

## ABSTRACT

Bobby D. Lowery, NURSE PRACTITIONER PERCEPTIONS REGARDING THE IMPACT OF REGULATORY REQUIREMENTS FOR PHYSICIAN OVERSIGHT ON NURSE PRACTITIONER PRACTICE (Under the direction of Dr. Elaine S. Scott) East Carolina University College of Nursing, July 2012.

The purpose of this study was to investigate the perceptions of Nurse Practitioners (NPs) regarding the impact of regulatory requirements for physician oversight on NP practice regarding the impact of physician oversight on patient care (safety, access to care, and costs) and NP practice (scope of practice, job mobility, job satisfaction, autonomy, and resolution of practice and disciplinary complaints). An exploratory survey was developed from NP regulatory research in the literature. A mixed mode, 34 question survey containing Likert scales, multiple choice, and open-ended questions was developed. Content validity was evaluated through 10 content experts.

The survey entitled *Impact of Regulatory Requirements for Physician Oversight on Nurse Practitioner Practice* was sent to 24,000 NPs. Twenty-four inclusion states were selected using a table of random numbers. Five hundred NPs were sampled from each state for a total of 12,000 NPs surveyed. The data was exported from *Qualtrics*<sup>TM</sup> to IBM SPSS Statistics 19 for analysis.

Nurse practitioner experience and type of physician oversight emerged as predictors of agreement of NP perceptions regarding the impact of physician oversight on NP practice. Direct physician oversight; oversight provided in the same practice location as the NP, was perceived as less restrictive for NPs with less than 5 years NP experience compared to more experienced NPs. Nurse practitioners with more than five years and those with indirect physician oversight, physician oversight provided from a remote location, were 2.7 times more likely to perceive that

requirements for physician oversight limited NPs from practicing to the full extent of their licensure, education, certification and competence.

Understanding the impact of regulatory requirements for physician oversight on the NP practice has implications for nurse educators, NPs, policy leaders, regulators and legislators. This data can inform public policy and expand the evidence base of nursing knowledge. Nursing leadership is required in this important policy discussion.

NURSE PRACTITIONER PERCEPTIONS REGARDING THE IMPACT OF  
REGULATORY REQUIREMENTS FOR PHYSICIAN OVERSIGHT ON NURSE  
PRACTITIONER PRACTICE

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REQUIREMENTS FOR PHYSICIAN OVERSIGHT ON NURSE PRACTITIONER  
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## **DEDICATION**

To my wife, Dr. Deborah “Missy” Hodges Lowery and my children, Ryan and Kathryn; without your love and support, this dream would have never been realized. I love you with all that I am. To Ann Locklear, my high school English teacher who inspired me to always strive for the best. And lastly, to my parents, Bobby and Frances Lowery who dared to believe in me.

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## CHAPTER I: INTRODUCTON

Nurse practitioners (NPs) are trusted, advanced practice nursing professionals who have delivered safe, effective healthcare for more than four decades in the United States (Center to Champion Nursing in America, 2010; Institute of Medicine, 2010; Robert Wood Johnson Foundation, 2010; Safriet, 1992). The first NP education program was implemented in 1965 at the University of Colorado School of Nursing under the visionary leadership of Drs. Loretta Ford, professor of nursing and Henry Silver, professor of medicine (Silver & Ford, 1967). Increasing access to health care was the genesis and remains the driving force of the NP profession (Dunn, 1997; Silver & Ford, 1967).

Despite numerous regulatory and policy restrictions and challenges over the past 46 years, the NP profession has emerged as a key player in addressing the increasing health disparities and access to care issues (Institute of Medicine, 2010; Lugo, O'Grady, Hodnicki, & Hanson, 2007; Pearson, 2010). More than 148,000 NPs provide high quality, safe, effective healthcare in the United States (AANP, 2011).

The World Health Organization (WHO) (2003) defines basic access to healthcare as a human right. Yet, healthcare is neither accessible nor affordable for many citizens of the United States and the world (Institute of Medicine, 2010; Mills, Scanlon, & Sullivan, 2008; WHO, 2003). Approximately 47 million Americans lack basic health insurance (Mills et al., 2008). National statistics indicate an increasing shortage of both physicians and nurses; yet inconsistent and restrictive state regulations limit the scope of practice for nurse practitioners who could provide a broad continuum of health services for consumers (Institute of Medicine, 2010; Klein, 2007).

According to governmental studies, “ more than twenty thousand Americans die in the prime of life each year from medical problems that could be treated, because they could not afford to see a doctor” (Reid, 2009, p. 2). In the wealthiest nation in the world, more than 20,000 people die every year from amenable mortality because they cannot access basic healthcare services (Nolte & McKee, 2008; Reid, 2009).

Without access to care, healthcare disparity and inequality will persist in America. Healthcare is delivered by a diversity of providers including physicians and nurse practitioners. Panchansky and Thomas (1981) state that defining access to *health* care in terms of medical care availability alone, is inadequate. Everyday healthcare professionals other than physicians address the issue of access to health care. Nurse Practitioners are proven healthcare providers who are qualified, yet limited by regulatory barriers in the delivery of basic primary healthcare services that increase access to care. A discussion of the historical evolution of access to care issues is necessary to provide context for the role NPs have played in the evolving access to healthcare dynamic.

Access to healthcare is an important determinant of quality of life and healthcare outcomes (AHRQ and HRSA, 2006; Institute of Medicine, 2001; Lugo et al., 2007; NCIOM Health Access Study Group, 2009; NCIOM Task Force on Primary Care and Specialty Supply, 2007). In the United States of America, Healthy People 2010 identified access to quality health services as encompassing primary care, preventive services and tertiary care in diverse settings (Agwunobi, 2006). Both the Institute of Medicine (IOM) and Healthy People 2010 identified generalist physicians and non-physician healthcare providers, such as nurse practitioners (NP), physician assistants (PA) or certified nurse midwives (CNM), as primary care providers who are indispensable in contributing to the overall health of the population (Institute of Medicine, 2001).

Furthermore, according to the North Carolina Institute of Medicine (NCIOM), people with less access to healthcare live shorter lives with more morbidity and decreased productivity, lending credence to the importance of healthcare access (NCIOM Health Access Study Group, 2009; NCIOM, 2007).

Consumer healthcare access remains a topic of heated political debate with much discussion in recent political agendas. Physicians were the first to secure legislative recognition of their practice, casting an all-inclusive scope of for medical practice. Hence, NPs and all other healthcare professionals outside of medicine have had to carve out state legislation defining professional scopes of practice within the pre-emptive medical practice act (Safriet, 2010) . Millions of dollars and countless hours have been spent on legislative attempts to improve consumer access to all primary care providers PCPs. Nowhere has this impact been more significant than in removing the barriers to NP practice.

Decades of research demonstrates the safe, effective, high quality of NP-delivered care. Yet, inconsistencies in NP regulation and requirements for physician oversight limit where NPs can serve and how or if they can be reimbursed for their services. Physician oversight includes statutory requirements for mandated physician involvement in NP practice for activities including supervision, collaboration, protocol approval, prescriptive authority approval or signing practice-related forms requiring clinician of record signature. Regulation requiring physician oversight of nurse practitioner practice places NPs in positions of dependence on the medical profession for practice parameters for which NPs have been educated and credentialed. These processes are important for all NPs but they especially impact NPs who own their own practices or who practice in rural areas where physicians are either unavailable or unwilling to supervise NP-delivered care.

## Statement of the Problem

Restrictive NP regulation is counterintuitive to increasing access to healthcare. The 2010 seminal report by the Institute of Medicine, *the Future of Nursing: Leading Change, Advancing Health* uses decades of clear and convincing evidence of the effectiveness of NPs and the need to mobilize increased healthcare access through these providers. Within the report a number of interdisciplinary studies recommend professional regulation that is protective of the consumer yet empowers clinicians to practice to their full scope of practice. Additionally, a number of independent recent studies acknowledge a shortage of providers to meet the growing primary health care needs of the U.S. population (Center to Champion Nursing in America, 2010; Cronenwett & Dzau, 2010; Institute of Medicine, 2001; 2010; NCIOM Task Force on Primary Care and Specialty Supply, 2007).

While there is national consistency in the regulation of entry-level nurses, wide variation exists in how and by whom advanced practice registered nurses (APRNs) are regulated. The state boards of nursing (BON) are responsible for the regulation of all entry level nursing practice. In contrast, NP regulation can be grouped into three major categories:

1. *Autonomous Regulation (AR)*: a regulatory model in which a profession is governed by its own professional body without statutory requirements for involvement of other professionals; the least restrictive form of regulation.
2. *Partially Autonomous Regulation (PAR)*: a regulatory model wherein the profession is regulated by its own professional regulatory board; yet with statutory requirements for involvement of another profession in the oversight of components of practice; a moderately restrictive form of regulation

3. *Joint Regulation (JR)*: A unique regulatory model wherein one profession is governed by two distinct regulatory bodies; the most restrictive form of regulation.

This variability in APRN regulation and scope of practice confuses the public and makes national standards of practice impossible. Many of the regulatory methods limit NPs from practicing to the full extent of their licensure, certification and education.

Regulatory research demonstrates that regulation based in science rather than sociopolitical norms is evidence-based regulation that supports AR (Lugo et al., 2007; Rudner, O'Grady, Hodnicki, & Hanson, 2010). Autonomous regulation protects the public, empowers clinicians to practice to the full extent of their licensure, education and credentials, and promotes professional autonomy (NCSBN, 2008). In contrast, restrictive regulatory models are derived from sociopolitical influences and have evolved in a non-evidenced manner. Many of these models such as joint regulation restrict regulation, limit NP practice, and reduce consumer access to NP-delivered care (Center to Champion Nursing in America, 2010; Hansen-Turton, Ritter, Rothman, & Valdez, 2006; Institute of Medicine, 2010; Lugo et al., 2007). Furthermore, joint regulation limits NP mobility and unnecessarily ties NPs to physicians through statutorily required physician oversight (NCIOM Task Force on Primary Care and Specialty Supply, 2007; Whelan, 2000a).

In a dynamic healthcare environment nursing regulation is continually modified to incorporate advances in technology, knowledge expansion, demographic and social research, and evolving marketplace needs (NCSBN, 2006). Understanding the impact of regulation and physician oversight on NP practice is foundational to providing accessible, safe healthcare for the public. Several well-designed studies have explored NP regulatory environments; however, no studies have explored the impact these variables have on actual NP practice. One study

demonstrated that restrictive regulatory environments negatively impact access to NP-delivered care; resulting in lower numbers of NPs working in states with restrictive regulatory environments (Whelan, 2000a). No studies have explored attitudes or perceptions of the actual NPs impacted by these regulatory environments. Therefore, further empirical evaluation is needed.

### **Background to the Problem**

Historically, the inequity experienced by NPs in practicing to the full extent of their licensure, certification and education has been of limited concern to those outside of the nursing profession. The potential of new reimbursement sources of care via health reform and the critical reality of healthcare disparity in the US now combine to make full utilization of all healthcare providers a common discussion among many key regulatory leaders and policy makers (Center to Champion Nursing in America, 2010; Cronenwett & Dzau, 2010; Institute of Medicine, 2010; Lowery & Varnam, 2011; Lugo et al., 2007; NCIOM Health Access Study Group, 2009; NCSBN, 2008). Historical and sociopolitical norms surrounding health care delivery are challenged by current economic pressures and the convergence of skill sets and professional scopes of practice; leading to new challenges and opportunities to revise how healthcare is delivered (Mullinix & Bucholtz, 2009; Ricketts, 2011). To fully understand the framework and evolution of NP regulation, it is important to explore sociopolitical influences on the nursing profession and the NP scope of practice (SOP).

### **Sociopolitical Influences on Nursing Practice**

An understanding of history and the evolution of sociopolitical context is necessary to fully appreciate the state of health care regulation. As the meaning of language evolves in response to cultural influences, so does the face, definition and utility of professional roles in

meeting the access needs of a dynamic health care environment (Jacox, 1997). Gender, political power and overlapping professional competencies are all factors impacting the sociopolitical context of all nursing practice.

**Gender.** Nursing has historically been considered a predominantly female profession compared to the predominantly male professions of medicine and law (Jacox, 1997; Lugo et al., 2007; Mullinix, 2011; Safriet, 1994; Safriet, 2010). Female professions have been perceived as nurturing and subservient while male professions have been viewed as strong and highly educated (Jacox, 1997; Mullinix, 2011). These cultural norms continue to impact the evolution of NP regulation, reflecting the historical sociopolitical norms of physician dominance while placing NPs in a dependent, subservient role through restrictive regulation and dependence on the medical profession for physician oversight of NP practice.

**Political power.** Nurses have a long and established history as caregivers, earning a consistent ranking as one of the most trusted and respected of all professionals (Robert Wood Johnson Foundation, 2010). Despite a rich history of clinical leadership, nurses have remained largely invisible in policy and political settings. Physician advocacy groups were early leaders in using the political and legislative process to establish regulatory authority for scope of practice, casting a pre-emptive political strike in declaring an all-inclusive scope of practice (Jacox, 1997; Safriet, 2010). A continually evolving health care environment calls for nursing leadership and patient advocacy; not only in clinical arenas, but in policy and political arenas as well (Jacox, 1997; Robert Wood Johnson Foundation, 2010).

**Overlapping professional competencies.** Recent interdisciplinary studies have amplified the evolving professional competencies necessary to meet the health care access needs of the U.S. health care consumers (Cronenwett & Dzau, 2010; Institute of Medicine, 2010;

O'Grady & Brassard, 2011). Competencies initially considered exclusively medicine are now common competencies in nursing and other professions. For example, at one time, it was considered within the exclusive domain of medicine to take a blood pressure, perform veinipuncture, or prescribe medicine or diagnostic services (Safriet, 2010). As non-nursing stakeholders recognize the increasing overlap of professional competencies, nursing leadership is needed to standardize and include NPs as qualified, proven PCPs who can meet health care access needs in an increasingly complex healthcare delivery system.

Sociopolitical norms have held nursing and NPs in particular, in abeyance from medicine and other healing professions. As part of the predominantly female nursing profession, NPs have been marginalized by other male dominant professions through issues of gender, subservience, physician dominance and male hierarchy (Mullinix, 2011; Safriet, 1992; Safriet, 1994). Policy and opinion leaders clearly call for equal partnerships and nursing leadership in all aspects of healthcare delivery systems (Robert Wood Johnson Foundation, 2010).

As NPs and other nursing leaders continue to build their own places in society and the economy, nurses ask that this separation be dismantled. “There are no more valid reasons (or “evidence,” as we now say) to maintain such separation. There are no good reasons why we cannot begin to share roles and responsibilities” (Ricketts, 2011, p. 277). To further understand and resolve this issue, discussion of nursing regulation is first warranted.

### **Regulatory Influences on Nursing Practice**

The Tenth Amendment of the U.S. Constitution maintains that each state has a right to protect their citizens through the regulation of health care providers (Hudspeth, 2009; Mount, 2010). The medical profession was the first professional group to use the legislative process to establish a professional regulatory board to determine scope of practice in the 1850s (NC



Medical Board, 2009). This broad practice act meant subsequent health professions had to carve their professional scope of practice out of the all-encompassing medical practice act. The nation's first Nurse Practice Act was enacted through legislation in North Carolina in 1903 (NCBON, 2009). This act authorized a State Board of Nursing (BON) to be responsible for protecting the health, safety and welfare of the public by defining and ensuring competent, safe nursing practice (NCSBN, 2006).

While self governance was established for general nurses in the practice environment, nurse practitioner regulation and oversight is not standardized across states. Instead, NPs have multiple regulatory models unlike nurses in general practice and other health professionals. Most professions, such as psychologists, physical therapists, and audiologists are self governed using representatives from within their own discipline. This is logical given that regulation of a professional group requires specialized licensure, education and certification in the competencies of that particular profession. The National Council of State Boards of Nursing (NCSBN) recommends national standardization in the definition and regulation of APRN practice.

### **Advanced Practice Registered Nurse (APRN) Education**

The NCSBN defines APRNs as registered nurses who have completed graduate level education in one of four roles: Certified Nurse Midwife (CNM), Clinical Nurse Specialist (CNS), Certified Registered Nurse Anesthetist (CRNA) or Nurse Practitioner (NP) (NCSBN, 2008). Research demonstrates that APRNs are critical in meeting healthcare access needs of American citizens (Institute of Medicine, 2010). APRN education is standardized and includes both broad, general graduate nursing education competencies as well as clinical specialty specific competencies. In addition to extensive clinical experiences, all APRNs take three separate foundational courses in advanced patho- physiology, health assessment and pharmacology. All

APRN educational programs are accredited by national agencies and include a standard that all graduates must be eligible for national certification at the conclusion of their program of study (NCSBN, 2008). National certification is a requirement for state licensure of APRNs in 45 of 50 states. While regulation is important for all APRN roles, this paper will only address issues specific to NPs.

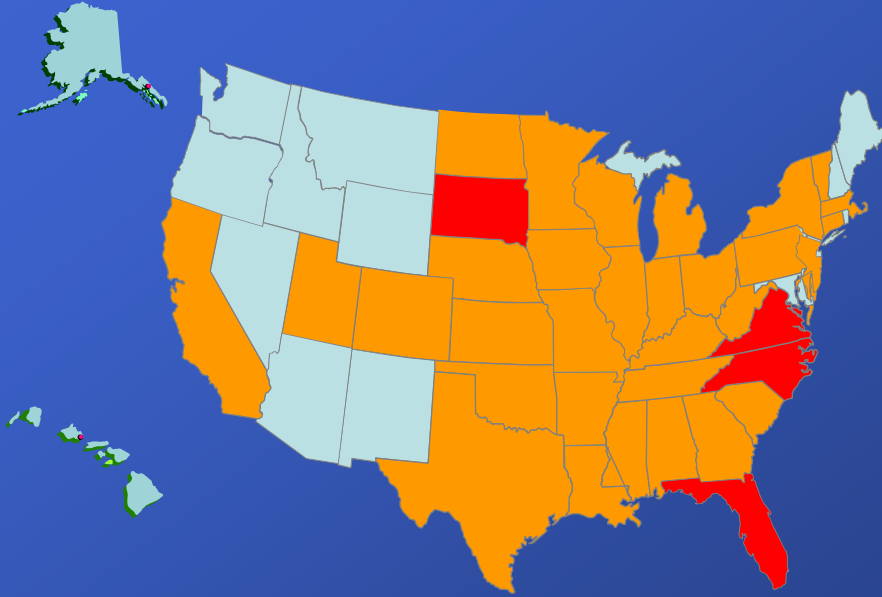
### **Nurse Practitioner Regulation**

Despite national standards for education, NP oversight and regulation varies among states. Noted Law Professor, Barbara Safriet argues that these variations are the result of “political realities, struggles, and compromises particular to that state. Stitched together, these practice acts become a crazy quilt of widely varied, often inconsistent, sometimes contradictory licensure and payment laws” (Safriet, 2010, p. 453). Variations in NP regulation can be grouped into three major categories: Autonomous Regulation (AR), Partially Autonomous Regulation (PAR) and Joint Regulation (JR). The existing regulatory models are discussed in the following in the order of least restrictive to most restrictive regulation. A regulatory map reflecting the distribution of these regulatory models is reflected in Figure 1.

#### **Autonomous Regulation (AR)**

Thirteen states and the District of Columbia (27%) in the US, NP practice is regulated solely by the BON with no statutory requirement for physician oversight in NP care (Pearson, 2010). Recent research and policy recommendations support autonomous regulation of NPs and all other eligible health care providers, allowing practice within the full extent of their licensure, certification and education (Institute of Medicine, 2010; Lugo et al., 2007; NCSBN, 2008). Furthermore, research has demonstrated that consumers have more choices and fewer barriers to

Blue=Autonomous Regulation (AR)/No Physician Involvement in NP Practice  
Gold=Partially Autonomous Regulation (PAR)-BON Reg. w/Physician Involvement  
Red=Joint Regulation (JR) Reg. by BON/BOM



Adapted from Pearson, L. (2010). The Pearson report, 2010. *The American Journal for Nurse Practitioners*, March 15, 2011.

Figure 1. National NP Regulatory map.

access to healthcare in states with autonomous regulatory models compared with more restrictive regulatory models (Rudner et al., 2010) .

