for each exchange. Physicians may restrain from challenging a decision of a nurse practitioner if it jeopardizes a revenue stream (Bakanas, 2010).

Payments made to physicians for participation in a CPA do not occur universally, although, high fees in isolation raise concerns for anticompetitive conduct. Outliers paying greater than 2000 dollars per month to a collaborating physician for participation in a CPA substantiate case reports that document extreme cases of high fees paid to physicians for participation in a CPA (Fauteux et al., 2017). High fees to physicians to participate in a CPA are difficult to substantiate when the majority of nurse practitioners do not pay and a large proportion of agreements with high fees do not include physician terms for collaboration.

The combination of monetary and service fees charged to nurse practitioners as a prerequisite to practice not required of other professionals who provide similar services grants a regulatory advantage to physicians (Federal Trade Commission, 2014; Gilman & Fairman, 2014) with the potential for ethical misconduct of professionals (Bakanas, 2010). The American Medical Association affirms the necessity for nurse practitioners to remain in state-required collaborative relationships with physicians to uphold patient safety. No studies substantiate patient risks associated with nurse practitioner care (National Academy of Medicine, 2011) or improved safety or quality of care with CPAs. Additionally, evidence suggests CPAs and other mechanisms of occupational licensure

are poor tools to improve the quality of patient care (Federal Trade Commission, 2014; Kleiner & Kudrle, 2000; Kleiner, Marier, Park & Wing, 2014). Very few states include language in statute or regulation guiding the practice of physician charges to nurse practitioners for participation in a CPA. As a result, fees charged by physicians are left to the discretion of institutions and providers. Nurse practitioners wishing to practice in a state that legally requires CPAs have little or no leverage in negotiating fees. Physicians receiving compensation from nurse practitioners may act in own their financial best interests, superseding ethical conduct and undermining patient safety, which is one of the premises of occupational licensure (Bakanas, 2010).

### **Limitations**

The findings of this study are limited to the perspective of nurse practitioners in the state of Florida. This study explicitly measures only direct costs to the nurse practitioner, not the full cost of CPAs to all stakeholders. Because of the skewed distribution of cost per month for CPAs, median and inter quartile range provide a more accurate representation of the data as mean and standard deviation are more responsive to outliers. Monthly charges exceeding 2000 dollars, three times higher than the inter quartile range were examined separately for trends given their extreme nature. This study cannot capture the overall cost of payment to physicians for participation in a CPA from payment models driven by institutions or other agencies identified in this study. The single-state design looking only at nurse practitioners allowed for examination of extra-regulatory variables associated with the use of CPAs in practice. Findings may not be generalizable to other states, though they raise concerns related to the cost of a commonly used regulatory mechanism across states and professions. The cross-sectional design employed in this study does not allow for causal inference. The sample

size of subgroups limited analysis within specific practice settings in this study. Full understanding of the costs to care delivery associated with CPAs requires further inquiry in additional states and among physicians and employers.

### **Conclusion**

The cost to nurse practitioners to maintain a CPA varies across employer and practice settings. Nurse practitioners working outside of hospitals, particularly in long term care, and self-employed nurse practitioners more commonly reported paying for their CPAs. Physician shortages, coupled with rapid innovation in care delivery models and increasing numbers of nurse practitioners (American Association of Nurse Practitioners, 2018) begs further investigation of the cumulative costs of CPAs. While not the focus of this study, other studies demonstrate wider economic and workforce effects of requirements for CPAs in Florida (Unruh, et al., 2016), other states (Conover & Richards, 2015; Martsoff & Kandrack, 2017) and nationally (Kleiner, et al., 2014; National Governors Association, 2012). Required fees paid by nurse practitioners, employers, and other stakeholders to physicians to participate in a CPA may prevent optimal utilization of nurse practitioners in the delivery of patient care by creating financial barriers to nurse practitioner employment and the development of new models of care lead by nurse practitioners. Policy makers evaluating the risks and benefits of occupational licensure utilizing CPAs for nurse practitioners must acknowledge the capacity of CPAs to induce financial relationships between providers, potentially to the detriment of collegial collaboration and the ethical conduct of health professionals.

The capacity of CPAs, a regulatory mechanism, to induce fees for one set of professionals to the benefit of another without substantiated patient safety rationale or even the provision of services in some cases, those with no terms, disrupts the tenants

of competition policy. State required nurse practitioner CPAs do result in fees charged by physicians to nurse practitioners. Florida and other states should consider the impact of payment for CPAs on the health workforce and patient care delivery. The cumulative effects of nurse practitioner payments for physician involvement in CPAs are substantial in aggregate. In states like Florida that require nurse practitioners to maintain a CPA, payment for the agreement by one tenth of all nurse practitioners affects thousands of professionals. Further exploration of CPAs among employers, physicians, institutions, and in specific environments would further explicate the cumulative costs of this regulatory mechanism.

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Table 4.1

*Payment for CPA by Subgroup*

	Pay for CPA	Do Not Pay for CPA	Not Sure of Payment
Total (n=1,365)	9.16%	85.1%	5.8%
Self Employed (n=92)	50.0%	50.0%	0%
Hospital (n=306)	1.3%	92.8%	5.9%
Ambulatory Care (n=612)	9.2%	85.6%	5.2%
Other Practice Setting ‡ (n=442)	14.5%	80.0%	6.6%
Practice in Primary Care HPSA (n=857)	8.3%	85.9%	6.1%

*Note:* Other practice setting denoted as ‡ includes correctional facilities, assisted living facilities, home health, insurance companies, skilled nursing facilities, occupational health, public health, and school health.