### **Partially Autonomous Regulation (PAR)**

Thirty-Three states (65%) in the US utilize partially autonomous regulation (PAR), requiring variable amounts and forms of physician involvement in NP care. While NP practice in these states is regulated by the BON, physician oversight may be required for prescriptive privileges, practice protocols or collaborative practice agreements. This regulatory model creates a hierarchal relationship in which the NP is dependent upon the establishment of a physician relationship, erecting arbitrary barriers to NP practice and diffusing healthcare accountability, outcomes and disciplinary authority (Hudspeth, 2007; 2009; Lugo et al., 2007; Pearson, 2010; Rudner et al., 2010; Safriet, 1994).

### **Joint Regulation (JR)**

Joint regulation (JR) is a unique regulatory process in which NP practice is regulated by both the BON and the Board of Medicine (BOM) (NCBON, 2009; Safriet, 1994). NP practice remains jointly regulated by both the Nursing and Medical boards in only four (8% ) states throughout the United States: Florida (FL), North Carolina (NC), Virginia (VA), and South Dakota (SD). Previous research on regulatory environments ranked joint regulation as restrictive to NP practice, erecting barriers to consumer access to NP care (Lugo et al., 2007). The regulatory process is largely influenced by sociopolitical and economic factors as previously discussed.

In summary, thirteen states and the District of Columbia (AK, AZ, DC, HI, ID, ME, MD, MT, NH, NM, OR, RI, WA, WY) utilize AR, the least restrictive regulatory model, wherein, NPs practice to their level of education, certification and competence with no statutory

requirement for involvement of other professions in NP practice. Thirty-Three states (AL, AR, CA, CO, CT, DE, GA, IL, IN, IA, KS, KT, LA, MA, MI, MS, MO, NB, NV, NJ, NY, ND, OH, OK, PA, SC, TN, TX, UT, VT, WV, WI) utilize a PAR, a moderately restrictive regulatory model where NPs are regulated solely by the state board of nursing but with some statutory requirements for physician oversight, collaboration or physician-approved protocols for NP practice. Finally, four states (FL, NC, SD, and VA) utilize the most restrictive regulatory model, JR, wherein states have joint regulation of NP practice regulated by two regulatory boards; namely the state boards of nursing and medicine. It is noteworthy that three of the four states requiring JR are clustered in the southeastern quadrant of the US (Center to Champion Nursing in America, 2010).

The state of Maryland recently abolished their JR process for one of AR in 2010 (Pearson, 2010). Consistent with national regulatory trends, the state of Maryland noted that physicians and other professionals are knowledgeable about their specific disciplines but are not educated in the science and theoretical constructs of nursing. Therefore, they are not qualified to determine the appropriate limits and boundaries of nursing practice (Safriet, 1992). This regulatory role logically lies with the nursing profession, alone.

Best practice in regulatory research has demonstrated that states with restrictive JR models limit consumer access to safe, effective NP care, limit NP mobility and where they can serve, limits consumer choice in healthcare and fail to utilize NPs to the full extent of their licensure, certification and education (Institute of Medicine, 2010; Lugo et al., 2007; NCSBN, 2008; Rudner et al., 2010). Furthermore, NPs seek employment in states with less restrictive environments compared to those with regulatory requirements for physician oversight of NP practice (Whelan, 2000b). Lastly, JR confounds the accountability and locus of authority in

identifying and resolving charges against NPs leading to disciplinary complaints and resolution (Hudspeth, 2009).

Despite evidence supporting AR for NP practice, wide variations remain in the regulation of NP practice (Institute of Medicine, 2010; Lugo et al., 2007; NCSBN, 2008; Pearson, 2010; Rudner Lugo, O'Grady, Hodnicki, & Hanson, 2010; Rudner et al., 2010). These inconsistencies erect artificial barriers that limit NPs from practicing the full extent of their licensure, certification and education. Current regulatory models have contributed to inequalities in healthcare access. The 2008 National Council of State Boards of Nursing Consensus Document on APRN Regulation proposes a consistent, national model of APRN regulation where APRN practice is based on licensure, accreditation of APRN educational programs, certification and education (NCSBN, 2008). APRNs include certified registered nurse anesthetists, certified nurse-midwives, clinical nurse specialists and certified nurse practitioners. Each has a unique history and context, but shares the commonality of being APRNs.

While education, accreditation, and certification are necessary components of an overall approach to preparing a NP for practice, the licensing boards governed by state regulations and statutes are the final arbiters of who is recognized to practice within a given state (Hudspeth, 2009). Currently, there is no uniform model of regulation of APRNs across the states. Each state independently determines the APRN legal scope of practice, the roles that are recognized, the criteria for entry into advanced practice and the certification examinations accepted for entry-level competence assessment. This has created a significant barrier for APRNs to easily move from state to state and has potentially decreased access to care for patients. While regulatory methods are important to all APRNs, this document will focus on the impact of regulation on NP practice from this point forward. Moreover, variability in NP regulation may confound NP

disciplinary processes. Research suggests that restrictive regulatory models may jeopardize public safety and consumer access to care by extending the time required to resolve disciplinary complaints (Hudspeth, 2007; Hudspeth, 2009).

### **Nurse Practitioner Scope of Practice**

Variability in state regulation of NP practice not only contributes to access issues, it also leads to inconsistencies in NP scope of practice, prescriptive authority, professional autonomy, mobility and reimbursement eligibility, and ability to maximize consumer access to health care (American College of Nurse Practitioners, 2011; Bahadori & Fitzpatrick, 2009; Center to Champion Nursing in America, 2010; Hansen-Turton et al., 2006; Institute of Medicine, 2010; Lugo et al., 2007; Mullinix & Bucholtz, 2009; NCSBN, 2008; Whelan, 2000a). In response to this dilemma, a proposed consensus model of regulation has been developed. This model recommends an independent scope of practice for NPs within their particular role and population focus (NCSBN, 2008).

Nurse Practitioner scope of practice is determined by licensure, accreditation, certification, and education. This means enabling NPs to provide direct patient care services in diverse, consumer-centric settings without physician oversight. While independent practice defines the consensus model, NPs collaborate, consult with, or refer to physicians and other interdisciplinary team members as needed to optimally meet consumer needs. Furthermore, independent practice provides autonomy, the freedom of choice in making clinical and professional decisions specific to their role and scope of practice.

### **Nurse Practitioner Disciplinary Process**

In addition to scope of practice specifications, NP disciplinary processes are also determined by state legislated regulatory bodies empowered to govern NP practice. Variability

in state regulation of NP practice creates uncertainty in the exact description of the NP scope of practice (SOP) and disciplinary process from a national perspective. Recent research reveals similarities in how NP discipline is managed; however, regulatory variability causes inconsistencies in NP SOP and violations of NP practice that might require disciplinary management (Hudspeth, 2009).

There has been limited national descriptive research on the NP disciplinary process across all regulatory models (Hudspeth, 2007; 2009; Kenward, 2008). And, no research has compared disciplinary processes, rates and patient safety between NPs practicing in states with independent practice compared with those NPs practicing in states with some form of required physician oversight or collaboration of NP practice (Hudspeth, 2009).

Variations in state regulation of NP practice confound and create inconsistencies in the processes by which NP disciplinary complaints are identified and resolved (Hudspeth, 2007; 2009). While the incidence of disciplinary cases against NPs is low, it is unclear how regulation impacts the identification and resolution of disciplinary charges against NPs. Evidence on best-practice in resolving consumer complaints against NPs is needed to avoid jeopardizing public safety and decreasing consumer choice and access to NP care.

### **Impact of Regulation on Access to Care**

The impact of regulation on health services has been well documented (Institute of Medicine, 2010; Lugo et al., 2007; Rudner et al., 2010; Safriet, 2010). Regulatory research has clearly indicated that restrictive regulatory models and statutory requirements for physician oversight limit the full utilization of NPs within their scope of practice, decreases professional autonomy, increases health care costs, limits NP mobility, and decreases consumer access to health care (Bahadori & Fitzpatrick, 2009; Center to Champion Nursing in America, 2010;



Hansen-Turton et al., 2006; Lugo et al., 2007; Rudner et al., 2010; Whelan, 2000a) The NCSBON recommends that all APRN regulation should be under the auspices of the state BON. Furthermore, the National Council of State Boards of Nursing (NCSBON) recommends licensure of APRNs as independent practitioners with no mandated regulatory requirements for collaboration, direction or oversight by physicians.

Nurses are key leaders who should be equal partners in both the clinical and policy aspects of healthcare delivery (Institute of Medicine, 2010; Robert Wood Johnson Foundation, 2010). Nurse Practitioners are natural advocates; educated in clinical and policy issues impacting healthcare and the NP role. While many NPs have a conceptual understanding of the policy issues, they lack an understanding and framework of *how* to impact the policy process. Understanding the complexities of the policy actors and the process for effectual policy change over time is crucial to NPs' effective competition and service in key policy areas at the local, state and national levels (Curtis, 2009). The Advocacy Coalition Framework provides a foundational understanding of the policy actors, process and longitudinal aspects of advocating for NP regulation.

### **Advocacy Coalition Framework**

The regulatory and policy process is complex, involving many actors and elements over time (Sabatier, 1999). Policy actors include but are not limited to governmental agencies, legislatures, researchers, professional associations, special interests groups, and healthcare professionals from all disciplines, businesses and consumers of healthcare (McLaughlin & McLaughlin, 2008; Reid, 2009; Sabatier, 1999). Additionally the policy process is dynamic and responsive to historical and socioeconomic conditions, usually over a period of a decade or more (Lugo et al., 2007; McLaughlin & McLaughlin, 2008; Sabatier, 1999).

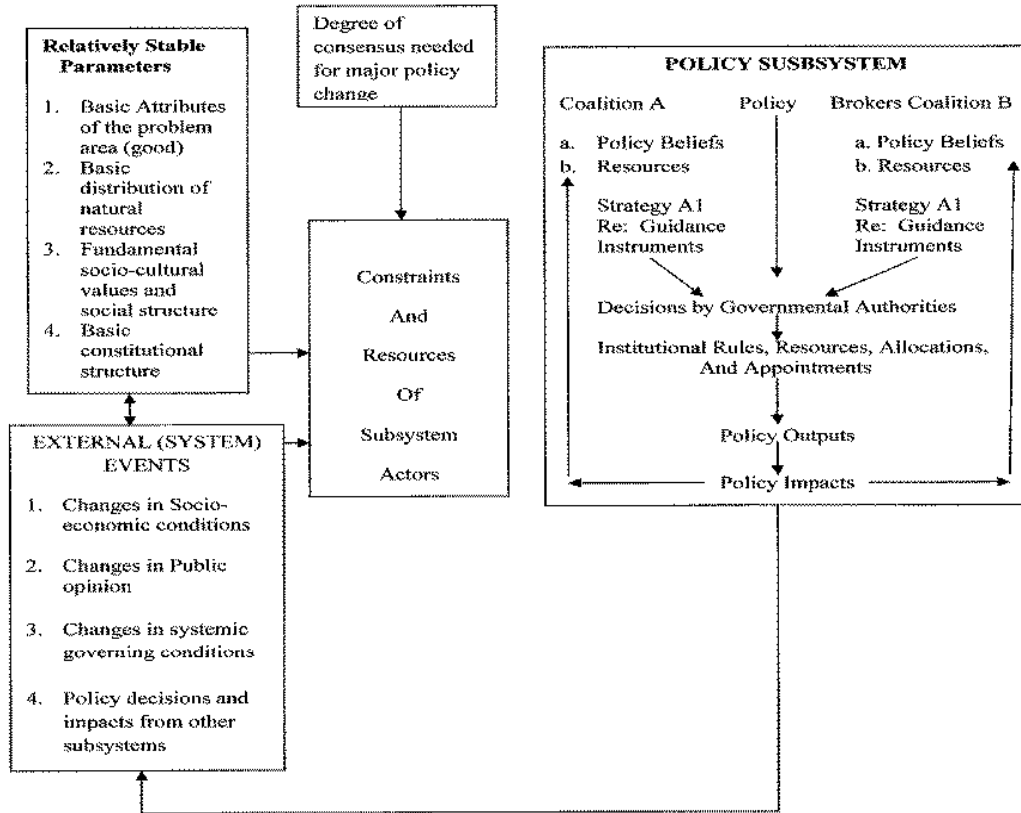
The Advocacy Coalition Framework (ACF) found in Figure 2, is a systematic policy framework for understanding regulation (Sabatier, 1999).

The framework amplifies the belief systems of policy actors, analyzing the conditions under which policy learning and change can occur. Specifically the ACF focuses on the interaction of policy actors. Policy evolves as a function of competition within a subsystem and events outside of the subsystem. The ACF maps the beliefs of the actors and analyzes the conditions of policy learning across the coalitions leading to policy change. For example the ACF illustrates the hierarchy and competition of a joint regulatory process that inherently puts the nursing and medical professions at odds. Biases of professional territoriality, autonomy and economic defensiveness surface as strongly held beliefs that are manifested through unsubstantiated claims regarding the safety of NP delivered care.

Despite decades of research demonstrating equitable patient health outcomes when comparing NPs to physicians and PAs, unsubstantiated safety concerns persist as a belief from physician policy actors supporting continued joint regulatory processes (Mullinix & Bucholtz, 2009). These beliefs are used by policy actors to maintain the status quo. The policy subsystem provides the framework for comparing and contrasting more restrictive SRE's such as NC's JR model against less restrictive regulatory models such as SC's PAR. This comparative analysis will be used to test the relationships predicted in the hypotheses.

If autonomous regulation is the preferred policy future, it is instructive to analyze the policy subsystem to identify the process maximizing the potential for policy change supporting autonomous regulation. If policy change is dependent on the competition within the policy subsystem, then autonomous regulation is brokered by joint regulation. Stated differently, policy beliefs held by actors supporting regulation requiring physician oversight of NP practice will be

The Advocacy Coalition Framework



Source: Sabatier, P. (1999) Theories of The Policy Process. Westview Press. Boulder, CO., p. 149

Figure 2. Advocacy Coalition Framework.

in competition and oppose efforts to move toward less restrictive regulatory models such as AR. The policy beliefs are reflective of the professional autonomy and territorialities of the nursing and medical professions.

Clinical and policy research serve as the guidance instruments. Research demonstrating the safe, accountable, cost-effective care delivered by NPs, who are in many states limited by restrictive SREs, is brokered by publications and research refuting the safe, effective patient care outcomes of NP delivered care.

Economic defensiveness may be the driving factor in the joint regulatory guiding instrument. Federal and state bureaucracies and special interest groups influence the decisions by governmental authorities, resulting in institutional rules, resource allocations and appointments which finally lead to policy outputs or regulation impacting NP practice. Current and future research will demonstrate the policy impact and dynamic process that continually feed this circular process.

### **Purpose of the Study**

The purpose of professional regulation is to ensure public safety (NC BON, 2011; NCSBN, 2006). As the healthcare environment has evolved, thought leaders have looked for opportunities to maximize the available workforce to meet consumer needs and eliminate the disparities in health care access (Center to Champion Nursing in America, 2010; Cronenwett & Dzau, 2010; Institute of Medicine, 2010; Lugo et al., 2007). Variability in NP regulation and statutory requirements for physician oversight may constrain NP practice and limit consumer access to care. While well-designed research has documented elements of the regulatory environment, no research has documented the NP's perception of the impact of restrictive

regulation on NP practice. An understanding of how the nurse practitioner perceives the impact of regulation on nurse practitioner practice is needed.

The purpose of the study is to investigate the perceptions of NP providers regarding the impact of physician oversight on (1) safety and autonomy of NP care; (2) access to NP care by consumers; and (3) cost of NP care. Nurse practitioner perceptions regarding the impact of joint regulation and physician oversight on safety, NP autonomy, access, and costs outcomes will be assessed for both NPs and consumers. The objective of this research is to determine the perceived impact more restrictive regulatory models (JR and PAR) have on NP practice and consumer health care access and quality. This data will inform nursing practice, regulation, and legislation as well as enlighten policy makers.

### **Theoretical Framework**

Professional regulation is a set of rules that carry the weight of law for the purposes of governing conduct (Milstead, 2008). In contrast to most professional groups, regulation of NP practice has evolved in an arbitrary manner with wide variations and resulted in the unique situation wherein another profession is involved in the governance of this proven professional group (Safriet, 2010). The theoretical and conceptual constructs influencing the impact of regulation on NP practice is supported by the theoretical policy processes of the sociopolitical influences embedded in Carper's Sociopolitical Patterns of Knowing which applies a nursing lens to the foundational policy processes of the ACF (Sabatier, 1999; White, 1995).

### **Carper's Fundamental Patterns of Knowing**

The evolution and processes surrounding NP regulation is steeped in sociopolitical context, power inequities and traditional patriarchal influences from the dominant medical profession (Lugo et al., 2007; Mullinix & Bucholtz, 2009; Pearson, 2010; Safriet, 1994). To

effectively evaluate the impact of NP regulation on NP practice, one must consider a theoretical framework that situates the study within this larger sociopolitical context. Barbara Carper's (1978) *Fundamental patterns of knowing in nursing* propose patterns, forms and structure that exemplify ways of thinking about phenomena. Carper (1978) originally identified four patterns: "(1) empirics, the science of nursing; (2) esthetics, the art of nursing; (3) the component of a personal knowledge in nursing; and (4) ethics, the component of moral knowledge in" (p. 14).

Modified in 1995, White incorporated sociopolitical knowing as the fifth pattern of knowing. While previous patterns of knowing address the 'who', 'how' and 'what' of nursing practice; the pattern of sociopolitical knowing addresses the 'wherein'. Sociopolitical knowing situates nursing within the broader environment wherein nursing and health care take place.

White (1995) describes two levels of sociopolitical knowing: "(1) the sociopolitical context of the persons (nurse and patient), and (2) the sociopolitical context of nursing as a practice profession, including both society's understanding of nursing and nursing's understanding of society and its politics" (p. 83). These levels of knowing parallel the sociopolitical and cultural elements of the ACF's relatively stable parameters and the external systems noted in figure 1.

The sociopolitical context of the nurse-patient relationship deals with cultural identity. Culture influences understanding of health, disease, language, and connection to land (White, 1995). White's description of unequal class structure, power relationships, political and economically produced sexism, racism, ageism, and classism are clearly evident in the sociopolitical processes impacting NP regulation and consumer access to healthcare.

The second level of sociopolitical knowing challenges nurses to critique dominant forces within societal, political and economic structures and how these frameworks impact the health of

persons and communities, and nursing's position and visibility in policy issues impacting health (White, 1995).

The essential elements of the sociopolitical knowing patterns include five dynamic, interactive dimensions: creative, expressive, assessment, process, and credibility. Carper's sociopolitical pattern of knowing is represented as a conceptual model for NP regulation in Figure 3 and is described in the following narrative.

### **Creative Dimensions of Sociopolitical Knowing**

The medical profession cast a broad net as the first profession to initiate scope of practice legislation (Safriet, 1992; Safriet, 1994). Subsequently, all emerging professions were required to carve out scopes of practice from that defined for the medical profession. The creative dimension of this model includes a framework for exposing and exploring an alternate construction of reality; one that might remove regulatory barriers that limit the full deployment of NPs and other primary care providers. This dimension explores the possibility of re-conceptualizing NP practice to promote practicing to the full scope of NP education, licensure and certification and to expand consumer access to these proven primary care providers (Lugo & O'Grady, 2008; Pearson, 2010; Safriet, 1994). The creative dimension of sociopolitical knowing allows exploration of current and alternate regulatory realities to establish preferred scenarios and best practices in regulatory and disciplinary practices.

### **Expressive Dimensions of Sociopolitical Knowing**

Exploration of alternate regulatory realities also requires an understanding of the current regulatory trends and affected stakeholders. The expressive dimension includes an objective critique of the current sociopolitical landscape that examines biases and considers the validity of current practice models for NPs. Key components include descriptors of stakeholders,

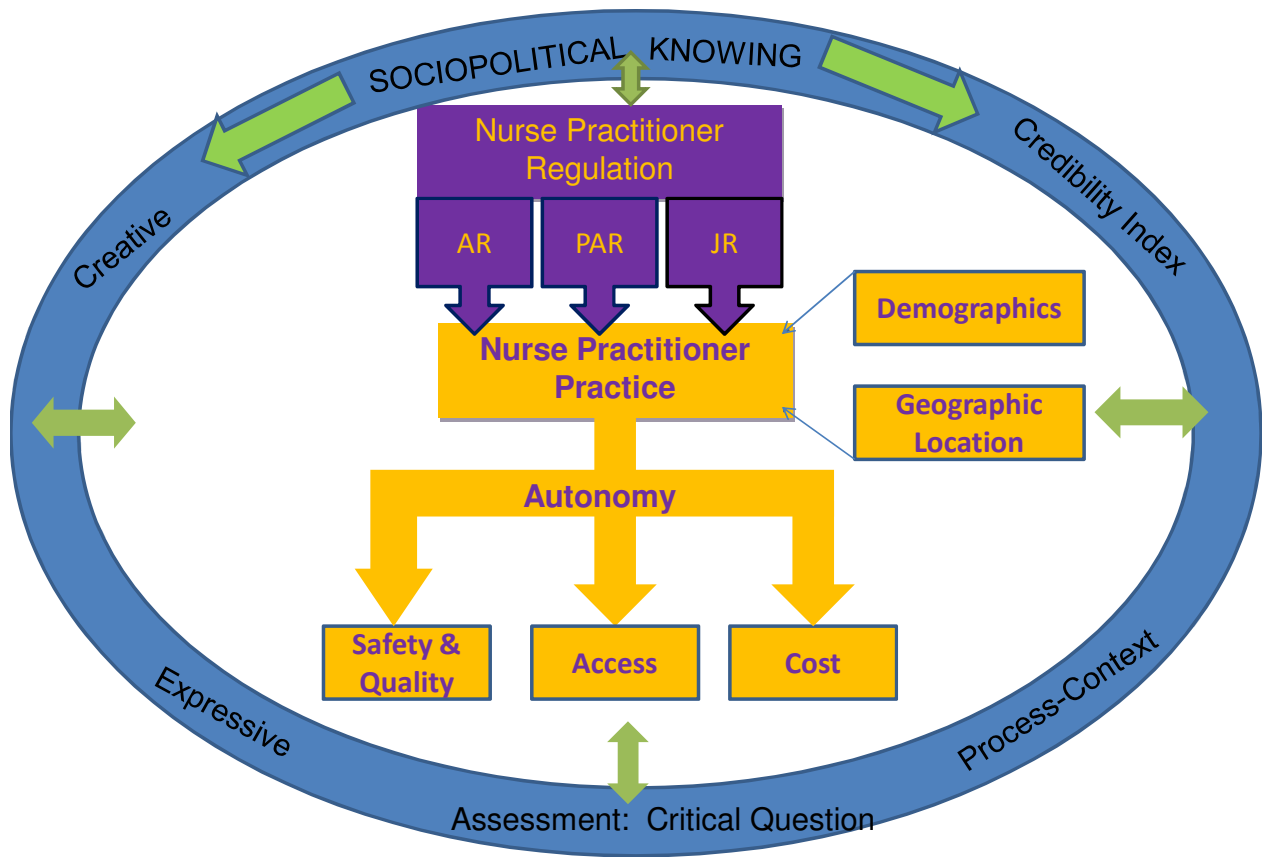


Figure 3. Conceptual model “sociopolitical knowing model for NP regulation”.



gatekeepers, and historical influences on the evolution of NP scope of practice and regulation (White, 2009).

### **Assessment Dimensions of Sociopolitical Knowing**

The assessment dimension of sociopolitical knowing intentionally asks critical questions. Whose voice is heard? Whose voice is silenced? Nurses' contributions to healthcare have been valued where they have been perceived as trusted, nurturing, caring professionals in clinical arenas (Institute of Medicine, 2010; Robert Wood Johnson Foundation, 2010). In contrast, these same trusted, caring professionals have been largely invisible in policy settings where regulation is promulgated (Institute of Medicine, 2010; Robert Wood Johnson Foundation, 2010; White, 2009; White, 1995). Furthermore, the assessment dimension intentionally inquires if the consumer's voice is heard or silenced as they attempt to access NP services. If NPs are to be most effective in providing care to consumers, they must understand how the voice of nursing has been suppressed and marginalized in policy settings.

### **Process Dimensions of Sociopolitical Knowing**

An ongoing assessment of whose voice is heard or silenced requires context for understanding (White, 1995; White, 2009). The process dimension examines the situated context in which practice realities exist. This dimension critically examines the process influences impacting hearing all voices (Munhall, 2007). The process uncovers and makes known any power inequities, the histories supporting these power inequities and shines a light on the emancipation of suppressed voices. The interdisciplinary work of the IOM illuminates the evidence and context for an amplified voice for nursing leadership in policy and regulatory settings.

## **Credibility Index Dimensions of Sociopolitical Knowing**

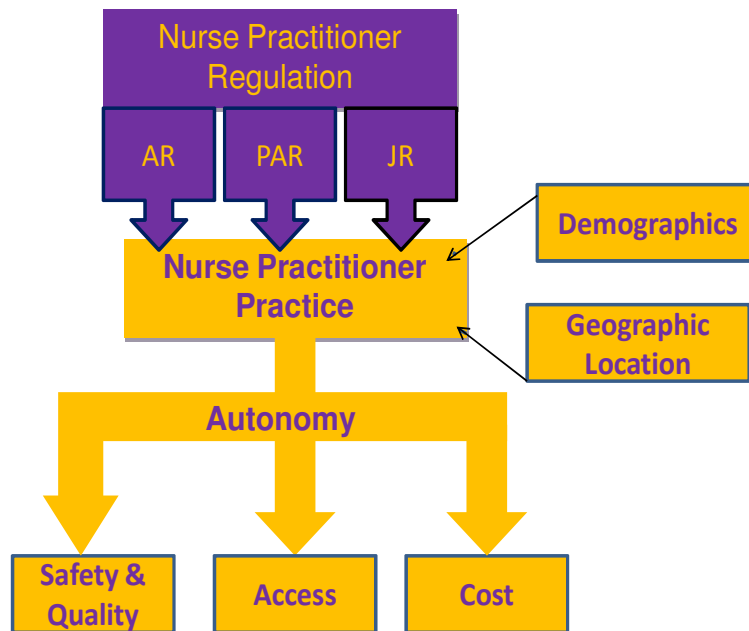
The credibility index dimension is the process through which nurses articulate and demonstrate the intrinsic value and leadership that nurses bring to clinical and policy settings. This form of knowing generates the steps for emancipation, shared governance, enlightenment and movement toward equity. The credibility index allows nurses to recast an understanding of nursing as leaders in both clinical and policy settings. Through this lens nurses then educate stakeholders on the value nurses bring to all continuums of health; a reminder for stakeholders of the value placed in nursing when needed in the clinical arena is also value in the policy arena (White, 1995).

Nurses must translate and apply knowledge where health-related issues of public policy, nursing, power structure influences and economics intersect (Bahadori & Fitzpatrick, 2009; Curtis, 2009; Institute of Medicine, 2010; Nolan, 2000; Robert Wood Johnson Foundation, 2010). Carper's sociopolitical knowing provides a strong conceptual and theoretical milieu for developing a research model to explore the impact of JR and physician oversight on NP practice.

### **Research Model**

Research models more specifically define the relationships being tested within a theoretical framework. Research models should reflect a clear and complete picture of the content and flow of the study while also logically, conveying conceptual clarity. Figure 4 displays the research model used in this study.

To explore the impact of the NP regulatory process the advocacy coalition framework policy subsystem is used to determine how external policy influences practitioner and consumer outcomes (Sabatier, 1999). While the dynamic influence of sociopolitical knowing influences all aspects of the NP regulatory process, the research model tests the impact of the two most



*Figure 4.* Research model of impact of regulation on NP practice.

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restrictive regulatory models, PAR and JR on NP practice. Both PAR and JR have embedded statutory requirements for physician oversight. Requirements for physician oversight of NP practice directly impacts promulgation of legislation defining NP scope of practice.

Requirements for physician oversight impact geographic location where NPs practice. Nurse Practitioner demographics may impact how NPs respond to requirements for physician oversight of NP practice and its impact on NP autonomy. Regulation determines the NP scope of practice which directly impacts NP autonomy and how the NP can access and interface with consumers seeking NP care. Access to care impacts the safety, quality, and cost of healthcare. Nurse practitioner regulation is a derivative of these factors rather than evidence of best practices in regulation. Research demonstrates a strong conceptual link between NP regulatory models and the dimensions of NP outcomes (Institute of Medicine, 2010; Lugo et al., 2007; Rudner et al., 2010).

The model hypothesizes that NP practice is impacted by sanctioned regulatory boards who determine the degree of professional autonomy and components of the NP scope of practice such as prescriptive authority. The regulatory model and statutory requirement for physician oversight is supported by the policy output derived from governmental authority decisions (Sabatier, 1999). The regulatory model and requirements for physician oversight directly influence NP practice and indirectly impact consumer access to NP care. Nurse practitioner outcomes reflect the interactions of the external, sociopolitical policy influences, governmental authority decisions and regulatory controls on NP practice. The model hypothesizes that the outcomes safety and quality, access, and healthcare costs are affected for both NPs and consumers. Access includes perceptions of NP willingness to relocate and views on consumer's ability to gain entrance into the healthcare system.

Quality and safety of NP care are used interchangeably in the literature. Quality and safety are measured by proxy through the incidence of complaints against NPs documented through the National Practitioner Data Bank (NPDB) and Healthcare Integrity and Protection Data Banks (HIPDB) and the incidence of disciplinary complaints and patient outcome studies (AHRQ and HRSA, 2006; Haasl-Wilson, 2011; Hudspeth, 2009; Institute of Medicine, 2010; Lenz, Mundinger, Kane, Hopkins, & Lin, 2004; Mullinix & Bucholtz, 2009; Mundinger, Kane, Lenz, Totten, Tsai, & et al., 2000; O'Grady & Brassard, 2011; Pearson, 2010; Rudner et al., 2010). The quality outcome measure evaluates the impact of regulation on the quality of NP care. Safety issues may emerge when regulation requires physician oversight of diagnostic services or prescriptive authority that can contribute to delays in care delivery. Finally, restrictive regulatory models and requirements for physician oversight of NP practice may increase health care costs through delaying health care decision-making and duplicating services (Hansen-Turton et al., 2006; Hudspeth, 2009; Lugo et al., 2007). The cost of NP care may be impacted through charges for physician oversight and unnecessary physician consultation.

Parallel consumer outcomes are examined since regulatory influences on NP practice indirectly affect consumer quality, safety, access and cost. These components are supported by recent regulatory research on (Lugo et al., 2007; Rudner et al., 2010; Whelan, 2000b). The research model hypothesizes that restrictions on NP autonomy and prescriptive authority imposed by some NP regulation has an effect on NP quality, safety, access to consumers and costs. Likewise, these outcomes decrease consumer access to primary care, potentially compromise patient safety and quality of care, and inflate consumer costs.

## **Significance**

A clear understanding of the impact regulatory requirements for physician oversight on NP Practice is vitally important to understanding best practices in regulation, ensuring health care access, decreasing health care costs and assuring public safety. This study has the potential to make a significant contribution to the body of nursing knowledge in these areas. While several well-designed studies have documented the NP regulatory environment, no research has been done examining the impact of restrictive regulatory models inclusive of statutory requirements for physician oversight on NP practice. Investigation of the impact regulatory requirements for physician oversight on NP Practice will expand knowledge regarding best practices in NP regulation and inform policy processes. Using Carper's sociopolitical framework, alternate regulatory realities can be explored and the NP's voice can be amplified. These findings may then promote regulation that is consumer centric and protective of the public.

## **Research Questions**

The purpose of the study is to investigate the perceptions of NP providers regarding the impact of physician oversight on NP practice related to (1) safety and quality of NP care; (2) access to NP care by consumers; and (3) cost of NP care. The following research questions will guide the questionnaire design and data analysis for this study:

1. What are the overall NP perceptions regarding the impact of physician oversight on patient care (safety, access to care, and costs) and NP practice (scope of practice, job mobility, job satisfaction, autonomy, and resolution of practice and disciplinary complaints)?

2. Are there differences in NP perceptions regarding the impact of physician oversight on patient care and NP practice related to SRE ranking, type of regulation, NP experience, and type of physician oversight?
3. How well does the combination of SRE ranking, type of regulation, NP experience, and type of physician oversight relate to the NP perceptions regarding the impact of physician oversight on patient care and NP practice?

### **Operational Definitions**

*Access to health care* - The capability of consumers to attain healthcare that includes available healthcare providers, services, transportation, admittance by the facility, ability to meet financial obligation and insurance benefits

*Advanced Practice Registered Nurse* - A registered nurse with a master's or doctoral degree in nursing who is prepared in one of four roles: (1) Certified Registered Nurse Anesthetist, (2) Certified Nurse Midwife, (3) Certified Nurse Practitioner, or (4) Clinical Nurse Specialist

*Autonomous Regulation* - A regulatory model in which a profession is governed by its own professional body without statutory requirements for involvement of other professionals in NP practice. This is considered the least restrictive model of NP regulation.

*Cost* - the direct and indirect expenses associated with health care delivery. In this study cost is measured by cost of physician oversight of NP practice.

*Job mobility* - The ability to change employment location.

*Joint Regulation* - A unique regulatory model wherein one profession is governed by two distinct regulatory bodies. For the purposes of this study joint regulation will refer to regulation

by both the State Board of Nursing and the State Medical Board and is considered the most restrictive model of NP regulation.

*Partially Autonomous Regulation* - A regulatory model wherein the profession is regulated by its own professional regulatory board; yet with statutory requirements for involvement of another profession in the oversight of components of practice. For the purposes of this study partially autonomous regulation will refer to sole regulation by the State Board of Nursing with concurrent regulatory requirements for physician oversight or collaboration of any part of NP practice and is considered a moderately restrictive form of NP regulation.

*Physician oversight* - includes statutory requirements for mandated physician involvement in NP practice for activities including supervision, collaboration, protocol approval, prescriptive authority approval or signing practice-related forms requiring clinician of record signature.

*Direct physician oversight* - physician oversight provided when the physician is physically located in the same practice site.

*Indirect physician oversight* - physician oversight provided when physician is not physically located at the same practice site as the NP.

*Practice/Disciplinary Complaints* - Official complaints received and investigated by a regulatory board generally involving scope of practice, substance abuse, ethical or moral boundary violations or criminal activity falling outside of the professional scope of practice.

*Primary Care Provider* - a physician, nurse practitioner, certified nurse mid-wife or physician assistant who is educated and credentialed for and skilled in comprehensive first contact and continuing care for persons with any undiagnosed sign, symptom, or health concern and the ongoing management of chronic disease.



*Professional Autonomy* - control and freedom in the application of professional judgment in the exercise of professional practice (Bahadori & Fitzpatrick, 2009).

*Nurse Practitioner* - An advanced practice registered nurse who manages a broad range of health problems in a variety of settings; emphasizing primary care and health promotion. For the purposes of this study, the NP is a member of the FHEA.

*Regulation* - Governing or directing according to a rule or bringing under the control of a constituted authority such as a state or federal government.

*Safety* - The safe delivery of healthcare consistent with evidence based healthcare. Safety used interchangeably with quality. In this study, safety is measured by the incidence of medical malpractice reports from the National Practitioner Data Bank (NPDB) and Healthcare integrity and Protection Data Banks (HPDB) and incidence of disciplinary complaints filed with appointed state regulatory boards.

*Scope of Practice* - The rules, the regulations, and the boundaries within which a fully qualified practitioner, with substantial and appropriate training, knowledge, and experience may practice as defined by state legislatures and licensing boards.

*State regulatory environment (SRE) ranking* - A letter grade assigned to reflect the nature of the SRE.

## **CHAPTER II: REVIEW OF LITERATURE**

This chapter reviews the literature and current research on the influences and processes of the NP regulatory environment impacting NP practice requirements for physician oversight of NP practice. Scientific inquiry guided the literature review based on the previously identified research questions addressing NP mobility, consumer access to NP care, NP access to consumers seeking access to NP care, patient safety, and the NP disciplinary process. Literature review methods are described. Findings from the research literature are presented categorically using the themes emerging from the literature. The review begins with an overview examining the policy and regulatory research, followed by transformative nursing; a synthesis of policy and best practices in regulatory research. Nurse Practitioner autonomy is examined in context of regulation and amplification of the NP voice in policy and healthcare systems. The NP regulatory environment and NP scope of practice are examined in their relationship to NP practice, public safety, consumer access to NP-delivered care and health care costs. The chapter concludes with a discussion of the NP disciplinary process in varied regulatory environments.

An integrative review of the literature was conducted using Cinahl Plus, Ovid Medline and Google® to explore nursing, medical, legal and political science research respectively related to NP regulation, discipline, boards of nursing and national council of state boards of nursing. Search parameters were limited to published articles from 1960 through 2011 yielded 1,392, 113,113, and 478,000 in Cinahl, Ovid Medline and Google®, respectively. Search parameters were narrowed to English, peer-reviewed research since 1978 and narrowed by NP regulation, yielding 15,345 articles. These articles were further reduced by relevance and redundancy until search narrowed to 500 articles. Fifty-nine articles (12%) were reviewed until redundancy was attained based on topical relevance and references.

## Overview

Nurse practitioner regulation and physician oversight of NP practice are inextricably intertwined. The purpose of professional regulation is to protect the public (NCSBN, 2006). Furthermore, regulation determines who has authority over the profession's members who violate the professional practice rules (Hudspeth, 2009). The regulation of NP practice is unique in the involvement of other professions (Safriet, 1992).

The medical profession cast a broad legislative net as the first healthcare professionals to obtain legislative authority defining an all-inclusive scope of practice (Safriet, 1992). Subsequent professions were forced to challenge legislation to carve out scopes of practice within the all-inclusive medical profession.

Early successes in NP regulation required political compromises resulting in statutorily required physician oversight of NP practice, rather than the autonomous regulation as is typical of other professions. This compromise resulted in a joint regulatory model whereby NP practice is regulated through a joint subcommittee of both the nursing and the medical boards, creating an unusual hierarchal relationship in which the medical profession is involved in the oversight of advanced practice nursing professionals (Lowery & Varnam, 2011). Most states have removed the requirement for joint regulation. The far-reaching influence of physician involvement in NP practice remains in many states for sociopolitical reasons that extend beyond the established regulatory purpose of public safety (Pearson, 2010).

While professional regulation is imperative to protect public safety issue, NP regulation is influenced by a larger labyrinth of concern than mere safety. NP regulation is deeply embedded in the economic and sociopolitical processes of healthcare, many of which have historical and gender context that has no relationship to research on safe care delivery. In

particular, nurse practitioner regulation and physician oversight of NP practice is steeped in power inequities and traditional patriarchal influences from the dominant medical profession (Lugo et al., 2007; Mullinix & Bucholtz, 2009; Pearson, 2010; Safriet, 1994). To effectively address these issues, one must consider these larger sociopolitical aspects and how they thwart regulatory NP processes that are most effective.

Power inequity between nurses and physicians has existed since the inception of the nursing profession. Nurse practitioners must be able to articulate how the historical sociopolitical influences impact regulatory decisions and create an unequal and restrictive regulatory environment that affects their ability to meet the healthcare needs of clients and communities seeking their services (Center to Champion Nursing in America, 2010; Hassmiller, 2010; Institute of Medicine, 2010; Lugo et al., 2007; Mullinix & Bucholtz, 2009). Amplification of the NPs' voice in this process requires an understanding of how variable NP regulation may impact the NP practice and consumer access to safe and readily available care. Clear articulation and evaluation of best regulatory practices should lead to uniformity in NP regulation and standardization of the regulatory gate keeping process.

### **Influence of NP Regulation on NP Practice**

The purpose of regulation is to protect the public (Buppert, 2012; Hudspeth, 2009; Milstead, 2008). Furthermore, professional regulation usually delegated to leaders within their own profession, allowing for professional autonomy or having substantial control over professional practice, including significant room for exercise of their judgment (Bahadori & Fitzpatrick, 2009; Hudspeth, 2009). Studies on regulatory research have demonstrated that NPs are regulated in a unique manner that impedes professional autonomy in NP practice (Bahadori & Fitzpatrick, 2009; Lugo et al., 2007; Pearson, 2010; Safriet, 1994; Safriet, 2010). For

example, a NP may exercise independent judgment in diagnosing, treating, prescribing and referring while in another state, or even in a different area of the same state, that same NP's independence and control over professional decision-making is dependent upon physician oversight (Safriet, 1994).

### **Autonomy**

Nurse practitioner regulation's most significant impact may be in the NP's professional autonomy. Professional autonomy is operationally defined as control and freedom in the application of professional judgment in the exercise of professional practice (Bahadori & Fitzpatrick, 2009).