Figure 4.1

*Percentage of Respondents with No Physician Terms among Nurse Practitioners who Pay and Do Not Pay for CPAs*

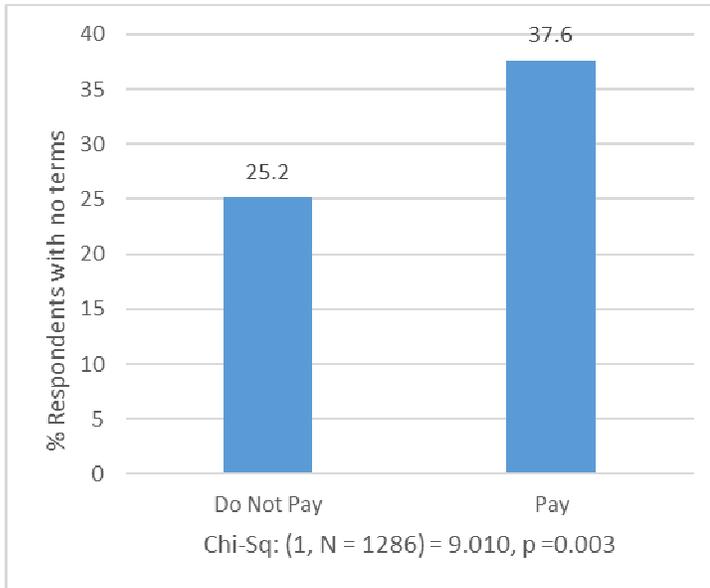


Figure 4.2

*Models of Payment for CPAs*

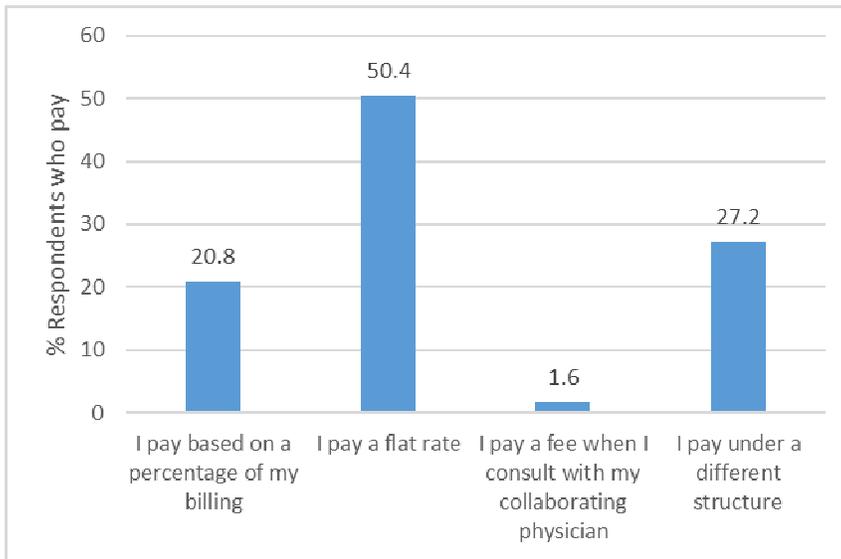


Table 4.2

*Qualitative Categories of Other Payment Structures*

Category	Definition
I do not pay personally	The nurse practitioner does not directly pay the physician. Payment to the physician to participate in the collaborative practice agreement is done through another party such as the employer of the nurse practitioner or an outside firm that manages credentialing of health professionals.
Exchange of services	No exchange of money though nurse practitioner provides service(s) in exchange for physician participation in the collaborative practice agreement.

*Note:* Qualitative data derived from the prompt “I pay for my CPA under a different structure.”