One study examined the level of autonomy of NPs providing care to patients in a primary care setting (Bahadori & Fitzpatrick, 2009). The authors argue that restrictive state regulatory environments (SREs) limit NPs' ability to control their professional practice. Forty-eight NPs attending a Florida state conference completed the Dempster Practice Behavior Scale (DPBS) questionnaire, a 30-item, Likert questionnaire measuring autonomy in practice, measuring behaviors, actions, and conduct related to the individual's autonomy in a practice setting. The DPBS assesses four domains: Readiness, Empowerment, Actualization, and Valuation. The Readiness scale measured elements of growth, skill, competence, and mastery. The operational definition of autonomy in PCNPs was the total score obtained on the DPBS. Total scores ranged from 30 to 150 with a range of a mean DPBS score of 127 (SD=10.5). Higher scores on the DPBS indicate a greater extent of autonomy. They found that NPs working in restrictive practice environments reported lower DPBS scores and they perceived themselves as less autonomous. Legal and organizational restrictions were dominant barriers to optimal autonomous practice of

NPs. While a small sample size and poor reliability on the DPBS limit the generalizability of this study, the authors have suggest that restrictive practice environments limit NP autonomy.

Building on the body of autonomy research a more recent study investigated the relationship between NP perception of physician collaboration and autonomy in NP practice (Maylone, Ranieri, Griffin, McNulty, & Fitzpatrick, 2011). The authors used the DPBS and the Collaborative Practice Scale which was modified for advanced practice nurses (CPS-APRN). A descriptive, cross-sectional study was conducted using a convenience sample of 99 NPs attending a national conference. Study findings suggest that NPs experience high levels of autonomy evidenced by a mean DPSB score of 123 (SD=1.27) with a maximum score of 150. High levels of collaboration were also reported with a mean CPS-APM score of 83.5 (SD=14.41) with a maximum score of 114.

Study strengths included high reliability of the DPSB and CPS-APN with Chronbach's alpha scores of 0.95 and 0.88 respectively. The DPSB had a high content validity score of 1.0. Construct validity for the CPS-ANP after exploratory factor analysis supported retention of instrument items with eigenvalues of 1.27-4.17 (Pallant, 2005).

Study limitations included a small, homogenous sample of NPs. The NPs attending a national conference may differ in their motivation levels and may not reflect the perceptions of the general NP population.

In summary, study findings suggest that NPs perceive high levels of autonomy and collaboration in their practices. No correlation was made with differing regulatory environments which may impact NP autonomy and collaboration.

Numerous articles suggest that limitations on NP autonomy negatively impact the safety and quality of NP care, access to NP-delivered care and health care costs (Center to Champion

Nursing in America, 2010; Hassmiller, 2010; Institute of Medicine, 2010; Lugo et al., 2007; Mullinix, 2011; Pearson, 2010; Rudner et al., 2010; Safriet, 2010; Whelan, 2000a).

Lugo et al. (2007) conducted a secondary analysis of the 2006 *Pearson Report*, an annual survey describing NP regulation and practice environments in the United States since 1988. This descriptive study determined the nature of state regulatory environments (SRE) governing nurse practitioner NP practices in the United States. They described environments affecting consumers' access to NP providers, environments affecting reimbursement and NPs' patients' access to related healthcare services, and the environment affecting NPs' patients' access to prescription medication were measured. An expert panel of four doctorally prepared NPs identified key components of NP regulation based on the NCSBN vision paper and previous research on NP regulation. "Content analysis explored 12 measures of each state or district regulatory environment and its impact on consumer access, care and safety.

The 12 measures were conceptually configured into three dimensions of the regulatory environment: (1) Environment affecting Consumers' access to NP Providers, (2) Environment affecting reimbursement and NPs' patients' access to related healthcare services, and (3) Environment affecting NPs' patients' access to prescription medications" (Lugo et al., 2007). Furthermore, a weighted score was individually assigned to each of the 12 measures by the four experts; reaching concordance on each measure. Content analysis was completed in three separate steps. First, the data was individually evaluated by each researcher followed by consensus development by research dyads. Finally reliability to study findings came through all four researchers reaching concordance on all data and rankings (Lugo et al., 2007).

Content analysis and reliability testing was conducted by each researcher, researcher dyads, and finally by the research team. All 50 states and the District of Columbia were ranked

with a potential range from zero to 100. A letter grade was assigned to reflect the SRE. Scores ranged from 38 to 100 with lower scores reflecting more restrictive SREs and higher scores reflected an unencumbered environment. States with lower ranking scores were mostly clustered in the southeastern USA while states with higher rankings were mostly clustered in the central and western USA. While the variability in the data sources produces some inherent limitations, this study can be use to expand nursing knowledge, educate the public, inform policy makers about the research findings and link SRE research to specifics of each state. For example, North Carolina ranked 43<sup>rd</sup> with a composite score of 57 because of the requirement for joint regulation by both the boards of nursing and medicine, requirements for physician oversight and safety issues regarding prescriptive authority. These factors severely restrict consumer choice in NP delivered care and raise issues regarding the impact of NP regulation and physician oversight on the safety and autonomy of NP-delivered care.

### **Safety and Quality**

Nurses are consistently ranked among the most trusted of all professionals (Robert Wood Johnson Foundation, 2010). Less than 1% of nurses are disciplined through the disciplinary process each year (Hudspeth, 2009). Safety and quality; used interchangeably throughout the literature, are reflected through formal reports to designated state regulatory agencies that are charged with protection of the public. The processes of the disciplinary sanctions are determined by the regulations in each state. Furthermore, the cumulative number of medical malpractice reports from the National Practitioner Data Bank (NPDB) and Healthcare integrity and Protection Data Banks (HPDB) are commonly held proxies for safety and quality for health care professionals including physicians and NPs.



A retrospective review of nursing disciplinary data between 1996 and 2006 was conducted using data in the NURSYS, the National Council of State Boards of Nursing's (NCSBN) comprehensive electronic information system that includes licensure and disciplinary data on all BONs in the US and territories (Kenward, 2008). Study findings supported a low incidence of nursing disciplinary complaints with 1% of all nurses having a disciplinary complaint in any given year. There were 52, 297 disciplinary actions against nurses reported by 44 BONs. Of those nurses, 1% were APRNs. Ethnic minorities and men had higher disciplinary actions compared to the majority white, female population of nurses.

Study strengths included a high participation rate of 86% of BONs reporting into the NURSYS system. Limitations included poor description of statistical methods for variable analysis, not all BON jurisdictions participated in sharing information, and missing data may have skewed results.

A regulatory requirement for physician oversight of any component of NP practice establishes a hierarchical relationship that naturally sets professional dominance of the medical profession over the nursing profession (Safriet, 1994; Safriet, 2010). When more than one regulatory board is involved in the oversight of NP practice, this oversight is extended to the disciplinary process as well; a process that may extend the time required resolving disciplinary complaints levied against a NP (Hudspeth, 2009).

## **APRN**

Building on the research on the incidence of nursing disciplinary actions, Hudspeth (2007) conducted an electronic and hard copy survey of 51 BONs in the US between 2003 and 2004. The survey questions asked for the number of APRN disciplinary cases in each of the four APRN categories between 2003 and 2004. Consistent with previous findings by Kenward

(2008), study findings revealed that out of 125,882 APRNs practicing during the survey period, 688 (0.54%) were disciplined due to violations of state regulations. The most commonly cited violations were patient abuse or safety (0.3%), unprofessional conduct (0.28%), chemical impairment (0.21%) and exceeding scope of practice (0.2%). When compared with CRNAs, CNMs, and CNSs, NPs had the highest incidence of disciplinary complaints at 0.59%. When adjusted for population, however, all APRN groups maintained a disciplinary complaint rate of less than 1% (Hudspeth, 2007).

Study strengths included a clear description of the survey and operational definitions. Study limitations included lack of data on reliability and validity of the survey instrument, incomplete data with a 15% non-response rate. Lastly, the survey did not discriminate whether an individual APRN had more than one disciplinary complaint.

In summary, the incidence of disciplinary sanctions against APRNs is comparable to that of the general nursing population. APRNs have very few disciplinary sanctions at less than 1% in any given year.

### **Nurse Practitioner Disciplinary Complaints**

Hudspeth (2007) published data documenting the incidence of disciplinary sanctions against NPs was comparable to other APRNs at an annual rate of 1%. He published a descriptive article in 2009 describing the discipline of NPs by BONs (Hudspeth, 2009). The methods included a review and synthesis of current research and policy literature.

The most common areas where NPs are disciplined include exceeding or breaching scope of practice, drug diversion or substance abuse, ethical and moral issues or boundary violations and criminal activity. Variability in NP regulation can lead to inconsistencies in the disciplinary process. Inconsistencies in the NP disciplinary process may be mitigated Consensus Model

regulation wherein NPs are regulated based on their licensure, education and certification (Hudspeth, 2009).

The strengths of this article include a clear review and synthesis of the NP disciplinary process. The purpose of regulation is to protect the public from unsafe professional practice. A minor limitation noted was that the literature review methods were not clearly identified.

Research over the last 40 years demonstrates that nurse practitioners provide high quality, safe health care to consumers. This care rates at least equal to that of other health care providers. Multiple national reports and studies also validate the positive impact NPs make on access and quality of care.

The Pew Health Commission (Finocchio, Dower, Blick, & Grangola, 1998) and the IOM (2010) emphasize the need for regulation to be evidence based, consistent and protective of consumers. While the incidence of disciplinary action among NPs is low, inconsistent and arbitrary state regulations continue to confound and delay NP disciplinary processes. Consistent with IOM, Healthy People 2020 and NCSBON Consensus Model for APRN regulation, additional research is needed to document the impact current regulatory inconsistencies and NP disciplinary processes have on consumer safety and access to care.

The 1998 Pew Health Professions Commission report, *Strengthening Consumer Protection: Priorities for Health Care Workforce Regulation* (Finocchio, Dower, Blick, & Grangola, 1998) and The Institute of Medicine's *Crossing the Quality Chasm: A New Health System for the 21<sup>st</sup> Century* (Institute of Medicine, 2001) are seminal reports in professional regulation. These reports analyze policy data, setting early recommendations for uniform regulation, uniform scope of practice and integrated systems of health care to maximize the utilization of all primary care providers; serving as the foundational studies for more recent

research recommending removal of barriers limiting APRNs from practicing to their full level of competence (Center to Champion Nursing in America, 2010; Cronenwett & Dzau, 2010; Institute of Medicine, 2010; Lugo et al., 2007; O'Grady & Brassard, 2011; O'Grady, 2008; Rudner et al., 2010). These frequently cited reports used original research to recommend removal of regulatory barriers that restrict the scope of practice for physicians, NPs, Physician Assistants and Certified Nurse-Midwives.

The *Pearson Report* (Pearson, 2010) is a more recent study with equal importance as the IOM and Pew Health Commission Reports. This 22<sup>nd</sup> annual descriptive study of NP regulation has provided an analysis of NP legislation and regulation. It also describes components of the NP practice environment and related health issues in the United States.

A four-page survey was used to collect information from 50 states and the District of Columbia. State NP leaders, representatives of professional NP associations, state boards of nursing and from legislative websites were all surveyed from each state and district. The survey assessed 11 domains: (1) NP title protection, (2) joint regulatory environment versus autonomous regulation by the state board of nursing, (3) NP scope of practice, (4) physician involvement in NP practice, (5) legislative restrictions against doctorally educated NPs being addressed as doctor, (6) prescriptive authority, (7) reimbursement equity, (8) current or pending legislative activity impacting NP practice, (9) number of NP schools in the state, (10) statewide NP associations and (11) cumulative number of medical malpractice reports from the National Practitioner Data Bank (NPDB) and Healthcare integrity and Protection Data Banks (HPDB).

Survey validity and reliability were addressed by review of doctorally prepared nurse scientists and use of and revision of the survey over the past 21 years. Findings revealed a high degree of variability in NP regulation across the United States. For example, NC is one of four

remaining states with a joint regulatory process requiring governance by both the boards of nursing and medicine (Pearson, 2010). Pearson argues that restrictive regulation, including the joint regulatory process, unnecessarily ties NP practice to that of physicians, and places NPs in a dependent role compared to physicians, limits consumer access to NP-delivered care through limited NP employment opportunities, increases costs through direct and indirect costs for physician oversight and duplicative services. Furthermore, restrictive regulation creates public safety issues relating to confounded accountability in prescriptive authority and follow-up for diagnostic services.

NP practice remains jointly regulated by both the Nursing and Medical boards in four states throughout the United States: FL, NC, VA, and SD while 10 states (AL, CA GA, MS, NB, OK, SC, TN, and TX) are regulated solely by the state board of nursing but with some statutory requirements for physician oversight of NP practice (Pearson, 2010). Previous research on regulatory environments ranked joint regulation as restrictive to NP practice, erecting barriers to consumer access to NP care (Lugo et al., 2007). The remaining 37 states and DC are regulated solely by the stated Nursing Boards. Twenty-three of those states have statutory requirements for physician involvement in NP prescribing, diagnostic or management services while the remaining 14 states have no statutory requirement for physician involvement in NP practice (Pearson, 2010).

Strengths of the *Pearson Report* (Pearson, 2010) include a 23 year history of replicated, aggregate data regarding NP regulatory and practice environments in the United States. Descriptive tables and maps are effectively used to summarize large amounts of data. The addition of ratios malpractice and malfeasance data provides valuable information regarding NP practice and safety.

However, Pearson's work has also been criticized because of variability in data sources. Analyzing such a diverse, incoherent regulatory process with 51 different nurse practice acts is exceedingly difficult. To address this issue, data was consistently obtained from at least two sources from every state. For example, they obtained data from the state Board of Nursing and an official representative of the state NP nursing association. When there has been an identified change, additional summaries of what happened were reported. Original legislation when available (over the years either by mailing, FAX, or now posted on official websites) has been utilized for legislative activity. If there was any discrepancy in the information provided, repeated information was sought until redundancy occurred (L. Pearson, personal communication, October 8, 2009). Despite the rigor of these methods, variability in data collection has remained a criticism of this work.

Survey validity and reliability was assured by review of doctoral prepared nurse scientists and use of and revision of the survey over the past 22 years. Findings revealed a high degree of variability in NP regulation across the United States. These restrictive regulatory environments persist despite evidence that NPs provide high quality, safe and effective care regardless of the type of regulatory environment.

Using information from the NPDB, Pearson demonstrates that national malpractice and malfeasance ratios that are 22 times and 6 times lower respectively when compared with DO and MD colleagues. These ratios demonstrate that NPs deliver care with much lower incidences of malpractice and malfeasance claims compared to their physician colleagues. No difference in claims against NPs were noted in states with autonomous regulation compared to those with more restrictive models of regulation; indicating no improvement in safety in states requiring physician oversight.

Protection of public safety is the premise for regulating professional practices. Numerous studies have addressed the high-quality, safe and effective health care provided by NPs (Institute of Medicine, 2010; Mullinix & Bucholtz, 2009; U.S. Congress, Office of Technology Assessment, 1986). One well designed review described challenges NPs face to deliver safe and high-quality care (Mullinix & Bucholtz, 2009). Mullinix discovered researcher bias either in support or in opposition to NP delivered care. Methodological flaws in previous intervention studies have prompted challenges to the validity of statistical outcomes. For example, some studies used retrospective reviews of charts that lacked standardization. Despite these limitations, meta-analysis of the literature on NP quality of care demonstrated that NPs do provide safe, high-quality health care. Mullinix and Bucholtz (2009) argue that in an increasingly competitive market, challenges to safety of NP care may be based on economic defensiveness rather than unconfirmed concerns for public safety. These findings are consistent with recent findings from the interdisciplinary findings of the landmark *Future of Nursing: Leading Change, Advancing Health* (Institute of Medicine, 2010). In summary, despite the preponderance of evidence that NPs provide safe and high-quality healthcare, market competition and economic defensiveness perpetuates a culture of unsubstantiated safety concerns regarding NP delivered healthcare.

Several patient healthcare outcome studies address the safety and quality of NP care (Avom, Everitt, & Baker, 1991; Dierick-van Daele, Metsemakers, Derckx, Spreeuwenberg, & Vrijhoef, 2009; Herrick, 2000; Lenz et al., 2004; Mundinger et al., 2000; Ohman-Strickland, Orzano, Hudson, Solberg, DiCiccio-Bloom, & et al., 2008). These studies demonstrated that NPs provide high-quality, accountable, safe and effective care at least as well as physician or

physician assistant colleagues. Similar findings are consistent throughout all patient healthcare outcome studies.

Mundinger et al. (2000) compared health care outcomes on 1,316 patients who were enrolled and randomized to either an NP or physician group. Patient satisfaction and physiologic parameters were measured for diabetes, asthma and hypertension. Patients were recruited from local emergency departments or urgent care centers in New York City. No attempt was made to influence the practice patterns of the participating clinicians. Reliability and validity data was well documented for the 34-item short form health survey which was completed after the initial visit. Interviewers contacted the patients either by phone or in person to administer the satisfaction questionnaire on the day of appointment, at six months, and at one year. Statistical analysis using chi square, t-tests and Chronbach's alpha revealed no statistical difference in patient healthcare outcomes or satisfaction scores between the NP and physician groups.

Study strengths include a large, random sample, appropriate use of statistical techniques and documentation of patient outcome studies for NP-delivered care. Limitations included their inability to randomize patients at the point of initial contact in the emergency department or urgent care center due to different locations of the primary care sites. Homogeneity of the sample demographics and clinicians working in academic medical centers may limit generalizability of study results. A four-year follow up study supported the original findings that patients cared for by an NP had similar outcomes as patients cared for by physicians (Lenz et al., 2004).

While the previous research demonstrates equivalent safety and health care outcomes, an earlier study demonstrated NP quality in eliciting an appropriate history to guide clinical management (Avom et al., 1991). A random sample of 501 physicians and 298 NPs were



presented a hypothetical clinical vignette where a client presented with epigastric pain.

Participants were encouraged to elicit additional information before recommending a treatment plan. Pertinent history included ingestion of aspirin, caffeine, alcohol and cigarette use coupled with significant psychosocial stressors. The NP participants elicited additional relevant history resulting in behavioral modification with 20% recommending a prescription medication compared to the physician participants who prescribed medication almost 50% of the time while taking less history. This study suggests that the quality of NP care may be superior to that of physician colleagues when a correct diagnosis is dependent on eliciting an appropriate history.

Similar findings have been replicated in different clinical settings. Safe, quality NP care was supported in random controlled trials evaluating health care outcomes measuring diabetes and hypertension management (Dierick-van Daele et al., 2009; Herrick, 2000; Lenz et al., 2004; Mundinger et al., 2000; Ohman-Strickland et al., 2008). None of these outcome studies made correlation of NP outcomes with regulatory model used; rather, the point of comparison was between NPs and other primary care clinicians such as physicians or physician assistants.

In summary, all patient outcome studies revealed that NPs provide safe, effective, quality care with healthcare outcomes equal to or better than that of physicians or physician assistants. In contrast to these findings, unsubstantiated concerns regarding NP patient healthcare outcomes remain challenged by the broad claim to healthcare cast by the medical profession (Safriet, 1994; Safriet, 2010). Despite evidence to the contrary, allegations persist that healthcare outcomes and patient safety is jeopardized when care is not supervised or delivered by a physician (Fain & Melkus, 1994; Laguë, 2009)

## **Access to Consumers and Services Needed for Consumers**

Three studies examined the nurse practitioner state practice environments (Lugo & O'Grady, 2008; Sekscenski, 1994; Whelan, 2000a). These descriptive studies assess differing NP regulatory environments across the United States. Each of the studies makes correlation between state regulatory environment and consumer access to healthcare and diagnostic services.

Sekscenski (1994) conducted the first descriptive, correlation study to understand the relationship between state practice environments (SPE) and the supply of physician assistants (PAs), NPs and certified nurse-midwives (CNMs) compared to that of physicians. The researchers analyzed the SPEs in the United States by reviewing journal articles and state legislation with researchers, legal scholars and professional organizations in 1992.

The author developed the Sekscenski tool, a 100 point scoring system with allocation of 20 points for legal status, 40 points for reimbursement of services and 40 points for prescriptive authority to measure the SPE. A higher score represented a more favorable SPE. The weighting of each category was based on the recognition of the importance of each category in professional identity. Each state was ranked based on cumulative score with higher scores reflecting a SPE allowing clinicians to practice without artificial barriers while a lower score reflected as SPE with more barriers to delivery of healthcare.

Study results indicated a high degree of variability among SPEs among CNMs, NPs and PAs. Positive correlations within states between the supply of physician assistants, nurse practitioners, and certified nurse-midwives and the practice-environment score for the state (Spearman rank-correlation coefficients, 0.63 [P<0.001], 0.41 [P = 0.003], and 0.51 [P<0.001], respectively). Positive associations were also found in the states where regulation limited the normal scope of practice for PCPs. For example, the supply of generalist physicians and the

supply of physician assistants ( $r = 0.54, p < 0.001$ ) and nurse practitioners ( $r = 0.35, p = 0.014$ ). Despite these findings, the 17 states with the greatest shortages of primary care physicians were still associated with higher practitioner-to-population ratios for physician assistants ( $r = 0.68, p = 0.003$ ), nurse practitioners ( $r = 0.54, P = 0.026$ ), and certified nurse-midwives ( $r = 0.42, P = 0.09$ ).