Figure 4.3

*Cost per Month for CPA among Nurse Practitioners who Pay*

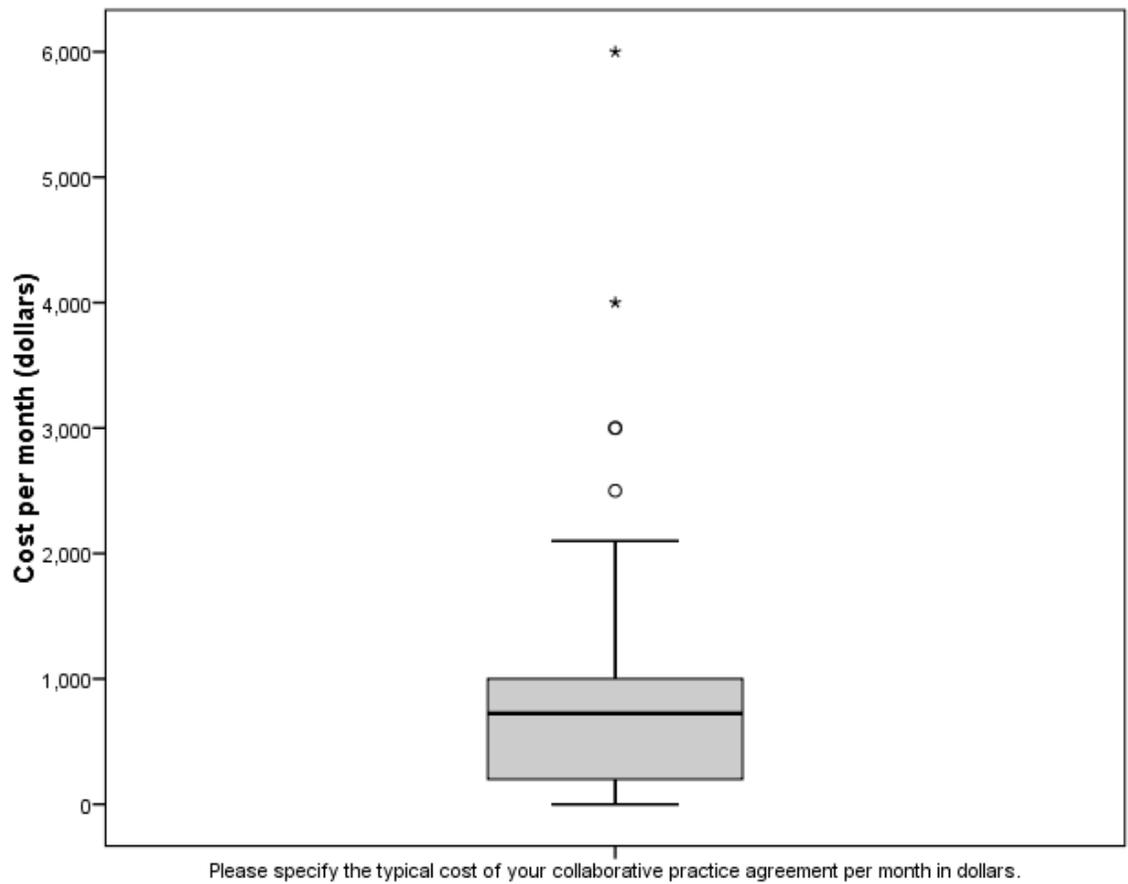
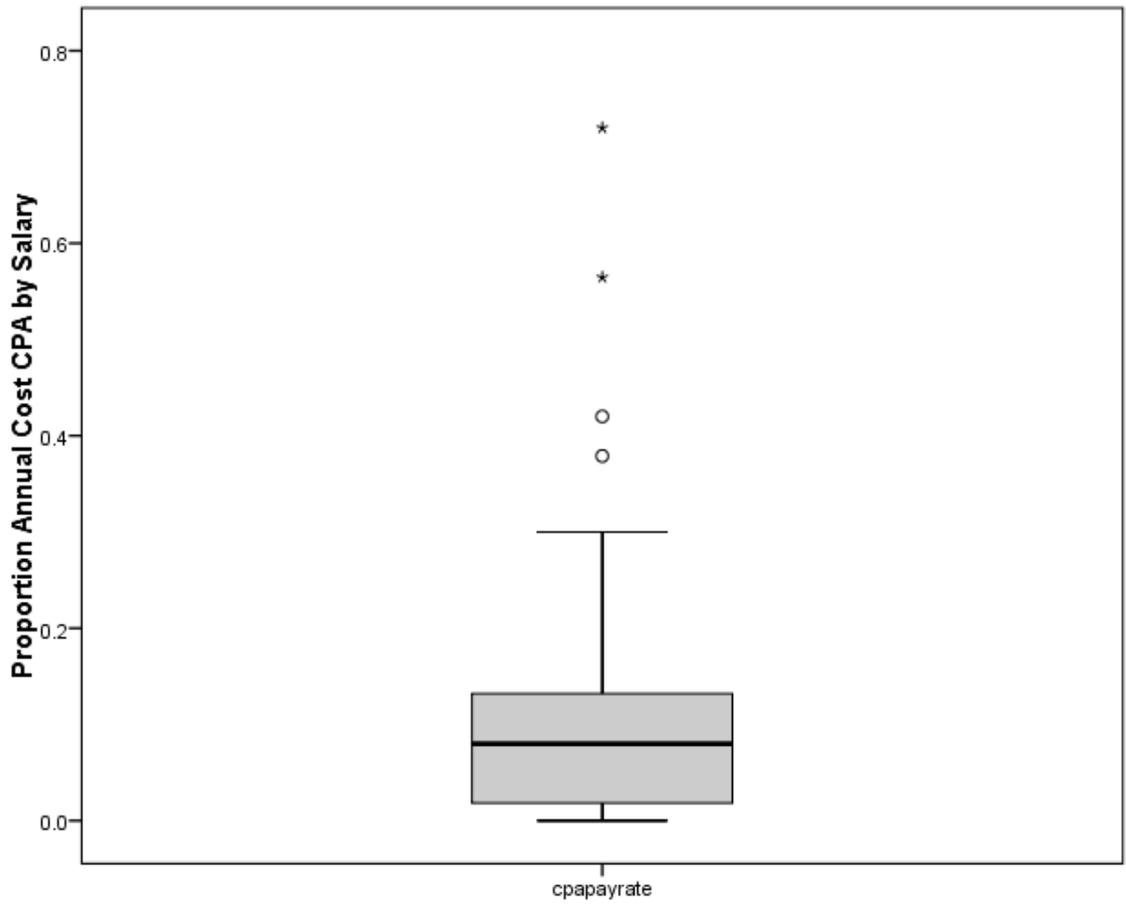


Figure 4.4

*Annual Payment for CPA as a Proportion of Nurse Practitioner Salary*



## CHAPTER 5: CONCLUSION

This dissertation focused on nurse practitioner CPAs, and specifically examined the terms and cost of agreements from the perspective of nurse practitioners in Florida. Collaborative practice agreements are a mechanism of occupational licensure used in 20 states (National Council of State Boards of Nursing. 2018), yet very few prior studies clarify the specific terms and payment for agreements in practice (Lowery, Scott, & Swanson, 2016; Rudner & Kung, 2017). Examination of CPAs and related models of occupational licensure across health professions provides essential background on the similarities and differences between nurse practitioner CPAs and related models of occupational licensure within healthcare settings. This body of work expands knowledge further explicating the structure of CPAs, variability in nurse practitioner and physician terms, and the cost of CPAs. Results provided in the three manuscripts address the study aims by providing a synthesis of existing literature and new knowledge regarding CPAs.