In summary, statistical correlation coefficients revealed a positive association between the SPE score and the supply of clinicians, indicating that restrictive SPEs limit the supply of clinicians in all categories. Restrictive SPEs decreased incentives for CNMs, NPs and PAs to seek and maintain employment in these states, indicating that restrictive regulation decreases consumer access to CNMs, NPs and PAs.

Study strengths included the development of an instrument to measure the effects of SPE along with the associated statistical correlations. Limitations include minimal documentation regarding the study weaknesses and a high degree of variability in SPE data sources. More importantly, and possibly a fatal flaw, there was no documentation regarding the reliability or validity of the instrument utilized to measure SPE. Sekscenski's SPE tool was later validated in two additional studies that are reviewed in the following section (Lugo et al., 2007; Whelan, 2000a).

Sekscenski's SPE tool was later modified for further research on the impact of regulation on NP practice and consumer access to primary healthcare. Whalen (2000a) argues that Restrictive SRE's limit the employment options where NPs can practice. For example, in states requiring physician oversight of NP practice, NP practice is dependent upon finding a physician willing to supervise the NP practice based on state regulation. Whalen's study examined the association between SRE and NP practice arrangements within states. The author used a

secondary sample from a national survey of nurses conducted by the Washington Consulting Group for the Division of Nursing (Whelan, 2000a).

The survey contained data on NP practice, worksite zip code, poverty ratios, health professions shortage area (HPSA) designation and the percentage of non-white citizens receiving Medicaid. A sample of 4000 NPs was stratified by specialty group and the Sekscenski SRE tool was used to measure the SRE. Reliability and validity data were reported through replication studies and the use of Spearman rank-correlation coefficient. Descriptive linear regression was used to demonstrate a positive association between SRE and NP practice location. A lower Sekscenski score, indicative of a more restrictive SRE's was associated with consumer barriers to primary care providers and fewer numbers of NPs compared with states that had less restrictive SREs. Interestingly, the author found that policies governing NPs played less of a role in practice patterns than previously thought. It was discovered that NPs and physician colleagues found creative ways to work around restrictive regulatory patterns to meet the needs of consumers. These findings support the original findings of Sekscenski (Sekscenski, 1994) and were later confirmed by Lugo, et al's study which was described earlier (Lugo & O'Grady, 2008).

### **Cost**

While regulation may limit NP mobility, restrictive regulation has a similar, negative impact on health care costs. Research has demonstrated the cost-effectiveness of NP-delivered care.

Massachusetts has a rich history in innovative models of health care delivery. In an effort to identify healthcare cost containment strategies, the Massachusetts Division of Health Care Finance and Policy commissioned a study about cost savings. The ensuing report recommended

greater use of NPs and PAs and promoted the use of Retail Clinics where NPs are used as the main provider of health services (Eibner, Hussey, Ridgely, & McGlynn, 2009). Study findings revealed a cost-savings to the Massachusetts health care system of \$4.2 to \$8.4 billion over a 10 year period by increasing utilization of NPs and PAs in the delivery of primary health care services (Eibner et al., 2009; Safriet, 2010).

Despite the cost savings of NP-delivered care, a 2009 study conducted by the National Nursing Centers Consortium (NNCC) revealed that nearly half (485) of all major managed care organizations (MCO) in the U.S. do not credential or contract with NPs as PCPs (Hansen-Turton, 2010; NNCC, 2011). Of those who did not credential NPs, four percent stated that they would make an exception if the NP provided care to rural or Medicaid beneficiaries. As long as NPs are viewed as providers of last resort; equity in credentialing and reimbursement will remain elusive (Hansen-Turton, Ritter, & Torgan, 2008). Restrictive regulatory models and requirements for physician oversight limit consumer choice through restrictive reimbursement policies that increase health care costs and decrease consumer access to NP-delivered services and by decreasing NP access to consumer seeking NP-delivered care (Lowery & Varnam, 2011).

In summary, NPs provide safe, effective, quality health care at a demonstrated cost-savings to the health care system. Restrictive regulation and required physician oversight increases the incidence of restrictive reimbursement policies for NP-delivered care. Restrictive regulatory and reimbursement policies limit where NPs can serve, limits NP access to consumers seeking their services and limits consumer access to NP-delivered care. While NPs demonstrate cost-savings to the health care system, another factor impacting access to NP-delivered care involves the NP disciplinary process.

## **Influence of NP Regulation on Consumers**

Health care regulation is a complex policy issue that challenges even the most astute policy and clinical experts. Most consumers lack a working knowledge regarding how regulation impacts the safety and quality, access and cost of their healthcare. Since many consumers lack all of the knowledge needed to make decisions about health care, government has a role in all transactions related to buying and selling health care in the form of regulation (Bodenheimer & Grumbach, 2009; Hudspeth, 2009; Safriet, 2010; Weissert & Weissert, 2006). Haasl-Willson (2011) argues that there is market failure because consumers lack full information about the quality, process, cost and outcomes of healthcare; all of which affect consumer access.

### **Safety and Quality**

It has been established that research demonstrates that NPs provide safe, quality, cost-effective healthcare at least as well as physicians and other clinicians with similar scopes of practice. Avom et al. (1991) argues that NPs may provide superior quality of care compared to physicians in situations that require eliciting a complex history. Munding et al. (2000) and Lenz et al. (2004) demonstrated physiologic and patient satisfaction outcomes equivalent to or better than physician colleagues in the management of diabetes or asthma.

More recently, a randomized controlled trial supported similar findings from an international perspective. A total of 1,501 patients in 15 general practices were randomized to consultation by a family practice physician or a nurse practitioner. Physiologic outcome measures in the management of migraine, chronic skin conditions, emotional distress, hypertension, diabetes, varicose veins and back injuries coupled with patient satisfaction were used to measure quality of care. No statistically significant differences were noted in quality or healthcare outcomes found in using evidence-based guidelines in the Netherlands. Patients

reported high satisfaction in quality of care among both NPs and physicians (Dierick-van Daele et al., 2009). In summary, findings are consistent with previous studies that NPs and physicians provide comparable care. Dierick-van Daele (2009) argues that NPs should be utilized to provide access to high quality health care.

### **Access to Primary Care and Needed Services**

State regulatory environment (SRE) has been widely researched, demonstrating wide, inconsistent variations in how NPs are regulated. The framework defining the types of services that NPs may provide, how they may be compensated for these services, for whom and under what circumstances NP care can be provided is complex, uncoordinated and steeped in traditional influences of the medical profession and cultural influences of gender and economics (Safriet, 2010). Research has demonstrated that these complexities limit consumer access to NP care.

Early studies of SRE describe inconsistencies in NP regulation that limit NPs from providing the full range of services for which they are competent. Evidence supports that states with restrictive SRE's requiring physician oversight of NP practice, diagnostic management or prescriptive services limit NP mobility and willingness to practice in these SREs and limits consumer access to these NP-delivered services (Lugo et al., 2007; Sekscenski, 1994; Whelan, 2000a).

Rudner et al. (2010) argues that states with regulatory requirements requiring another profession to be involved in regulation correlates with more restrictions on consumer access to NPs and more restrictions to the full deployment of NPs. The authors studied the relationship between the autonomous BON regulation compared to more restrictive regulatory models sharing that authority with another profession and the NP regulatory environment. Independent t-

tests compared the NP regulatory environments for consumer access and choice in states with sole BON regulation with those in states with involvement of another profession. The investigators studied states' NP regulatory environments, quantified with an 11-measure tool assessing domains of consumer access to NPs, NP patients' access to service, and NP patients' access to prescription medications. States with autonomous BON regulation were less restrictive ( $P < .01$ , effect size 1.02) and supported NP professional autonomy. Involvement of another profession in regulation correlated with more restrictions on consumer access to NPs and more restrictions to the full deployment of NPs. In summary, restrictive SREs involving physicians or other professionals in NP regulation decreased consumer access to NP-delivered care.

### **Cost**

NP regulation is closely tied to reimbursement for NP services and the cost of healthcare. Again, consumers most often are largely unaware of the complexities of the reimbursement issues relating to NP practice. As the first profession to establish an all-encompassing practice act; economic and cultural influences have perpetuated the misnomer that all of health care is medicine (Safriet, 1994). This concept of the medical profession as the authority in health care has been perpetuated by mass media marketing campaigns instructing consumers to see their doctor for prescriptions and all aspects of health care management. Such erroneous information confuses the consumer. Regulations requiring a physicians' name on prescriptions, diagnostic results and many reimbursement claims for NP-delivered care only adds to the confusion. These influences result in revenue and health care invisibility for NPs and confound consumers' understanding of the costs associated with NP-delivered care (Safriet, 2010).

Research documenting the economics of NP-delivered care has been previously discussed. In summary, the RAND study revealed a cost-savings to the Massachusetts health



care system of \$4.2 to \$8.4 billion over a 10 year period by increased utilization of NPs and PAs in the delivery of primary health care services (Eibner et al., 2009; Safriet, 2010). Despite the cost savings of NP-delivered care, a 2009 study conducted by the National Nursing Centers Consortium (NNCC) revealed that nearly half (485) of all major managed care organizations (MCO) in the U.S. do not credential or contract with NPs as PCPs (Hansen-Turton, 2010; NNCC, 2011).

Reimbursement policies impact the cost of NP-delivered care. Furthermore, restrictive regulatory policies impact consumer access to care by limiting where NPs can serve, limits NP access to consumers seeking their services and limits consumer access to NP-delivered care.

### **CHAPTER III: RESEARCH METHODOLOGY AND DESIGN**

The purpose of the study is to investigate the perceptions of NP providers practicing in states requiring physician oversight of NP practice regarding the impact of physician oversight on (1) safety and quality of NP care; (2) access to NP care by consumers; and (3) cost of NP care. This data will inform nursing practice, regulation, and legislation as well as enlighten policy makers. This study provides a descriptive analysis of the results of a web-based, self-report survey titled *Impact of Regulatory Requirements for Physician Oversight on Nurse Practitioner Practice*. This chapter presents the study design, sample, data collection instrument and procedures, and concludes with the analytical methods that will be used in the study.

#### **Population and Sample**

There are currently more than 148,000 NPs registered in the U.S. Fitzgerald Health Education Associates (FHEA), Inc. is a nationally renowned, provider of NP certification review courses and continuing education for practicing NPs with accreditation by the American Academy of Nurse Practitioners. An established source of NP certification review courses and NP continuing education, FHEA has successfully prepared more than 60,000 NPs for their national certification examinations and hosted hundreds of continuing education opportunities for NPs nation-wide since 1988 (Fitzgerald Health Education Associates, 2012). Accessible data bases amenable to web-based research studies are exceedingly scarce and limited due to proprietary and privacy concerns. Fitzgerald Health Education Associates, Inc. has a robust research data set containing more than 60,000 email addresses for NPs across the nation and actively seeks to engage with researchers with interests in research related to NPs and healthcare. The FHEA data base comprised the sample frame for this study. A random sample of 12,000 NPs selected from the Fitzgerald Health Education Associates (FHEA), Inc. electronic data base

was drawn from 24 states. Fitzgerald Health Associates was directed to only sample NPs who were actively practicing as NPs. This sample was further stratified using the SRE rankings from the *Pearson Report* (Pearson, 2010).

Pearson (2010) records up-to-date, annual state rankings of SRE, assigning an alpha score of A for the least restrictive to F for most restrictive SRE for all 50 states and the District of Columbia. The list of states was alphabetized and assigned a two digit number ranging from 01-51. The respective SRE ranking from the 2010 *Pearson Report* was next used to sort the list of states by SRE ranking. Twenty states were randomly selected using a table of random numbers. Four additional states were included to oversample states with a SRE score of D or F as noted in Table 1 for a total of 24 states in the sample. From the sample, 500 NPs were randomly selected from each state for a total of 12,000 NPs to constitute the final sample for this study. Of the 12,000 NPs who received email invitations to participate in the survey, 1% (120) were returned due to rejected or undeliverable email addresses; hence the 12,000 NPs surveyed is a conservative estimate of 11,880. The random selection was computer generated by FHEA to include those members who gave permission to be included in survey research.

Nurse practitioners residing in inclusion states who were not in the FHEA were excluded from the study. Additionally, while the initial survey was sent to Nurse Practitioners in AR, PAR, and JR states, sample respondents (n=61) in states without statutory requirements (AR states) for physician oversight of NP practice (OR, WY, ME, CO, NM) were excluded from the final analysis since the focus of the study was NPs' perception of the impact of physician oversight on NP practice. Final inclusion criteria for the study follow:

1. Nurse Practitioners who are licensed and employed at the time of the survey.

Table 1

*Stratified Sample*

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State	SRE Ranking	Regulatory Model
FL	F	JR
MO	F	PAR
GA	F	PAR
NC	F	JR
AL	F	PAR
MI	F	PAR
SC	F	PAR
AR	D	PAR
MA	D	PAR
VA	D	JR
SD	D	JR
ND	C	PAR
WV	C	PAR
TN	C	PAR
NV	C	PAR
CA	C	PAR
NJ	B	PAR
IA	B	PAR
HI	B	PAR
OR	A	AR
WY	A	AR
ME	A	AR
CO	A	AR
NM	A	AR

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2. Nurse Practitioners who are employed in the 24 randomly selected states listed in Table 1.
3. Nurse Practitioners enrolled in the FHEA data base.
4. Nurse Practitioners residing in states that have requirements for Physician oversight (JR and PAR states).

### **Protection of Human Subjects**

The risks associated with this study were considered minimal. An expedited IRB approval was requested with the sponsorship of the researcher's Dissertation Chair, Dr. Elaine Scott.

The study purpose and anonymous nature of the data was explained in the informed consent found in Appendix B. Participation in the study was voluntary. Participants could refuse to participate in the whole study or in any part of the study without repercussion. Participants could withdraw at any time without prejudice to relations with the research team. Participants were encouraged to ask questions about the study at any time during the research process. There were no direct benefits to participants in this study, although reflection on practice is often rewarding. And, participants may feel positive about adding to the knowledge base of the impact of joint regulation and physician oversight on NP practice.

Data were stored in the principle investigator's (PI's) private, locked office at 3131 Health Science Building. Only the research team has access to the data. At the conclusion of the study, all data will be erased from computer hard drives. Any paper data will be shredded using standard HIPAA protocol.

## **Definition of Variables for Study**

The survey instrument collected a large amount of data from NPs including 15 demographic items. Table 2 provides an overview of all variables collected from the survey while Table 3 provides definitions and descriptions dependent variables.

Four independent variables used in the study are addressed in chapter four. Based on the parameters of the research questions SRE ranking, type of regulation, years of NP experience, and type of physician oversight were the independent variables.

## **Data Collection Methods**

IRB approval and permission to use the FHEA sampling data base was secured by the researcher. The survey instrument was administered using Qualtrics ® software. All data and responses were anonymous and saved in the Qualtrics system in compliance with all Health Insurance Portability and Accountability Act (HIPAA) and Institutional Review Board (IRB) data storage requirements. Raw data was coded and compiled with Qualtrics functions, downloaded and converted into the IBM SPSS Statistics 19 for statistical analysis.

A request to participate in the research study was emailed to the 12,000 NPs initially selected from the random sample of the FHEA database. The web-based, self report, mixed mode survey was distributed as an embedded link for participants to access the survey. A follow-up email and survey link was sent to the participants one week from the date of the original invitation in an effort to maximize the response rate. The average response rate for internet-based surveys is 26% (Dillman, 2007b). With a sample size of 12,000 subjects, a target response of 3,120 was anticipated.

Table 2

*Description of Measure*

Variable Code	Description	Survey Item Number	Score/Scale Range
State(s) of NP Practice	Location		
Current	Current NP Practice	3	Drop-Down Menu
Past	Previous NP Practice	4	Drop-Down Menus
Oversight	Requirements for 5		Yes (1) No (2)
Oversight	P.O.		
Regulatory Model	Type regulatory model	6	AR (1) PAR (2) JR (3)
Source of Regulatory Information	Source of most useful regulatory information	7	NP Education Program (1)  State Board of Nursing (2) State Medical Board (3) State Nursing Association (4) Other (5)
Autonomy	Factors impacting NP Autonomy	11, 12, 13	1=SA, 2=A, 3=D, 4=SD
Physician Oversight			
Impact of P.O.	Perceived Impact	15	Yes (1) No (2)
	3 Ways P.O. improves NP Practice	16 (1-20) 17	1=SA, 2=A, 3=D, 4=SD Open ended (1), (2), (3)

Table 2 (continued)

Cost of P.O.	3 ways P.O. restricts NP practice	18	Open ended (1), (2), (3)
	Does your practice P.O.?	19	Yes (1) No (2)
	How much does your practice pay for P.O.?	20	Open ended
Characteristics of P.O.	Direct, Indirect	21	Direct (1)
	Frequency P.O.	21	Indirect (2) Weekly (1) Monthly (2) Other (3)
External Influences on NP Regulation	Sociopolitical Influences		
Degree of Impact Creativity	Perceived degree of impact	23 (1-10)	1=SA, 2=A, 3=D, 4=SD
	Creative work-arounds to regulatory barriers	24	Yes (1) No (2)
	Type of work-arounds	25	Open ended
Demographics			
Practice Setting	Practice Setting	27	Primary Care (1) Public Health (2) Hospitalist (not acute care) (3) Behavioral Health (4) Acute Care (5) Specialty Care (6) Academia/Research (7) Other (8)



Table 2 (continued)

	Practice Characteristics	28	FQHC (1) Group practice (2) HMO (3) Hospital-owned practice (3) Private NP-owned practice (4) Private physician-owned practice (5) Public Health (6) Other (7)
	NP focus	29	ACNP (1) ANP (2) FNP (3) GNP (4) PNP (5) PMHNP (6) WHNP (7) Other (8)
65	Interdisciplinary Team	30	CNM (1) NP (2) Physician (3) PA (4)
	Productivity	31	1-10 (1) 11-20 (2) 21-30 (3) 31-40 (4) >40 (5) N/A (6)
	Rural Health	32	Rural (1) Urban (2)
	Practice Characteristics		
	Population focus		
	Types clinicians in practice		
	Daily pt. encounters		
	Rural vs Urban		

Table 2 (continued)

Employment Status	FT vs PT	33	FT ( $\geq 35$ hrs/week) (1) PT (<35 hrs/week) (2)
	Employment Designation	33	Hourly (1) Salaried (2) Partner (3) Sole Proprietor (4)
Experience	Years RN/NP Experience	34	RN (Open ended) (1) NP (open ended) (2)
Gender		35	Male (1) Female (2)
Race		36	White (1) African American (2) Hispanic (3) Asian (4) Native American (5) Pacific Islander (6) Other (7)
Age	In years	37	Open ended
Education	1 <sup>st</sup> Nursing Degree	38	Diploma (1) Associates Degree in nursing (2) Bachelor's Degree in Nursing (3) Master's Degree in nursing (4) Doctorate in nursing (5)
	Highest Nursing Degree	39	Diploma (1) Associates Degree in nursing (2) Bachelor's Degree in Nursing (3) Master's Degree in nursing (4)

Table 2 (continued)

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	Plans to pursue Doctorate	40	Yes (1) No (2)
Other	Other info on NP Regulation that is important to you	41	Reasons (3): Open ended

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Note. SA=Strongly Agree; A=Agree; D=Disagree; SD=Strongly Disagree; P.O.=Physician Oversight.

Table 3

*Dependent Variables: Patient Care (Safety, Access to Care, and Costs) and NP Practice (Scope of Practice, Job Mobility, Job Satisfaction, Autonomy, and Resolution of Practice and Disciplinary Complaints)*

Variable Code	Operational Definition	Survey Item Numbers	Score/Scale Range
Patient Care	Healthcare delivered by NP	#16 (3, 6-9, 13, 15)	1=SA, 2=A, 3=D, 4=SD
Safety	Safe delivery of healthcare	#16(1, 3-9)	1=SA, 2=A, 3=D, 4=SD
Access to Care	Healthcare that is accessible and affordable to consumers	#16(10-14)	1=SA, 2=A, 3=D, 4=SD
Costs	Direct and indirect expenses associated with health care delivery	#16(15-18)	1=SA, 2=A, 3=D, 4=SD
NP Practice Scope of Practice	Legal authority defining practice parameters granted by state legislature and licensure boards	#16(1-20)	1=SA, 2=A, 3=D, 4=SD
Job Mobility	The ability to change employment location	#16(10-14, 18, 20)	1=SA, 2=A, 3=D, 4=SD
Autonomy	Control and freedom in the application of professional judgment in the exercise of professional practice	#16(6, 11, 13-15, 18-20)	1=SA, 2=A, 3=D, 4=SD
Resolution of Practice and Disciplinary Complaints	Complaint time or process involved in the resolution of official complaints received and investigated by a regulatory board	#16(4, 5, 20)	1=SA, 2=A, 3=D, 4=SD

*Note.* SA=Strongly Agree; A=Agree; D=Disagree; SD=Strongly Disagree.