### Summary of Results

The framework presented in paper one, *Legally Required Supervision of Nurse Practitioners and other Health Professionals*, demonstrates the various policy mechanisms that create relationships where one health professional is required to oversee the practice of another health professional credentialed to provide a similar service. Collaborative practice agreements are one component of nurse practitioner regulation administered by state governments. Aim one addressed in this paper, *examine the effects of collaborative practice agreements and similar models of health professional regulation on the cost and delivery of health services*, required critical

analysis and synthesis of three distinct bodies of literature including occupational licensure, competition policy, and nurse practitioner scope of practice. Only one previous study looks specifically at the effect of CPAs on the number of nurse practitioners in practice (Reagan & Salsberry, 2013). Measurement of the effects of legally required supervision on the production and cost of health services demonstrate the capacity of regulatory mechanisms similar to CPAs to reduce the supply of supervised health professionals, decrease the production of services by supervised professionals, and increased costs measured primarily by provider wages and consumer prices.

Results presented in paper two, *Variation in the Terms of Collaborative Practice Agreements between Nurse Practitioners and Physicians*, demonstrate extensive variability in the structure of CPAs and the use of vague language failing to delineate the terms of collaboration between the physician and the nurse practitioner. Results from this paper address aim two, *describe variation in the collaborative services provided by physicians to nurse practitioners under collaborative practice agreements and explore associations between nurse practitioner employer, practice setting, and health professional shortage area (HPSA) with no physician terms in the CPA in Florida*. Findings corroborate results from a previous study demonstrating variability in the terms of physician oversight for nurse practitioners in Florida (Rudner and Kung, 2017). This study advances current knowledge by describing nurse practitioner terms in a CPA and showing that the absence of physician terms in the CPA, reported by 24% of respondents, are significantly associated with nurse practitioner self-employment and practice settings outside of hospitals. Nurse practitioners within HPSAs demonstrate equal proportions of no physician terms in their CPA as those not working in a HPSA, a non-significant finding.

Paper three, *The Cost of Collaborative Practice Agreements between Nurse Practitioners and Physicians*, provides the first state-level estimates of the proportion of nurse practitioners who pay for their CPA, the various models of payment to physicians for CPAs by nurse practitioners, and the range of payment amounts. Paper 3 address aim 3, *describe variation in the cost of collaborative practice agreements to nurse practitioners and explore associations between nurse practitioner employer, practice setting, and health professional shortage area (HPSA) with payment by the nurse practitioner for the CPA in Florida*. Nurse practitioner self-employment and practice outside of a hospital setting are significantly associated with payment to a physician for participation in a CPA. Payments made to physicians by nurse practitioners for participation in a CPA account for 8- 10% of the nurse practitioner's salary, around \$10,000 a year. Nurse practitioners identify payments made to physicians for participation in CPAs by employers and institutions as well, though do not provide the actual cost. Most interestingly, 37.6% of nurse practitioner with no terms for physician collaboration in their CPA also report payment for the CPA.

### **Study Limitations**

This study examined CPAs in one state from the perspective of nurse practitioners. Nineteen other states utilize CPAs as a requirement of nurse practitioner occupational licensure. The statutes and regulations defining the requirements for nurse practitioner CPAs differ in every state, making it difficult to broadly generalize findings from this study to states other than Florida. Other disciplines utilize CPAs, specifically certified registered nurse anesthetists and certified nurse midwives in Florida. Different practice characteristics as well as federal and institutional regulations limit generalization of the results to other advanced registered nurse practitioners in Florida. Responses

utilized in data analysis reflect the perspectives of nurse practitioners only, potentially overlooking relevant perspectives on the structure, terms, and cost of CPAs from physicians, employing institutions, and patients. The measurement of costs in this study refers only to fees and non-monetary costs incurred directly by nurse practitioners, minimizing the direct and indirect costs of CPAs to all stakeholders. Findings make mention of federal and institutional regulations influencing nurse practitioner practice, although this study purposely focused on one mechanism of regulation to isolate the terms and cost implications of nurse practitioner CPAs. Results may understate the perspectives of non-white nurse practitioners, underrepresented in this sample.

### **Practice Implications**

The perspectives of nurse practitioners regarding their CPAs presented in this study contribute to a much larger public health agenda addressing shortages of patient care services and escalating health care costs. No evidence suggests CPAs protect the public, but rather, CPAs add a level of regulatory burden that may have implications on the ability of nurse practitioners to work in areas in need of providers and other costs not investigated in this study. Florida, one of the more restrictive practice environments for nurse practitioners in the country, struggles to meet consumer needs for basic health services, exacerbated by excessive regulatory requirements for nurse practitioners (Petterson, Cai, Moore & Bazemore, 2013; Unruh, Rutherford & Schirle, 2016). Collaborative practice agreements with no terms, and nurse practitioner payment to physicians for agreements occurred most often among self-employed nurse practitioners and in non-hospital settings, potentially preventing the entry of nurse practitioners to these areas. The variable or absent terms of CPAs challenge the typical argument for CPAs as a patient safety mechanism. Related costs to nurse practitioners to maintain a

CPA do not include measurement of lost opportunities for nurse practitioners to address patient care shortages, lost state economic opportunities from nurse practitioner job creation, or the cost to employers to maintain nurse practitioner credentialing and physician dependent practice models (Fauteux, Brand, Fink, Frellick & Werrlein, 2017; Unruh, et al., 2016). These are areas for future research. State requirements for CPAs perpetuate inflexibility in the delivery of health services sustaining dependence on physician practice with downstream consequences for state economies and most importantly, patients.

### **Policy Implications**

Collaborative practice agreements, demonstrating variation and the absence of physician terms, are minimally effective tools of occupational licensure. Principles of occupational licensure and competition guide key policy questions, namely, are CPAs narrowly tailored? Are anticompetitive practices between providers, such as payments for agreements that do not specify service provision, evident in practice? Variation in the terms of CPAs presented in paper two validate concerns that CPAs are not narrowly tailored. One-quarter of agreements lack physician terms for oversight, further weakening persistent claims by physician organizations that CPAs ensure interdisciplinary collaboration with physicians that are required to maintain patient safety (National Academy of Medicine, 2011). Perhaps more concerning from the perspective of competition, findings presented in paper three show nearly 40% of nurse practitioners that reported no terms for physician collaboration in their CPA pay a physician to participate in the agreement. In essence, findings suggest nurse practitioners in some cases are paying for an agreement without any promise of service provision by physicians in return. Competition policy encourages fair payment for service exchange

(Gilman & Fairman, 2014). This study indicates that requirements for CPAs permit favorable financial conditions for physicians while nurse practitioners face the regulatory burden.

### **Future Research**

Heterogeneity of state laws defining nurse practitioner occupational licensure preclude national studies of the effects of CPAs on the health workforce and care delivery. The National Council of State Boards of Nursing (NCSBN) identifies in a dashboard states that require a nurse practitioner CPA ([National Council of State Boards of Nursing, 2018](#)), although specific requirements for CPAs vary in each state. Technically, New York and Illinois require a CPA for some element of practice, although are not included in the NCSBN count. Michigan practices under a Public Health Code and therefore has no clear requirement for a CPA. South Dakota changed their law in 2017 to remove career long requirements for CPAs, but continues to require a CPA for a prescribed length of time before a nurse practitioner may practice independent of a physician. Further analysis of CPAs in a variety of states would strengthen evidence regarding the benefits and burdens of this regulatory mechanism.

Knowledge of the structure and terms that comprise CPAs provided by this study present essential baseline information informing future research of the full effects of CPAs on the delivery of patient care and healthcare costs. This study highlighted additional payers for CPAs, differences in the terms of agreements across practice settings, and the role of institutions in structuring agreements. Other stakeholders include physicians, employers, health systems, legislators, and consumers who likely experience CPAs in different capacities. Developing an of understanding CPAs from

various perspectives would provide further clarity on the development of agreements, necessity (or lack of necessity) for CPAs within the context of other regulatory mechanisms, and the cumulative costs of nurse practitioner CPAs on the delivery of health services. For example, what is the cost to institutions of the time and resources needed to maintain CPAs? What is the cost to the public when a nurse practitioner cannot provide services due to relocation or lost privileges of the collaborating physician? These scenarios and others contribute to the cost of CPAs to institutions, providers, and the public. Qualitative exploration among a variety of stakeholders could provide further foundation for a quantitative economic analysis of CPAs as a regulatory mechanism across states that require the agreements and those that do not.

### **Conclusion**

This exploration of CPAs among nurse practitioners in Florida links concepts of occupational licensure, competition policy, and the practice of nurse practitioners. Examining other health disciplines with mechanisms of regulation resulting in legally required supervision provided background unavailable within the literature specifically examining nurse practitioner CPAs. Eliciting the perspective of nurse practitioners in Florida on their CPA provides new information on the structure, terms and cost of CPAs. Findings inform the practice and research priorities of health professionals, employers, and policy makers. The consistent priority of this study and future work remains the creation of a regulatory environment that facilitates the optimal employment of the health workforce to address patient needs, a goal shared by various stakeholders.

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## APPENDIX: SURVEY INSTRUMENT



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Thank you for your participation in this study. The state of Florida currently requires nurse practitioners to maintain a protocol agreement, also known as a collaborative practice agreement, as a condition of state licensure. The goal of this questionnaire is to understand the terms of your collaborative practice agreement.

The structure of collaborative practice agreements differs across states, institutions, and providers. We currently know very little about the details of collaborative practice agreements. This study aims to understand the cost, terms, and maintenance of your collaborative practice agreement(s) to better estimate their influence on nurse practitioner practice and the delivery of patient care.

This survey consists of several questions related to your collaborative practice agreement with a physician. The survey will take approximately 6 minutes to complete. Your participation will help to advance the science behind the regulation of nursing practice. Your participation is voluntary. Results will be reported in aggregate to maintain confidentiality.

All respondents who complete this research study will be entered in a raffle to win one of five \$50 Visa gift cards.