## **Instrumentation**

Technology advancements over the past decade have significantly improved the options available to researchers seeking to collect self-report data. Time and cost constraints previously associated with data collection have been nearly eliminated with internet-based survey instruments. Best practice in survey development recommends concise survey instruments with simply worded questions (Dillman, 2007b). The survey instrument proposed in this study consisted of a total of seven sections with 34 items and included an informed consent and 34 items. The survey instrument is available in Appendix B and its development is described later in this chapter. An internet survey was chosen as the method for data collection. The emergence of internet technology and readily available access has catapulted the internet-based survey over the traditional paper survey. This section will address the strengths and limitations of web-based survey instruments.

Strengths of internet-based surveys include a significant reduction in dissemination costs, reduction in time for survey implementation and a dramatic reduction in the sample size to survey cost ratios. Web-based surveys can also be sent electronically with refined, interactive features. This research design allowed the researcher to access a large sample with multiple mailings at nominal cost compared to the increased time and expense associated with a paper, mailed survey (Dillman, 2007a). Moreover, using the FHEA membership sampling option ensured total anonymity as the agency randomly selected the participants from their data base and sent out the timed mailings per instruction of the principle investigator (PI). While many strengths support the use of web-based surveys, the limitations must be considered as well.

Limitations of web-based surveys include the potential of reaching participants who may have limited knowledge in use of web-based technologies, although this is rarely an issue among

NPs who frequently use the internet for work and personal use. While web-based surveys provide opportunities for dynamic interaction, the number of possibilities in constructing web-based questionnaires may present risks of increased survey error through the use of design that may be incompatible with some operating systems. Lastly, the security and confidentiality issues associated with web-based surveys may raise issues of responder trust and must be considered in the protection of human subjects (Dillman, 2007a).

### **Survey Instrument Development**

The initial draft of the survey consisted of 34 questions divided into six broad categories that queried participants about: (1) Demographic data, (2) Sources of regulatory knowledge, (3) Physician oversight, reimbursement and access to NP providers, (4) NP prescription issues, (5) Disciplinary complaint resolution, and (6) Ranking of state regulatory environment as noted in the annual *Pearson Report*. Questions were formatted to include single response questions, multiple choice questions, open ended questions, ranking questions and Likert scale questions numerically ranked from 1 to 4 (1=strongly agree; 2= agree; 3=agree; 4=strongly agree) or (1=no effect; 2=slight effect; 3=moderate effect; 4=large effect). Participants were instructed to complete the scale, choosing the response that most accurately reflected the perceived impact of joint regulation and physician oversight on their practice.

Content validity was established through linkages in the literature and through input from content experts. The survey instrument was sent to 12 practicing NPs for review on the appropriateness and validity of the survey items, clarity and flow of survey content and the time required to complete the survey. Feedback was received from 10 of the 12 experts queried, a response rate of 83%. Content experts' feedback resulted in revision of the survey tool to

include a total of 34 mixed mode (multiple-choice, Likert, ranking and open-ended) questions embedded in 7 rather than 6 blocks to include the following categories:

1. Block 1: Informed Consent
2. Block 2: Current and Previous state(s) of NP practice (5 questions)
3. Block 3: NP source of regulatory information (1 question)
4. Block 4: Professional Autonomy (3 questions)
5. Block 5: Impact of physician oversight on NP practice (7 questions)
6. Block 6: External influences on NP regulation (3 questions)
7. Block 7: Demographics (15 questions)

Based on the purpose of this study, SRE ranking, type of regulation, type of physician oversight and number of years of NP experience were the independent variables used to answer the research questions posed in the study.

**Block 1: Informed consent.** Standard informed consent is an essential requirement, informing the participant of the purpose, parameters, risks and benefits of the study. The first block addressed informed consent with questions to allow the participant to consent and agree to participate (see Appendix E). The informed consent prompted the participant to indicate agreement to either participate or choose not to participate in the. If the participant declined participation he or she was routed to the end of the survey.

**Block 2: Current and previous state(s) of NP employment.** The second block consisted of five questions inquiring about current and previous states of NP employment. Participants were asked to choose from a drop-down box to indicate current and previous states of NP employment followed by multiple choice questions regarding regulatory requirements for physician oversight in their state(s) of employment. If they indicated that they had not worked in

another state other than where they currently practice, the participant was not asked questions about regulatory requirements in states where they previously worked. Participants were also asked to identify the type of regulatory model used in their state: AR, PAR or JR. Lastly, participants were asked to choose from a list of options regarding the regulatory model utilized in their state(s) of employment. The questions embedded in block two allowed statistical correlation between state of employment and regulatory model used in those states (see Appendix E, questions 1-5).

**Block 3: NP source of regulatory information.** Nurse Practitioner practice is inconsistently regulated across a broad spectrum of models ranging from least restrictive AR to most restrictive JR. Understanding the NP scope of practice requires an understanding of NP regulation specific to the state in which the NP is employed (Hudspeth, 2009). Variability in NP regulation confounds access to regulatory information in states when other professionals are involved in NP regulation (Rudner et al., 2010). Question six assessed the NP's perception of the importance of and their knowledge about regulatory information in their state (Lugo et al., 2007; NCSBN, 2008; Pearson, 2010). A four-point Likert scale elicited the degree to which respondents agreed or disagreed with each statement ranging from strongly agree to strongly disagree (see Appendix E).

**Block 4: Professional autonomy.** States with restrictive SREs may limit NP autonomy, mobility and consumer access to NP-delivered care (Bahadori & Fitzpatrick, 2009; Lugo et al., 2007; Rudner et al., 2010; Safriet, 2010; Whelan, 2000a). Furthermore, autonomy and collaboration are important components of the NP role that may be constrained in states with restrictive regulatory models (Maylone et al., 2011). Questions 7-9 used a four-point Likert scale ranging from strongly agree to strongly disagree to explore the impact JR and physician



oversight have on the autonomy of NPs (see Appendix E). Participants' perceptions of their state regulations' consistency with the LACE model were assessed as a measure of NP autonomy using the four-point Likert scale as noted above.

**Block 5: Impact of physician oversight on NP practice.** Research has suggested that physician oversight of NP practice may unnecessarily limit NPs from practicing to the full extent of their licensure, certification and competence (Center to Champion Nursing in America, 2010; Institute of Medicine, 2010; Lugo et al., 2007; NCSBN, 2008; Rudner et al., 2010; Safriet, 2010). Physician oversight of NP practice may impact the safety, accessibility, autonomy and the cost of NP-delivered healthcare (Bahadori & Fitzpatrick, 2009; Hansen-Turton et al., 2006; Hudspeth, 2009; Institute of Medicine, 2010; Lugo et al., 2007; Rudner et al., 2010; Safriet, 2010; Whelan, 2000a). The impact of physician oversight on NP practice was assessed through seven mixed mode questions consisting of multiple-choice, open ended and four-point Likert scales (see Appendix E, questions 10-16). Question 10 assessed if there were regulatory requirements for physician oversight of any component of NP practice in the state(s) where participants practice. If the participants answered “no”, they were directed to the end of the block of questions on the impact of physician oversight. If they answered “yes”, they were asked additional questions.

The impact of regulatory requirements for physician oversight of NP practice was assessed through three questions (see Appendix E, questions 17-19). The first question investigated 33 areas of impact using a four-point Likert scale ranging from strongly agree to strongly disagree with the question “Based on the impact of NP regulation in the state(s) where you practice, please rate your level of agreement or disagreement regarding the impact of physician oversight on patient safety and autonomy, access to care and healthcare costs” (see

Appendix E, question 11). The impact of physician involvement in the resolution of disciplinary complaints was also assessed in this section. Two open ended questions prompted participants to list up to three ways regulatory requirements for physician oversight improved or hindered their practice (see Appendix E, question 12-13).

Economic invisibility and the cost of NP-delivered care were explored with questions 14-15 (see Appendix E). Question 14 assessed if the participant or their practice pay for physician oversight. If the participant answered “No”, they did not see question 15. If they answer yes, they were directed to question 15, an open ended question asking “How much do you or your practice pay for physician oversight of your NP practice?” Characteristics of physician oversight were assessed with a multiple choice, side-by-side methodology using the following question “Physician oversight can be direct (on site) or indirect (off site). Please rate the characteristics of physician oversight of your practice. Check all that apply”. Variables included: (1) supervision of medical acts; (2) Collaborative evaluation-physician and NP both see a patient together; (3) Consultation in NP care management—physician provides verbal or written direction in clinical management; (4) Physician signature for authorization of care; and (5) Other. Participants were asked to rate variable as direct or indirect and asked to fill text box regarding how often the activity occurs—weekly, monthly or other (see Appendix E, question 16). Question content was derived from research on NP reimbursement and the cost and impact of physician oversight on NP practice (Eibner et al., 2009; Hansen-Turton et al., 2006; Safriet, 1992; Safriet, 2010).

**Block 6: External influences on NP regulation.** Questions 17-19 (see Appendix E) explored participants’ impressions on the impact of externalities on the evolution of NP practice (Bodenheimer & Grumbach, 2009; Sabatier, 1999; White, 1995). Question 17 used a four-point Likert scale to explore the impact of external forces such as historical context, sociopolitical

influences, gender, and scientific evidence, for example, on the evolution of NP regulation. Question 18 is a single response question that prompted participants to answer “yes” or “no” to the following question “Have you used creative ways to work around regulatory barriers to ensure consumer access to NP care?” If the response was “no” participants were directed to the final block of the survey. If they responded “yes”, they were directed to question 19, an open ended question “What type of activities have you used to work around regulatory barriers to ensure your clients’ access to NP care?”

**Block 7: Demographics.** Well-designed surveys strategically place the most important information at the beginning of the survey. Demographic information was intentionally deferred until the end of the survey to ensure that the most critical information was accessed by the participants early in the survey process (Dillman, 2007b). Research suggests that NP practice is impacted by demographic variables such as practice location, practice environment and personal NP characteristics (Institute of Medicine, 2010; Lugo et al., 2007; Pearson, 2010; Whelan, 2000a).

Fifteen demographic variables were used in this study: practice setting, practice characteristics, NP population focus, types of clinicians in practice, number of daily patient encounters, rural versus urban clinic designation, employment status, number of years as a Registered Nurse (RN), number of years as a NP, gender, race, age, first degree in nursing, highest degree in nursing and, finally, plans to pursue a doctoral degree in nursing. These demographic questions allowed for statistical correlation in the research (see Appendix E, questions 20-23). Questions 20-22 (see Appendix E) are multiple choice questions prompting participants to describe their educational, practice and certification characteristics.

Interdisciplinary teams are recommended for optimal healthcare delivery (Cronenwett & Dzau, 2010). Question 23 assessed the mix of clinicians working in the participant's practice setting. Question 24 used a four-point Likert scale to assess the average number of patient encounters for each of the four PCP roles on an average work-day. Question 25 utilized an active Health Resources and Services Administration link to determine if a practice setting is classified as either rural or urban. Question 28 assessed employment status as either part-time (less than 35 hours weekly) or full-time (greater than 35 hours weekly) across the variables of hourly employee, salaried employee, practice partner and sole proprietor/practice owner. Questions 27-32 assessed variables of years of experience as a nurse, NP, gender, ethnicity, age and finally, first and highest degrees attained in nursing. If participants had not earned a terminal degree in nursing, they were asked to indicate if they have plans to pursue a DNP or PhD in nursing with a text box for participants to document why they plan to either pursue or not pursue a terminal degree in nursing. For those with an earned terminal degree in nursing, this question was skipped in their survey. Finally, question 34 was an open ended question inquiring about other information on NP regulation that might be important to the participant.

### **Data Analysis**

Data were exported from *Qualtrics*<sup>TM</sup> to IBM SPSS Statistics 19 for analysis. All study variables were analyzed for missing data. For categorical variables, frequency distributions were generated and analyzed. Based on Benner's work on skill acquisition to move from novice to expert, NPs were categorically divided into groups of those with less than or equal to five years NP experience to compare with those NPs with greater than five years experience to evaluate for significance (Benner, 1982). For continuous variables, summary statistics such as mean, median, and standard deviation were generated and analyzed. Next the sample characteristics were

compared to national data, where available, to determine how representative the study sample is of the U. S. population of nurse practitioners. Next, new categorical variables were created for defining subgroups needed to investigate the study's research questions.

Descriptive analysis techniques were used for research question 1. Research question two was answered by using Chi-square tests to compare the association of each categorical independent variable (SRE ranking, type of regulation, NP experience, and type of physician oversight) with the NP agreement/disagreement on each of the question 16 items. The strength of each association was assessed with a univariate odds ratio. Chi square assumes that the lowest expected frequency in any cell should be 5 or more. The variables in the equation table represent the odds of each independent variable being in one category when the value of the predictor increases by one unit when all other factors are equal. Finally, logistic regression allowed testing of models to predict categorical outcomes with two or more categories. Small sample sizes can cause problems in convergence with outcome solutions. Furthermore high inter-correlations among independent variables should always be assessed. Outliers can influence the results of logistic regression.

Research question three was answered by performing a multivariate binary logistic regression where the same independent variables were used to predict the likelihood that a NP respondent will report agreement to each of the 21 items in survey question 16. Statistical significance was determined with a P -value of  $\leq .05$

### **Methodological Limitations**

Use of a proprietary database of NPs was a limitation in this research. While FHEA maintains a large national NP email data base, NPs who are not a member in the FHEA data base were excluded from the sample. Moreover, because of the research questions posed in this study,

NPs practicing in states that did not have statutory requirements for physician oversight were excluded.

## **CHAPTER IV: FINDINGS**

This chapter contains descriptive statistics of the sample and specific analytical procedures for each research question. Following a descriptive analysis of the study sample, the data were examined to answer each of the three research questions. First, aggregated NP perceptions regarding the impact of physician oversight on NP-delivered patient care and NP practice were explored. Secondly, NP perceptions regarding the impact of physician oversight on patient care and NP practice related to the SRE ranking, type of regulation, years of NP experience and type of physician oversight were examined. Lastly, the combination of the SRE ranking, type of regulation, NP experience, and type of physician oversight were investigated for relationships to NP perceptions regarding the impact of physician oversight.

### **Descriptive Statistics**

The survey population for this study sample was 12,000 NPs who were members of the FHEA database that worked in the 24 inclusion states chosen from a table of random numbers (see Table 1). Twelve thousand surveys were distributed using the FHEA database. One hundred and twenty emails were returned as undeliverable (1%), leaving a total of 11,880 in the sample frame. There were 2,322 respondents who opened the survey instrument, resulting in a 19.6% response rate. Forty-four percent of participants did not complete the survey after reading the informed consent. A total of 1,200 respondents completed the survey. Those NPs practicing in states with AR were excluded from the final sample frame because of the focus and parameters of the study, yielding a final total of 1,139 NPs practicing in states with PAR or JR as the study sample.

## Demographics of the Study Sample

Table 4 provides a description of the four independent variables used in the study. Frequencies for SRE ranking, type of regulation, NP experience and type of physician oversight are summarized. Demographics of study sample are found in Table 5. Consistent with national demographics, the majority of the sample was Caucasian (87%) and female (91%). The respondents had a mean age of 48.21 years with a SD of 10.36 years (25-75 years). The number of years of clinical experience as a RN and NP were M=21 years, SD=11.6 (0.8-55 years) and M=8.32 years, SD=8.17 (0.5-69 years), respectively.

Educational preparation of participants reflected that of the national NP population with the majority (45.4%) having earned their first degree in nursing at the baccalaureate level followed by an associate's degree (31.5%). Two-tenths of one percent (0.2%) reported their highest educational preparation at diploma level and one percent of respondents reported their highest degree was at the Bachelor's level for their NP educational preparation. The most prevalent highest earned degree in nursing was at the Master's degree in nursing (81.9%) followed by a Doctorate in nursing (11.8%). The majority of respondents (66.5%) were educated in the FNP focus followed by 26.5% in the ANP focus. These findings are consistent with the historical evolution of NP educational preparation and national certification standards. The total *n* for the educational foci exceeded the sample size (*n*=1139) by 261 since some participants were educated in more than one population focus.



Table 4

*Independent Variables (SRE Ranking, Type of Regulation, NP Experience, Indirect Oversight, Direct Oversight) (n = 1139)*

Characteristic	Operational Definition	Variable Code	n	Missing (%)	Frequency (%)
SRE Ranking	Letter Grade	Irse	1139	0 (0)	
DF	D-F	Irse0			865(75.9)
BC	B-C	Irse1			274(24.1)
Type of Regulation		Irreg	1139	0 (0)	
JR	Joint Regulation	Irreg0			426(37.4)
PAR	Partially Autonomous Regulation	Irreg1			713(62.6)
∞ NP Experience		Irnexp	1107	32(2.8)	
>5 yrs	> 5 yrs NP Experience	Impexp0			559(49.1)
<5 yrs	< 5 yrs NP Experience	Imexp1			548(48.1)
Indirect Oversight		Irindirect	1083	56(4.9)	
No	Different	Irindirect0			640(56.2)
Yes	Practice site	Irindirect1			443(38.9)
Direct Oversight	Same Practice Site	Irdirect	1083	56(4.9)	
No		Irdirect0			735(67.9)
Yes		Irdirect1			348(30.6)

Table 5

*NP Sample Demographic (n=1139)*

Characteristic	Frequency (%)	Mean (SD) Range
Years RN Experience	1,122 (98.5)	21.04 (11.6) 0.8-55.0
Missing	17 (0.01)	
Total	1,139 (100)	
Years NP Experience	1,107 (97.2)	8.5 (8.17) 0.5-69
Missing	32 (0.03)	
Total	1,139 (100)	
Age in Years	1,058 (92.9)	48.21 (10.36) 25-75
Missing	81 (0.07)	
Total	1,139 (100)	
Gender		
Male	95 (8.3)	
Female	1,037 (91.0)	
Missing	7 (0.006)	
Total	1,139 (100)	
Race		
White/Caucasian	987 (86.7)	
African American	59 (5.2)	
Hispanic	31 (2.7)	
Asian	24 (2.1)	
Pacific Islander	6 (0.5)	
Other	22 (1.9)	
Missing	8 (0.7)	
Total	1,139 (100)	
First Degree in Nursing		
Diploma	168 (14.7)	
Associate Degree	359 (31.5)	
Baccalaureate Degree	506 (44.4)	
Master's Degree	100 (8.8)	
Doctorate	6 (0.5)	
Missing	0 (0)	
Total	1,139 (100)	
Highest Degree in Nursing		
Diploma	2 (0.2)	
Associate Degree	0 (0.0)	

Table 5 (continued)

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Baccalaureate Degree	17 (1.5)
Master's Degree	933 (81.9)
Doctorate	134 (11.8)
Missing	53 (4.7)
Total	1,139 (100)

NP Population Focus

ACNP	89 (7.8)
ANP	302 (26.5)
FNP	758 (66.5)
GERO	97 (8.5)
PNP	35 (3.1)
PMHNP	23 (2.0)
WHNP	44 (3.9)
Other	52 (4.6)
Total	1,400 (100)*

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*Note.* \*Sample total exceeds the n (1139) by 261 since some NPs were educated in more than one population focus.

## **Independent Variables**

To answer the second research question, four independent variables (IV) were used. The SRE ranking established during the randomization of the sample was used for the first IV. Seventy-six percent of study participants reported working in states with a SRE ranking of D or F compared with 24% in states with SRE rankings of B or C. The type of regulation in the state where the NP practiced was used for the second IV. Sixty-three percent of study participants reported working in states with PAR while 37% reported working in states with JR, the most restrictive form of NP regulation. The third IV was years of experience as an NP. Age as reported by the participant was recoded into a new IV with two groups created: NPs with less than 5 years of experience and NPs with 5 or more years of NP experience. Study participants were fairly evenly split in years of NP experience, with 49% reporting more than 5 years experience and 48% reporting less than five years NP experience. The final IV was type of physician oversight, either direct or indirect. Thirty-one percent of participants reported direct physician oversight at their place of practice. In contrast, 39% reported indirect oversight by a physician located at a different site. Twenty-six percent of respondents reported other physician oversight models where the physician may be located on site part of the time and in a remote site at other times. Type of physician oversight did not correlate with type of regulatory model.