If you choose to participate, please complete this survey reflecting your experience as a nurse practitioner in your current job. When responding to questions, please recall your most current position and collaborative practice agreement(s). If you work in multiple settings, please reflect on the environment where you spend the majority of your time. Please remember not to report identifying information in your responses to maintain confidentiality.

If you have questions, please contact Ashley Z. Ritter at 215-746-4460 or [zampinia@nursing.upenn.edu](mailto:zampinia@nursing.upenn.edu).

### Sections:

- 1: Nurse Practitioner Characteristics
- 2: Practice Characteristics
- 3: Collaborative Practice Agreement
- 4: Payment for Collaborative Practice Agreement
- 5: Terms of Collaborative Practice Agreement
- 6: Impact on Practice
- 7: Maintenance of Collaborative Practice Agreement
- 8: Demographics

## Section 1: Nurse Practitioner Characteristics

*Please mark the circle that reflects your response.*

1. How many years have you been working as a nurse practitioner?
  - Please enter the number of years*

\_\_\_\_\_
  
2. Do you hold a national certification?
  - No
  - Yes
  2. A What type of certification do you currently hold? Please select all that apply.
    - Acute Care Nurse Practitioner
    - Adult Nurse Practitioner
    - Adult Gerontology Acute Care Nurse Practitioner
    - Adult Gerontology Primary Care Nurse Practitioner
    - Adult Psychiatric /Mental Health Nurse Practitioner
    - Family Nurse Practitioner
    - Gerontological Nurse Practitioner
    - Neonatal Nurse Practitioner
    - Nurse Midwife
    - Nurse Anesthetist
    - Pediatric Primary Care Nurse Practitioner
    - Pediatric Acute Care Nurse Practitioner
    - School Nurse Practitioner
    - Women's Health/ Reproductive Health Nurse Practitioner
    - Other \_\_\_\_\_
  
3. Are you currently employed full-time by one employer?
  - No
  - Yes
  
4. In how many positions are you currently employed as a nurse practitioner?

*Please write the number of positions*

\_\_\_\_\_
  
5. Do you provide patient care in more than one state?
  - No
  - Yes

## Section 2: Practice Characteristics

*For the purposes of this survey, we hope to collect information about **the practice setting where you spend the majority of your time. Please reflect on your current employment. Please refrain from providing any identifying information about your employer or collaborating physician in free text responses.***

1. In which state do you primarily provide patient care as a nurse practitioner?
    - I do not provide direct patient care
    - I do not work in the United States
    - Florida
  
  2. Who is your employer? By employer, we are referring to the organization that issues your paycheck.
    - Self-employed
      2. A If you are self-employed, are you in:
        - Solo practice
        - Group practice
        - Independent contractor
    - Solo physician
    - Nurse practitioner
    - Independent physician group
    - Single institution
    - Network or health care system
    - Retail-based clinic
    - Veteran's Administration
    - Federally Qualified Health Center
    - Community based health clinic
    - Insurance company or managed care organization
    - Other (please specify) \_\_\_\_\_
- 
3. Please select the setting that most closely corresponds to your primary work environment as a nurse practitioner.
  - Ambulatory Care Setting
    3. A Please select the ambulatory care setting that most closely corresponds to your primary work environment as a nurse practitioner.
      - Emergency Department
      - Primary Care
      - Specialty Practice
      - Urgent Care
  - Correctional Facility
  - Extended Care/Assisted Living Facility
  - Home Health
  - Hospital
  - Insurance Claims/Benefits
  - Nursing Home/Skilled Nursing Facility
  - Occupational Health
  - Policy/Planning/Regulatory/Licensing Agency
  - Public Health

- School Health Service
- Telehealth
- Other \_\_\_\_\_

4. How many years have you been working in your current position?  
*Please write the number*

\_\_\_\_\_

5. What is the zip code of your current PRIMARY practice location?  
*Please write your 5 digit zip code*

\_\_\_\_\_

6. How do you bill for your services in your current PRIMARY practice location? Check all that apply.

- Direct billing
- Split shared billing
- Incident to billing
- I do not bill for services
- I do not know

7. Please specify the patient populations ages for which you provide care. Please choose all that apply.

- 0-2 years
- 3-12 years
- 13-18 years
- 19-26 years
- 27-64 years
- 65 years and older

### Section 3: Collaborative Practice Agreement

The state you designated as your primary practice location **REQUIRES** a physician to oversee the practice of a nurse practitioner under state law. The language of these agreements vary, but include terms such as supervisory agreement or practice protocol. We refer to all such agreements as collaborative practice agreements. **Please answer questions based on your current employment and collaborative practice agreements in the practice setting where you spend the majority of your time.** Please refrain from providing any identifying information about your employer or collaborating physician in free text responses.

1. Based on the practice location where you spend the majority of your time, how many active collaborative practice agreements do you have on file with your state?

*Please write the number of agreements*

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2. If your **STATE** did not require a collaborative or supervisory practice agreement, would you:

- Develop a collaborative agreement similar to the one I currently have
- Practice without a collaborative agreement
- Negotiate a different type of agreement according to my practice needs.