Lastly, 68% of participants reported no requirements for direct physician oversight of NP practice compared to 31% reporting requirements for direct physician oversight of their practice. These variables are summarized in Table 4.

## **Research Questions**

Data generation from the 1,139 participants was used to address the following questions.

## **Research Question #1**

What is the overall NP perception regarding the impact of physician oversight on patient care (safety, access to care, and costs) and NP practice (scope of practice, job mobility, job satisfaction, autonomy, and resolution of practice and disciplinary complaints).

Table 6 presents the percent agreement on seven items related to the impact of physician oversight on patient safety, access to care, healthcare costs, NP practice, NP employment mobility, NP job satisfaction, NP autonomy and resolution of practice and disciplinary complaints.

### **Patient care.**

*Safety.* Overall, 60.9% of the study group reported that they felt that physician oversight did not promote safe NP practice. Moreover, study participants reported that physician oversight of NP practice neither improved patient safety (71%) nor enhanced public safety (74.2%). Finally 71% of study participants disagreed that physician oversight promotes safe medication practice.

*Access.* Similar to safety concerns, study participants disagreed that physician oversight improved access to care. Overall, 76% of the study group reported that they felt that physician oversight does not promote consumer access to NP care. Furthermore, 88% of the study group reported perceptions that physician oversight does not improve access to healthcare.

*Cost.* In contrast to safety and access perceptions, the majority of study participants (70.7%) reported agreement that physician oversight increases the overall cost of healthcare. Furthermore, 69.7% of the study group reported that physician oversight increases the cost for consumers seeking NP care.

Table 6

*Agreement Percentages*

Percent Agreement/Disagreement with Impact of Physician Oversight on Patient Care and NP Practice		
Question	% Agreement	% Disagreement
<b>Patient Care</b>		
<i>Please rate your level of agreement or disagreement regarding the impact of physician oversight on patient safety.</i>		
Promotes safe NP practice (n=1055)	39.1%	60.9%
Improves patient safety (n=1053)	29.0%	71.0%
Enhances public safety (n=1052)	25.8%	74.2%
Promotes safe medication management (n=1051)	28.4%	71.6%
<i>Please rate your level of agreement or disagreement regarding the impact of physician oversight on access to care.</i>		
Promotes consumer access to NP care (n=1052)	24.0%	76.0%
Improves access to healthcare (n=1050)	22.0%	78.0%
<i>Please rate your level of agreement or disagreement regarding the impact of physician oversight on health care costs.</i>		
Increases the overall cost of healthcare (n=1052)	70.7%	29.3%
Increases the cost for consumers seeking NP care (n=1048)	69.7%	40.3%
<b>NP Practice</b>		
<i>Please rate your level of agreement or disagreement regarding the impact of physician oversight on NP scope of practice.</i>		
Constrains direct reimbursement for NP care (n=1044)	89.8%	10.2%
Restricts NP use of diagnostic and management tests (n=1054)	52.1%	47.9%
Improves Provider-Patient Communication (n = 1053)	19.0%	81%
Creates Provider-Patient Confusion (n = 1054)	74.5%	25.5%

Table 6 (continued)

Hinders Provider-Patient Trust (n = 1054)	53.1%	46.9%
Impedes Transition to Other Levels of Care	70.9%	29.1%
<i>Please rate your level of agreement or disagreement regarding the impact of physician oversight on NP employment mobility.</i>		
NP Work Mobility (n = 1052)	72.2%	27.8%
Discourages NPs from Owning Their Own Practice (n = 1053)	85.6%	14.4%
<i>Please rate your level of agreement or disagreement regarding the impact of physician oversight on NP job satisfaction.</i>		
Lowers NP Job Satisfaction (n = 1053)	74.2%	25.8%
<i>Please rate your level of agreement or disagreement regarding the impact of physician oversight on NP autonomy.</i>		
Reduces NP Autonomy (n = 1050)	86.4%	13.6%
<i>Please rate your level of agreement or disagreement regarding the impact of physician oversight on resolution of NP practice and disciplinary complaints.</i>		
Delays Resolution of NP Practice Complaints (n = 1038)	52.8%	47.2%

**NP practice.** Components of NP practice include NP scope of practice, NP employment mobility, NP job satisfaction, and NP autonomy. Lastly resolution of NP practice and disciplinary complaints is considered as a component of NP practice

***NP scope of practice.*** Study participants reported 89.8% agreement that physician oversight constrains direct reimbursement for NP care. Overall, 52.1% of the study group reported that they felt that physician oversight restricts the use of diagnostic and management tests. Moreover, 81% of the study participants perceived that physician oversight did not improve provider patient communication. Furthermore, 74.5% of the study group perceived that physician oversight creates provider-patient confusion. Following this logic, 53.1% of the study group reported that they felt that physician oversight hinders provider-patient trust. Finally, 70.9% of the study group perceived that physician oversight impedes transition to other levels of care.

***NP employment mobility.*** Similar levels of agreement were reported on associations between physician oversight and NP work mobility limitations. Overall, 72.2% of the study group reported that they felt that physician oversight limits NP work mobility. Furthermore, 85.6% of study participants perceived that physician oversight discourages NP practice ownership which can limit NP employment mobility options.

***NP job satisfaction.*** In follow-up to study participants' level of agreement or disagreement regarding the impact of physician oversight on NP employment mobility, participants were queried about the impact of physician oversight on NP job satisfactions. Overall, 74.2% of the study group reported that they felt that physician oversight lowers NP job satisfaction.



**Autonomy.** Study participants were largely in agreement in regards to whether physician oversight reduces NP autonomy. Overall, 86.4% of the study group reported that they felt that physician oversight reduces NP autonomy.

**Resolution of NP practice and disciplinary complaints.** The final area of NP practice assessed was associated with delays in resolution of NP practice complaints. Overall, 52% of the study group perceived that physician oversight delayed NP practice complaint resolutions.

## **Research Question #2**

Question two asked whether there are differences in NP perceptions regarding the impact of physician oversight on patient care and NP practice related to four independent variables, SRE ranking (low rank with alpha scores of D or F and higher rank with scores of B or C), type of regulation (PAR or JR), NP experience ( $\leq 5$  years  $> 5$  years), and type of physician oversight (indirect or direct). The univariate association of each independent variable with the binary outcome of agreement and disagreement with each safety item was used to address the outcomes of research question #2. Univariate logistic regression revealed where there was statistical significance. The point of overall level of agreement was identified with cross tabulation of areas of agreement and Pearson's chi square identifying the level of statistical significance.

**Patient care.** The following data relates to differences in NP perception regarding the impact of physician oversight on patient care. Results for the variables of safety, access to care and costs are discussed.

**Safety.** The study group reported that they felt that physician oversight did not promote safe NP practice. Agreement levels ranged from a low of 27.2% for NP's with more than five years of NP experience to 51.4% for those with less than or equal to 5 years of NP experience. There were statistically significant associations with type of regulation, NP experience, direct

oversight and participant agreement or disagreement as to whether physician oversight promoted safe NP practice. NPs with more than five years NP experience were less likely to have direct oversight of their practice ( $p=.018$ ) and less likely to report that physician oversight promoted safe NP practice. When all the IV's were entered into a logistic regression model, NP experience and direct oversight were unique, statistically significant predictors of agreement. The strongest predictor of agreement was NP experience, where NP's of less than or equal to 5 years of experience were 2.71 times more likely to agree that physician oversight promoted safe practice compared to those with >5 years of NP experience. Similarly, NP's practicing with direct physician oversight were 1.6 times more likely to agree that physician oversight promoted safe practice than those without direct oversight. Table 7 highlights these findings.

Table 8 presents NP differences in agreement regarding perceptions on whether physician oversight improves patient safety. Agreement levels ranged from a low of 21.6% for NP's with more than five years of NP experience to 36.6% for those with less than or equal to 5 years of NP experience. There were statistically significant associations between type of regulation, NP experience, and direct oversight and agreement or disagreement with whether physician oversight improves patient safety. When all the IV's were entered into a logistic regression model, NP experience and direct oversight were unique, statistically significant predictors of agreement. The strongest predictor of agreement was NP experience, where NP's of less than or equal to 5 years of experience were 1.98 times more likely to agree that physician oversight improves patient safety compared to those with greater than 5 years of NP experience. Similarly, NPs practicing with direct physician oversight were 1.49 times more likely to agree that physician oversight improves patient safety than those without direct oversight.

Table 7

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the*

*NP Perception of Whether Physician Oversight Promotes Safe NP Practices (n = 1055)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	40.2				
DF	38.7	1.06 (.80, 1.42)	.679	0.89 (0.65, 1.25)	.528
<b>Type of Regulation</b>					
PAR	41.8				
JR	34.4	1.37 (1.05, 1.77)	.018	1.33 (0.98, 1.78)	.062
<b>NP experience</b>					
≤5 years	51.4				
>5 years	27.2	2.83 (2.19, 3.65)	<.001	2.71 (2.09, 3.51)	<.001
<b>Indirect Oversight</b>					
Yes	36.2				
No	41.0	0.82 (0.63, 1.05)	.114	1.03 (0.75, 1.43)	.857
<b>Direct Oversight</b>					
Yes	46.6				
No	35.5	1.59 (1.22, 2.07)	.001	1.50 (1.07, 2.10)	.018
<b>Total Group</b>	39.1				

Table 8

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Improves Patient Safety (n = 1053)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	32.4				
DF	27.9	1.24 (0.91, 1.68)	.166	1.08 (0.77, 1.53)	.648
<b>Type of Regulation</b>					
PAR	31.6				
JR	24.6	1.42 (1.07, 1.88)	.015	1.30 (0.95, 1.79)	.102
<b>NP experience</b>					
≤5 years	36.6				
>5 years	21.6	2.09 (1.59, 2.74)	<.001	1.98 (1.51, 2.61)	<.001
<b>Indirect Oversight</b>					
Yes	26.5				
No	30.7	0.82 (0.62, 1.07)	.145	1.03 (0.73, 1.46)	.860
<b>Direct Oversight</b>					
Yes	35.2				
No	26.0	1.55 (1.17, 2.04)	.002	1.49 (1.05, 2.13)	.027
<b>Total Group</b>	29.0				

Table 9 identifies NP differences in agreement regarding perceptions of whether physician oversight and enhanced public safety. Agreement levels ranged from a low of 18.7% for NP's with more than five years of NP experience to 33.0% for those with less than or equal to 5 years of NP experience. Type of regulation and years of NP experience showed statistically significant association with agreement or disagreement on whether or not physician oversight improved public safety. When all the IV's were entered into a logistic regression model, NP experience and direct oversight were unique, statistically significant predictors of agreement. The strongest predictor of agreement was NP experience, where NP's of less than or equal to 5 years of experience were 2.03 times more likely to agree that physician oversight enhances patient safety compared to those with greater than 5 years of NP experience. Similarly, NPs practicing with direct physician oversight were 1.51 times more likely to agree that physician oversight improves patient safety than those without direct oversight.

Table 10 presents information NP differences in agreement regarding perceptions of whether physician oversight promotes safe medication management. Agreement levels ranged from a low of 20% for NP's with more than five years of NP experience to 36.9% for those with less than or equal to 5 years of NP experience. There were statistically significant associations of type of regulation, NP experience, and direct oversight with agreement or disagreement on whether physician oversight promoted safe medication management. When all the IV's were entered into a logistic regression model, NP experience and direct oversight were unique, statistically significant predictors of agreement. The strongest predictor of agreement was NP experience ( $p < .001$ ), where NP's of less than or equal to five years of experience were 2.21 times more likely to agree that physician oversight promotes safe medication management compared to those with greater than 5 years of NP experience. Similarly, NPs practicing with

Table 9

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Enhances Public Safety (n = 1052)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	29.2				
DF	24.7	1.26 (0.92, 1.73)	.145	1.11 (0.78, 1.58)	.559
<b>Type of Regulation</b>					
PAR	28.2				
JR	21.6	1.43 (1.06, 1.92)	.018	1.30 (0.93, 1.80)	.125
<b>NP experience</b>					
≤5 years	33.0				
>5 years	18.7	2.14 (1.61, 2.84)	<.001	2.03 (1.52, 2.71)	<.001
<b>Indirect Oversight</b>					
Yes	22.6				
No	28.0	0.75 (0.56, 1.00)	.049	0.95 (0.66, 1.37)	.780
<b>Direct Oversight</b>					
Yes	32.4				
No	22.6	1.64 (1.23, 2.19)	.001	1.51 (1.05, 2.17)	.027
<b>Total Group</b>	25.8				

Table 10

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Promotes Safe Medication Management (n = 1051)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	32.8				
DF	26.9	1.32 (0.98, 1.80)	.071	1.19 (0.84, 1.68)	.323
<b>Type of Regulation</b>					
PAR	30.7				
JR	24.4	1.38 (1.04, 1.83)	.027	1.21 (0.88, 1.68)	.238
<b>NP experience</b>					
≤5 years	36.9				
>5 years	20.0	2.34 (1.77, 3.09)	<.001	2.21 (1.67, 2.93)	<.001
<b>Indirect Oversight</b>					
Yes	26.5				
No	29.6	0.86 (0.65, 1.13)	.270	1.15 (0.81, 1.65)	.438
<b>Direct Oversight</b>					
Yes	35.1				
No	25.1	1.61 (1.22, 2.13)	.001	1.66 (1.16, 2.39)	.006
Total Group	28.4				

direct physician oversight were 1.66 times more likely to agree that physician oversight promotes safe medication management than those without direct oversight.

*Access.* Table 11 presents data on NP differences in agreement regarding perceptions of whether or not physician oversight promotes consumer access to NP care. Agreement levels ranged from a low of 18.7% for NP's with more than five years of NP experience to 30% for those NPs practicing in states with SRE rankings of B and C. There was a statistically significant association of NP experience with agreement or disagreement of whether physician oversight promotes consumer access to NP care. When all the IV's were entered into a logistic regression model, NP Experience was the sole unique, statistically significant predictor of agreement. The strongest predictor of agreement was NP experience, where NP's of  $\leq 5$  years of experience were 1.82 times more likely to agree that physician oversight improves patient safety compared to those with  $>5$  years of NP experience.

Table 12 presents data on NP differences in agreement regarding perceptions relating physician oversight and access to healthcare. Agreement levels ranging from a low of 17.0% for NP's with more than five years of NP experience to 27.2% for those with  $\leq 5$  years of NP experience and those with direct physician oversight, respectively. There was a statistically significant association of NP experience with agreement or disagreement of whether physician oversight improves access to healthcare. When all the IV's were entered into a logistic regression model, NP experience ( $P = <.001$ ) was the sole unique, statistically significant predictor of agreement. The strongest predictor of agreement was NP experience, where NP's of  $\leq 5$  years of experience were 1.82 times more likely to agree that physician oversight improves access to healthcare compared to those with  $>5$  years of NP experience.



Table 11

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Promotes Consumer Access to NP Care (n = 1052)*

Variable	Percent Agreement	Univariate OR $\pm$ (95% CI)	p	Multivariate OR $\pm$ (95% CI)	p
<b>SRE Ranking</b>					
BC	30.0				
DF	22.0	1.52 (1.11, 2.09)	.009	1.40 (0.98, 2.00)	0.64
<b>Type of Regulation</b>					
PAR	26.3				
JR	20.0	1.43 (1.05, 1.93)	.021	1.19 (0.85, 1.67)	.322
<b>NP experience</b>					
$\leq 5$ years	29.5				
$> 5$ years	18.7	1.82 (1.37, 2.43)	$<.001$	1.75 (1.31, 2.34)	$<.001$
<b>Indirect Oversight</b>					
Yes	20.7				
No	26.2	0.74 (0.55, 0.99)	.040	0.83 (0.58, 1.20)	.328
<b>Direct Oversight</b>					
Yes	28.9				
No	21.6	1.47 (1.09, 1.97)	.011	1.27 (0.88, 1.84)	.204
Total Group	24.0				

Table 12

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Improves Access to Healthcare (n = 1050)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	24.4				
DF	21.2	1.20 (0.86, 1.67)	.287	1.08 (0.75, 1.57)	.675
<b>Type of Regulation</b>					
PAR	23.8				
JR	19.0	1.33 (0.97, 1.81)	.074	1.22 (.087, 1.73)	.252
<b>NP experience</b>					
≤5 years	27.2				
>5 years	17.0	1.82 (1.35, 2.45)	<.001	1.75 (1.29, 2.36)	<.001
<b>Indirect Oversight</b>					
Yes	19.1				
No	24.0	0.75 (0.55, 1.01)	.061	0.89 (0.61, 1.30)	.551
<b>Direct Oversight</b>					
Yes	27.0				
No	19.6	1.51 (1.12, 2.05)	.007	1.35 (0.92, 1.98)	.121
<b>Total Group</b>	22.0				

**Cost.** Table 13 presents NP differences in agreement regarding perceptions on whether physician oversight increases the overall cost of healthcare. Agreement levels ranged from a low of 65.4% for NP's working in states with SRE rankings of B or C to 76.4% for those NPs working in states with JR. There were statistically significant associations of type of regulation ( $p = 0.34$ ) and NP experience ( $p = .003$ ) with agreement/disagreement of whether physician oversight increases the overall cost of healthcare. When all the IV's were entered into a logistic regression model; types of regulation and NP experience were unique, statistically significant predictors of agreement. The strongest predictor of agreement was type of regulation, where NP's working in states with JR were 0.64 times more likely to agree that physician oversight increases the overall cost of healthcare compared to those with working in states with less restrictive, PAR. Similarly, NP's with more than 5 years NP experience were 0.64 times more likely to agree that physician oversight increases the overall cost of healthcare compared to those NPs with less than five years NP experience.

Table 14 presents NP differences in agreement regarding perceptions on whether physician oversight increases the cost for consumers seeking NP care. Agreement levels ranged from a low of 65.3% for NP's working with direct physician oversight of their practice to 74.7% for those NPs working in states with JR. There were statistically significant associations of type of regulation ( $p = .040$ ), NP experience ( $p = .015$ ), and indirect oversight ( $P = .032$ ) with agreement/disagreement of whether physician oversight increases the cost for consumers seeking NP care. When all the IV's were entered into a logistic regression model type of regulation, NP experience, and indirect oversight were unique, statistically significant predictors of agreement. The strongest predictor of agreement was type of regulation, where NP's working in states with more restrictive JR were 0.68 times more likely to agree that physician oversight of NP practice

Table 13

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Increases the Overall Cost of Healthcare (n = 1052)*

Variable	Percent Agreement	Univariate OR $\pm$ (95% CI)	p	Multivariate OR $\pm$ (95% CI)	p
<b>SRE Ranking</b>					
BC	65.4				
DF	72.4	0.72 (0.53, 0.97)	0.31	0.84 (0.60, 1.17)	.299
<b>Type of Regulation</b>					
PAR	67.4				
JR	76.4	0.64 (0.48, 0.85)	.002	0.71 (0.52, 0.98)	.034
<b>NP experience</b>					
$\leq 5$ years	66.0				
$> 5$ years	75.3	0.64 (0.49, 0.83)	.001	0.67 (0.51, 0.87)	.003
<b>Indirect Oversight</b>					
Yes	75.1				
No	67.7	1.44 (1.09, 1.90)	.009	1.34 (0.96, 1.88)	.088
<b>Direct Oversight</b>					
Yes	66.0				
No	73.0	0.72 (0.54, 0.95)	.020	0.88 (0.62, 1.24)	.464
<b>Total Group</b>	<b>70.7</b>				

Table 14

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Increases the Cost for Consumers Seeking NP Care (n = 1048)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	66.0				
DF	70.8	0.80 (0.59, 1.08)	.147	0.93 (0.66, 1.29)	.652
<b>Type of Regulation</b>					
PAR	66.7				
JR	74.7	0.68 (0.51, 0.90)	.006	0.72 (0.53, 0.99)	.040
<b>NP experience</b>					
≤5 years	65.7				
>5 years	73.5	0.69 (0.53, .090)	.006	0.72 (0.55, 0.94)	.015
<b>Indirect Oversight</b>					
Yes	74.6				
No	66.2	1.50 (1.14, 1.97)	.004	1.44 (1.03, 2.01)	.032
<b>Direct Oversight</b>					
Yes	65.3				
No	71.7	0.74 (0.56, 0.98)	.034	0.94 (0.67, 1.32)	.736
<b>Total Group</b>	<b>69.7</b>				

increases the cost for consumers seeking NP care compared to those with working in states with less restrictive PAR. Similarly, NP's with more than five years of NP experience were 0.69 times more likely to agree that physician oversight of NP practice increases the cost for consumers seeking NP care. Furthermore, the type of physician oversight made a difference. NPs with indirect physician oversight of NP practice were 1.50 times more likely to agree that physician oversight increases the cost for consumers seeking NP care compared to those NPs with direct physician oversight of their practice.