2. A Please specify what changes you would make.

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3. Are you **REQUIRED BY YOUR EMPLOYER** to maintain a collaborative practice agreement with a physician **IN ADDITION TO WHAT IS REQUIRED BY STATE LAW?**

- I am not sure
- No
- Yes

3. A Is your **EMPLOYER REQUIRED** collaborative practice agreement for:

- General Practice
- Prescriptive Practice
- Both agreement
- I am not sure

4. How far is your collaborating physician from your primary practice location?

- On site
- 0-10 miles
- 11-25 miles
- 26-50 miles
- 51-75 miles
- 76-100 miles
- Greater than 100 miles

5. How many nurse practitioners does your collaborating physician supervise at one time, including you?

*Please write number*

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6. Please rate the difficulty you experienced finding a physician with whom to develop a collaborative practice agreement.

- Very Easy
- Easy
- Difficult
- Very Difficult

6. A Please specify why finding a physician with whom to collaborate was **difficult** or **very difficult**.

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#### Section 4: Payment for Collaborative Practice Agreement

The following questions ask about the cost of your collaborative practice agreement. Information about your salary will be used to calculate the ratio of what you pay for your agreement to your overall income. We will not share this information and ratios will be reported in aggregate.

1. Do you pay to maintain your collaborative practice agreement? This does not include payments made to the state to maintain your license. Please choose all that apply.
  - No
  - I am not sure
  - Yes, I pay based on a percentage of my billing
    1. A Please specify the percentage of your billing paid to your collaborating physician.  

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    - 1.B Please specify the typical cost of your collaborative practice agreement per month in dollars  

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  - Yes, I pay a flat rate
    1. B Please specify the typical cost of your collaborative practice agreement per month in dollars.  

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  - Yes, I pay when I consult with my collaborating physician
    1. C Please specify the hourly rate paid to your collaborating physician.  

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    1. B Please specify the typical cost per month  

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  - Yes, I pay under a different structure
    1. D Please specify  

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    1. B Please specify the typical cost of your collaborative practice agreement per month in dollars.  

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2. Does your collaborative practice agreement determine the compensation you receive? Please check all that apply.
  - It determines my salary
  - It determines my portion of reimbursement for services
  - It includes payments for facility charges
  - It includes payments for administration fees
  - The collaborative practice agreement does not determine the compensation I receive
3. What is your annual salary? Please round to the nearest thousand.  
*Please write your numeric salary*  

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4. Are you responsible for paying your collaborating physician's malpractice insurance?
  - I am not sure
  - No
  - Yes
    - 4.A Please specify the cost of your collaborating physician's malpractice insurance per year in dollars.



## Section 5: Terms of Collaborative Practice Agreement

The following questions refer to the terms listed in your collaborative practice agreement. **Please respond based on your current employment and collaborative practice agreements in the practice setting where you spend the majority of your time.** Please refrain from providing any identifying information about your employer or collaborating physician in free text responses.

1. Does your collaborative practice agreement specify terms for any of the following? Please choose all that apply.
  - On-site physician collaboration
  - Remote physician collaboration
  - Practice protocols
  - None of the above **(SKIP TO QUESTION 5)**
  
2. For what services does your collaborative practice agreement require **on-site** collaboration with your physician? Please choose all that apply.
  - Prescribing medications
  - Diagnosis of new conditions
  - Treatment plan for existing conditions
  - Physician must personally see the patient
  - Co-signature of nurse practitioner documentation
  - Other

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3. For what services does your collaborative practice agreement require **remote** physician collaboration? Please choose all that apply.
  - Prescribing medications
  - Diagnosis of new conditions
  - Treatment plan for existing conditions
  - Review of nurse practitioner documentation
  - Other
  
4. Did you have input into developing the terms of your required collaborative practice agreement? Please check all areas where you had input.
  - I had no input in the development of any terms for my collaborative practice agreement
  - Prescribing terms
  - Formulary of medications permitted to prescribe
  - Diagnosis of new conditions terms
  - Treatment of existing conditions terms
  - On-site supervision terms
  - Remote supervision terms
  - How often patient required to be seen by a physician
  
5. Please specify the frequency you are **REQUIRED BY YOUR COLLABORATIVE PRACTICE AGREEMENT** to meet with your collaborating physician **in person**.
  - Not specified in my agreement

- Annually
- Quarterly
- Monthly
- Weekly
- Daily
- Multiple times daily
- I do not know if this is specified in my agreement

6. Please specify the frequency you **ACTUALLY** meet with your collaborating physician in person.

- We do not meet in person
- Annually
- Quarterly
- Monthly
- Weekly
- Daily
- Multiple times daily

7. Please specify the frequency you are **REQUIRED BY YOUR COLLABORATIVE PRACTICE AGREEMENT** to meet with your collaborating physician by telephone or email.

- Not specified in my agreement
- Annually
- Quarterly
- Monthly
- Weekly
- Daily
- Multiple times daily
- I do not know if this is specified in my agreement

8. Please specify the frequency you **ACTUALLY** meet with your collaborating physician by telephone or email.

- We do not meet via telephone or email
- Annually
- Quarterly
- Monthly
- Weekly
- Daily
- Multiple times daily

9. Please specify the services covered by **protocols** in your collaborative practice agreement.

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10. Can you provide services not designated in a written protocol?

- No
- Yes

10. A Please specify the services you provide that are not designated in a written protocol.

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11. When prescribing a **SCHEDULED** drug does your collaborative practice agreement allow you to:
- Write the prescription, immediately call it in to a pharmacy, or electronically prescribe to patients
  - Tell patients they must wait until the physician approves the prescription the same day
  - Tell patients they must come back for their prescription the next day
  - I do not prescribe scheduled drugs
12. When prescribing **NON-SCHEDULED** drug does your collaborative practice agreement allow you to:
- Write the prescription, immediately call it in to a pharmacy, or electronically prescribe to patients
  - Tell patients they must wait until the physician approves the prescription the same day
  - Tell patients they must come back for their prescription the next day
  - I do not prescribe non – scheduled drugs
13. In **ACTUAL** practice when writing prescriptions for **SCHEDULED** drugs, do you:
- Write the prescription, immediately call it in to a pharmacy, or electronically prescribe to patients
  - Tell patients they must wait until the physician approves the prescription the same day
  - Tell patients they must come back for their prescription the next day
14. In **ACTUAL** practice when writing prescriptions for **NON-SCHEDULED** drugs, do you:
- Write the prescription, immediately call it in to a pharmacy, or electronically prescribe to patients
  - Tell patients they must wait until the physician approves the prescription the same day
  - Tell patients they must come back for their prescription the next day
15. Please specify the amount of physician review of nurse practitioner documentation required by your collaborative practice agreement.
- Not specified in my collaborative practice agreement
  - Less than 25%
  - 25%
  - 50%
  - 75%
  - 100%
  - I do not know if this is specified in my collaborative practice agreement
16. Please specify the amount of physician review of nurse practitioner documentation in **ACTUAL** practice.
- My collaborating physician does not review my documentation
  - Less than 25%

- 25%
- 50%
- 75%
- 100%

17. Please specify the method of physician review of nurse practitioner documentation.

- My collaborating physician does not review my documentation
- Retrospective review of my documentation with co-signature only
- Retrospective review of my documentation with co-signature and/or case discussion
- Real time review of my documentation with co-signature only
- Real time review of my documentation with co-signature and/or case discussion

## Section 6: Impact on Practice

*When answering the following questions, consider how your collaborative practice agreement specifically influences the way you provide patient care. Please respond based on your current employment in the environment where you spend the majority of your time.*

1. Do your patients benefit from your required collaborative or supervisory practice agreement with your physician?

- No
- Very Little

1. A (Negative Responses) Please specify why your patients do not benefit from your required collaborative practice agreement.

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- Somewhat
- Yes

1 B. (Affirmative Response) Please specify how your patients benefit from your required collaborative practice agreement.

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2. What is the impact of your required collaborative practice agreement on your practice? Please check all that apply.

- No impact on my practice
- Facilitates interdisciplinary team based care
- Caused me to limit the services I provide
- Caused me to raise prices for certain services
- Other (please specify)

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3. What is the impact of the collaborative practice agreement on your **PATIENTS**? Please check all that apply.

- No impact on my patients
- Preserves patient safety
- Decreased access to care
- Repetitive care
- Delay in care delivery
- Patient inconvenience

4. Have your patients had to return for additional services as required by your collaborative practice agreement? **Please check all that apply.**

- Prescriptions
- Forms or paperwork

- Referral to specialists
- Referral to additional services (physical therapy, occupational therapy, etc.)
- Referral to home health services

**Section 7: Maintenance of the Collaborative Practice Agreement**

*This section asks questions about the process of keeping your collaborative practice agreement up to date to reflect changes in your practice. Please respond based on your current employment in the environment where you spend the majority of your time.*

- 1. How frequently do you review your collaborative practice agreement?
    - Never
    - As needed
    - Annually
    - More than annually
    - When I renew my license(s) with the state
  
  - 2. After first developing your collaborative practice agreement, have you made any changes to the original agreement?
    - No
    - Yes
      - 2. A What precipitated the need to make changes to your collaborative practice agreement? **Please select all that apply**
        - The employment of my collaborating physician changed
        - Update of substitute physicians
        - The requirements of the state changed
        - The requirements of my institution changed
        - Other (please specify)

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3. Please rate the difficulty you experienced making changes to your collaborative practice agreement.
  - Very Difficult
  - Difficult
    - 3. A Please specify why changing your collaborative practice agreement was **difficult** or **very difficult**.

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- Easy
- Very Easy
- 
4. Has your state’s board of nursing ever inspected your compliance with any of the following terms of your collaborative practice agreement? Please select all that apply.
  - No, the state board has not inspected compliance with the collaborative practice agreement
  - Prescription records
  - Patient records
  - Documentation of physician collaborative or supervisory interactions (e.g. meetings, email, telephone contacts)
  - I do not know if the state board has inspected compliance with my collaborative practice agreement

- Other (Please Specify)

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5. Has your state's board of nursing ever inspected your collaborating physician's compliance with any of the following terms of your collaborative practice agreement? Please select all that apply.

- No, the state board has not inspected compliance with the collaborative practice agreement
- Prescription records
- Patient records
- Documentation of physician collaborative or supervisory interactions (e.g. meetings, email, telephone contacts)
- I do not know if the state board has inspected compliance with my collaborative practice agreement
- Other. (Please specify)

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## Section 8: Demographics

1. What is your current gender identity?
    - Male
    - Female
    - Transgender Male
    - Transgender Female
    - Not Listed \_\_\_\_\_
  
  2. Please describe your ethnicity.
    - Hispanic
    - Not Hispanic
  
  3. Please describe your race.
    - American Indian or Alaska Native
    - Asian
    - Black or African American
    - Native Hawaiian or Other Pacific Islander
    - White
  
  4. What is your age?  
*Please write your numeric age*  
\_\_\_\_\_
  
  5. Did you attend the August 2017 Florida Nurse Practitioner Network Conference?
    - Yes
    - No
- 

**End of Survey**