Table 15 presents data on NP differences in agreement regarding perceptions of whether physician oversight constrains direct reimbursement for NP care. Agreement levels ranged from a low of 81.2% for NP's working in states with SRE rankings of B or C to 93.3% for those working in states with JR. There was a statistically significant association of SRE Ranking ( $p = < 001$ ) with agreement or disagreement of whether physician oversight constrains direct reimbursement for NP care. When all the IV's were entered into a logistic regression model, SRE was the only unique, statistically significant predictor of agreement. The strongest predictor of agreement was type of regulation, where NP's working in states with JR 0.52 times more likely to agree that physician oversight constrains direct reimbursement for NP care compared to those working in states with less restrictive PAR.

**NP practice.** Data included in Tables 16-25 address study participant's differences in agreement regarding perceptions of whether physician oversight impacts NP practice. Scope of practice, mobility, job satisfaction, autonomy and resolution of NP practice and disciplinary complaints are addressed.

Table 15

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Constrains Direct Reimbursement for NP Care (n = 1044)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	81.2				
DF	92.6	0.35 (0.23, 0.52)	<.001	0.38 (0.23, 0.61)	<.001
<b>Type of Regulation</b>					
PAR	87.8				
JR	93.3	0.52 (0.33, 0.82)	.005	0.84 (0.49, 1.44)	.534
<b>NP experience</b>					
≤5 years	88.1				
>5 years	91.5	0.69 (0.46, 1.03)	.068	0.70 (0.46, 1.06)	.095
<b>Indirect Oversight</b>					
Yes	90.4				
No	89.4	1.11 (0.74, 1.68)	.609	1.28 (0.78, 2.11)	.334
<b>Direct Oversight</b>					
Yes	90.1				
No	89.7	1.04 (0.67, 1.61)	.859	1.21 (0.71, 2.04)	.482
<b>Total Group</b>	<b>89.8</b>				

Table 16

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Restricts NP Use of Diagnostic and Management Tests (n = 1054)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	45.5				
DF	54.2	.071 (0.53, 0.94)	.015	0.64 (0.47, 0.88)	.006
<b>Type of Regulation</b>					
PAR	52.0				
JR	52.3	0.99 (0.77, 1.27)	.917	1.21 (0.91, 1.60)	.192
<b>NP experience</b>					
≤5 years	49.4				
>5 years	54.7	0.81 (0.64, 1.03)	.008	0.80 (0.63, 1.03)	.080
<b>Indirect Oversight</b>					
Yes	55.8				
No	49.5	1.29 (1.01, 1.65)	.044	1.40 (1.03, 1.90)	.029
<b>Direct Oversight</b>					
Yes	50.4				
No	52.9	0.91 (0.70, 1.18)	.462	1.12 (0.81, 1.54)	.491
<b>Total Group</b>	<b>52.1</b>				



Table 17

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Improves Provider-Patient Communication (n = 1053)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	21.3				
DF	18.3	1.21 (0.85, 1.71)	.290	1.15 (0.77, 1.70)	.496
<b>Type of Regulation</b>					
PAR	19.9				
JR	17.4	1.18 (0.86, 1.64)	.308	1.07 (0.74, 1.53)	.734
<b>NP experience</b>					
≤5 years	24.0				
>5 years	14.2	1.91 (1.39, 2.62)	<.001	1.85 (1.34, 2.54)	<.001
<b>Indirect Oversight</b>					
Yes	18.6				
No	19.3	0.96 (0.70, 1.31)	.789	1.15 (0.77, 1.71)	.505
<b>Direct Oversight</b>					
Yes	22.0				
No	17.6	1.32 (0.96, 1.82)	.092	1.36 (0.90, 2.06)	.140
Total Group	19.0				

Table 18

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Creates Provider-Patient Confusion (n = 1054)*

Variable	Percent Agreement	Univariate OR $\pm$ (95% CI)	p	Multivariate OR $\pm$ (95% CI)	p
<b>SRE Ranking</b>					
BC	70.0				
DF	75.9	0.74 (0.54, 1.01)	.059	0.71 (.050, 1.01)	.059
<b>Type of Regulation</b>					
PAR	73.7				
JR	75.8	0.90 (0.67, 1.20)	.461	1.05 (0.76, 1.45)	.781
<b>NP experience</b>					
$\leq 5$ years	73.3				
$> 5$ years	75.6	0.89 (0.67, 1.17)	.392	0.90 (0.68, 1.19)	.440
<b>Indirect Oversight</b>					
Yes	78.7				
No	71.6	1.46 (1.10, 1.95)	.010	1.49 (1.05, 2.11)	.025
<b>Direct Oversight</b>					
Yes	71.5				
No	75.9	0.80 (0.60, 1.07)	.130	1.00 (0.71, 1.43)	.985
<b>Total Group</b>	<b>74.5</b>				

Table 19

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Impedes Transition to Other Levels of Care (n = 1055)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	66.1				
DF	72.4	0.74 (0.55, 1.01)	0.55	.085 (0.60, 1.19)	.331
<b>Type of Regulation</b>					
PAR	68.0				
JR	75.8	0.68 (0.51, 0.90)	.007	0.76 (0.55, 1.04)	.085
<b>NP experience</b>					
≤5 years	65.7				
>5 years	75.9	0.61 (0.46, 0.79)	<.001	0.63 (0.48, 0.83)	.001
<b>Indirect Oversight</b>					
Yes	75.2				
No	67.9	1.43 (1.08, 1.88)	.011	1.34 (0.96, 1.89)	.083
<b>Direct Oversight</b>					
Yes	66.4				
No	73.0	0.73 (0.55, 0.96)	.026	0.90 (0.64, 1.27)	.547
<b>Total Group</b>	<b>70.9</b>				

Table 20

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Hinders Provider-Patient Trust (n = 1054)*

Variable	Percent Agreement	Univariate OR $\pm$ (95% CI)	p	Multivariate OR $\pm$ (95% CI)	p
<b>SRE Ranking</b>					
BC	52.4				
DF	52.9	1.052 (0.79, 1.39)	.728	1.03 (.749, 1.41)	.856
<b>Type of Regulation</b>					
PAR	52.8				
JR	53.4	1.02 (0.79, 1.32)	.856	1.04 (0.78, 1.37)	.810
<b>NP experience</b>					
$\leq 5$ years	51.6				
$> 5$ years	54.8	0.88 (0.69, 1.12)	.295	0.87 (0.68, 1.12)	.284
<b>Indirect Oversight</b>					
Yes	56.5				
No	50.9	1.26 (.980, 1.61)	.071	1.31 (.971, 1.78)	.078
<b>Direct Oversight</b>					
Yes	51.8				
No	53.9	0.92 (0.71, 1.19)	.528	1.09 (0.79, 1.50)	.580
<b>Total Group</b>	53.1				

Table 21

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Limits NP Work Mobility (n = 1052)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	66.7				
DF	74.0	0.70 (0.52, 0.95)	.023	.081 (0.58, 1.14)	.222
<b>Type of Regulation</b>					
PAR	69.4				
JR	77.0	0.68 (0.51, 0.90)	.007	0.74 (0.54, 1.02)	.322
<b>NP experience</b>					
≤5 years	70.2				
>5 years	74.3	.082 (0.62, 1.07)	.138	0.85 (0.65, 1.12)	.260
<b>Indirect Oversight</b>					
Yes	73.3				
No	71.5	1.09 (0.83, 1.44)	.542	0.97 (0.69, 1.36)	.846
<b>Direct Oversight</b>					
Yes	69.4				
No	73.6	.082 (0.61, 1.09)	.163	0.81 (0.57, 1.15)	.235
<b>Total Group</b>	72.2				

Table 22

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Discourages NPs from Owning Their Own Practice (n = 1053)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	80.7				
DF	87.1	0.62 (0.43, 0.90)	.011	0.60 (0.39, 0.92)	.018
<b>Type of Regulation</b>					
PAR	84.9				
JR	86.7	.086 (0.60, 1.24)	.420	1.09 (0.72, 1.66)	.677
<b>NP experience</b>					
≤5 years	84.2				
>5 years	86.9	0.80 (0.57, 1.13)	.205	0.82 (0.58, 1.16)	.259
<b>Indirect Oversight</b>					
Yes	85.6				
No	85.6	1.00 (0.71, 1.42)	.990	0.95 (0.61, 1.47)	.803
<b>Direct Oversight</b>					
Yes	84.7				
No	86.0	0.90 (0.63, 1.29)	.565	0.87 (0.55, 1.37)	.550
<b>Total Group</b>	<b>85.6</b>				

Table 23

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Lowers NP Job Satisfaction (n = 1053)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	69.2				
DF	75.8	0.72 (0.53, 0.98)	.037	.075 (.053, 1.06)	.104
<b>Type of Regulation</b>					
PAR	72.4				
JR	77.2	0.78 (0.58, 1.04)	.087	0.89 (0.65, 1.24)	.501
<b>NP experience</b>					
≤5 years	71.4				
>5 years	76.8	0.75 (0.57, 1.00)	.046	0.78 (0.59, 1.03)	.077
<b>Indirect Oversight</b>					
Yes	78.4				
No	71.3	1.46 (1.10, 1.95)	.010	1.38 (0.97, 1.96)	.070
<b>Direct Oversight</b>					
Yes	69.9				
No	76.2	0.73 (0.54, 0.97)	.030	0.89 (0.63, 1.27)	.516
<b>Total Group</b>	74.2				

Table 24

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Reduces NP Autonomy (n = 1050)*

Variable	Percent Agreement	Univariate OR ± (95% CI)	p	Multivariate OR ± (95% CI)	p
<b>SRE Ranking</b>					
BC	80.9				
DF	88.1	0.57 (.039, .084)	.004	0.63 (0.41, 0.97)	.035
<b>Type of Regulation</b>					
PAR	84.6				
JR	89.5	0.65 (0.44, 0.95)	.026	0.80 (0.52, 1.24)	.326
<b>NP experience</b>					
≤5 years	84.3				
>5 years	88.4	.071 (.049, 1.01)	.054	0.73 (0.51, 1.05)	.088
<b>Indirect Oversight</b>					
Yes	87.6				
No	85.5	1.20 (0.83, 1.72)	.333	1.16 (0.74, 1.82)	.513
<b>Direct Oversight</b>					
Yes	84.9				
No	87.1	.084 (0.58, 1.21)	.339	0.93 (0.59, 1.46)	.747
<b>Total Group</b>	<b>86.4</b>				



Table 25

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Delays Resolution of NP Practice Complaints (n = 1038)*

Variable	Percent Agreement	Univariate OR $\pm$ (95% CI)	p	Multivariate OR $\pm$ (95% CI)	p
<b>SRE Ranking</b>					
BC	45.8				
DF	55.0	0.69 (0.52, 0.92)	.011	.071 (0.52, 0.98)	.035
<b>Type of Regulation</b>					
PAR	50.9				
JR	56.0	0.81 (0.63, 1.05)	.112	0.95 (0.72, 1.26)	.727
<b>NP experience</b>					
$\leq 5$ years	50.3				
$> 5$ years	55.2	0.82 (0.64, 1.05)	.111	0.82 (0.64, 1.05)	.121
<b>Indirect Oversight</b>					
Yes	54.8				
No	51.4	1.15 (0.90, 1.47)	.275	1.28 (0.94, 1.73)	.116
<b>Direct Oversight</b>					
Yes	53.2				
No	52.6	1.02 (0.79, 1.33)	.873	1.20 (0.87, 1.65)	.275
<b>Total Group</b>	<b>52.8</b>				

*NP scope of practice.* Table 16 presents NP differences in agreement regarding perceptions on whether physician oversight restricts the use of diagnostic and management tests. Agreement levels ranged from a low of 45.5% for NP's working in states with SRE scores of B or C to a high of 55.8% for those NPs working with indirect physician oversight of NP practice. When all of the IV's were entered into a logistic regression model, SRE ranking and indirect oversight were unique, statistically significant predictors of agreement. There were statistically significant associations of SRE ranking ( $p = .006$ ) and indirect oversight ( $p = .029$ ) with agreement or disagreement of whether physician oversight restricts the use of diagnostic and management tests. The strongest predictor of agreement was indirect oversight, where NP's with indirect physician oversight of their practice were 1.29 times more likely to agree that physician oversight restricts the use of diagnostic and management tests compared to those with direct physician oversight of NP practice. Similarly, NP's practicing in states with more restrictive SRE ranking scores of D or F were .71 times more likely to agree that physician oversight restricts the use of diagnostic and management tests than those working in states with SRE Rankings of B or C.

There was a high level of agreement regarding study participants' perceptions whether physician oversight improved provider patient communication as summarized in Table 17. Agreement levels ranged from a low of 14.2% for NP's with more than five years of NP experience to 24% for those with  $\leq 5$  years of NP experience. The only statistically significant association was between NP years of experience and agreement or disagreement on whether physician oversight improves provider patient communication. When all the IV's were entered into a logistic regression model, NP experience served as a statistically significant predictor of agreement ( $p = <.001$ ). Nurse Practitioners of  $\leq 5$  years of experience were 1.85 times more

likely to agree that physician oversight improves provider patient communication compared to those with >5 years of NP experience.

NP differences in agreement regarding perceptions whether physician oversight creates provider-patient confusion is presented in Table 18. Agreement levels ranged from a low of 70% for NP's working in states with SRE rankings of B and C to 78.7% for those with indirect physician oversight. There were statistically significant associations between SRE ranking and indirect oversight with agreement or disagreement of whether physician oversight creates provider-patient confusion. When all the IV's were entered into a logistic regression model both SRE ranking and indirect oversight were unique, statistically significant predictors of agreement. The strongest predictor of agreement was indirect oversight, where NP's with indirect physician oversight were 1.49 times more likely to agree that physician oversight creates provider-patient confusion compared to those with direct physician oversight of NP practice. Similarly, NPs practicing in states with SRE rankings of B and C were 0.71 times more likely to agree that physician oversight creates provider-patient confusion than those working in states with lower SRE scores of D and F.

Table 19 presents NP differences in agreement regarding perceptions on whether physician oversight hinders provider-patient trust. Agreement levels ranged from a low of 50.9% for NP's practicing without direct physician oversight to 54.8% for those with more than 5 years of NP experience. There were no statistically significant associations of variables with agreement or disagreement of whether physician oversight hinders provider-patient trust. When all the IV's were entered into a logistic regression model, the strongest predictor of agreement was NP experience, where NP's of more than 5 years of experience were 1.26 times more likely

to agree that physician oversight hinders provider-patient trust compared to those with less than 5 years of NP experience.

Table 20 presents NP differences in agreement regarding perceptions on whether physician oversight impedes transition to other levels of care. Agreement levels ranged from a low of 66.1% for NP's practicing in states with SRE rankings of B or C to 75.9% for those with >5 years of NP experience. There was a statistically significant association of NP experience with agreement/disagreement of whether physician oversight impedes transition to other levels of care. When all the IV's were entered into a logistic regression model, NP experience ( $p = .001$ ) was the sole, unique, statistically significant predictor of agreement. The strongest predictor of agreement was NP experience, where NP's with more than 5 years of experience were 0.61 times more likely to agree that physician oversight impedes transition to other levels of care compared to those with less than 5 years of NP experience.

***NP employment mobility.*** Table 21 presents NP differences in agreement regarding perceptions whether physician oversight limits NP employment mobility. Agreement levels ranging from a low of 66.7% for NP's practicing in states with SRE scores of B or C to 77% for those practicing in states with JR. There were no statistically significant associations of any variables with agreement or disagreement of whether physician oversight limits NP work mobility. The strongest predictor of agreement was type of regulation, where NP's practicing in states with JR were .68 times more likely to agree that physician oversight limits NP work mobility compared to those with those NPs working under less restrictive regulation. Similarly, NP's practicing in states with SRE scores of D or F were .70 times more likely to agree that physician oversight limits NP work mobility than those working in states with SRE scores of B or C.

Table 22 presents NP differences in agreement regarding perceptions whether physician oversight discourages NP practice ownership. Agreement levels ranged from a low of 80.7% for NPs practicing in states with SRE rankings of B or C to 87.1% for those NPs practicing in states with SRE rankings of D or F. There was a statistically significant association of SRE Ranking with agreement or disagreement of whether physician oversight discourages NP practice ownership. When all the IV's were entered into a logistic regression model, SRE Ranking ( $p = .018$ ) was the only unique, statistically significant predictor of agreement. The strongest predictor of agreement was SRE Ranking, where NP's practicing in states with SRE rankings of D or F were 0.62 times more likely to agree that physician oversight discourages NP practice ownership compared to those practicing in states with SRE rankings of B or C.

***NP job satisfaction.*** Table 23 presents NP differences in agreement regarding perceptions whether physician oversight lowers NP job satisfaction. Agreement levels ranged from a low of 69.2% for NP's practicing in states with SRE rankings of B or C to 78.4% for those NPs with indirect physician oversight of their practices. When all the IV's were entered into a logistic regression model no variables emerged as unique, statistically significant predictors of agreement using an alpha rating of  $< .05$ . The strongest predictor of agreement was indirect physician oversight, where with indirect physician oversight of their practice were 1.46 times more likely to agree that physician oversight lowers NP job satisfaction compared to those with direct physician oversight of their NP practice.

***Autonomy.*** Table 24 presents NP differences in agreement regarding perceptions whether physician oversight reduces NP autonomy. Agreement levels ranged from a low of 80.9% for NP's practicing in states with SRE scores of B or C to 89.5% for those NPs practicing in states with JR. There was a statistically significant association of SRE ranking ( $p = .035$ ) with

agreement or disagreement of whether physician oversight reduces NP autonomy. When all the IV's were entered into a logistic regression model, SRE ranking emerged as the only unique, statistically significant predictor of agreement. The strongest predictor of agreement was type of regulation, where NP's in states with JR were 0.65 times more likely to agree that physician oversight reduces NP autonomy compared to those in states with PAR.

***Resolution of NP clinical and disciplinary complaints.*** State regulatory environment (SRE) was a statistically significant variable ( $p=.011$ ) associated with delays in resolution of NP practice complaints. Table 25 presents NP differences in agreement regarding perceptions whether physician oversight delays resolution of NP practice complaints. Agreement levels ranged from a low of 45.8% for NP's practicing in states with SRE scores of B or C to 45.7% for those with NPs practicing in states with a SRE score of D or F. While failing to achieve statistical significance, 56% of NPs practicing in states with JR reported that physician oversight delayed resolution of NP practice complaints. When all the IV's were entered into a logistic regression model, SRE ranking emerged as the only a unique, statistically significant predictor of agreement. Nurse Practitioners working in states with a SRE score of D or F were 0.71 times more likely to agree that physician oversight delays resolution of NP practice complaints compared to those working in states with SRE scores of B or C.

### **Research Question #3**

How well does the combination of SRE ranking, type of regulation, NP experience, and type of physician oversight relate to the NP perceptions regarding the impact of physician oversight on patient care and NP practice was answered using multivariate association of all independent variables (IV's) with each of the binary outcome variables.

The combination of SRE ranking, type of regulation, NP experience and type of physician oversight served as a reliable predictor of variable outcomes. The strongest predictor of agreement among the study participants' perception of how well the combination of variables related to the NPs' perceptions regarding the impact of physician oversight on patient care and NP practice was NP experience (52.6%) as noted in Table 26. The combined types of physician oversight (36.9%) were the second strongest predictors of agreement followed by SRE (26.3%). The type of regulation emerged as the weakest predictor of all variables with a frequency of 4.2%.

Table 26

*Statistically Significant ( $P = <.05$ ) Predictors of Agreement among Study Participants*

*Association of SRE Ranking, Type of Regulation, NP Experience, and Type of Oversight on the NP Perception of Whether Physician Oversight Impacts Study Variables (n = 19)*

Characteristic	Frequency (%) of Overall Statistical Significance
SRE Ranking	5 (26.3)
Type of Regulation	2 (10.5)
NP Experience	10 (52.6)
Indirect Oversight	3 (15.8)
Direct Oversight	4 (21.1)
Total	24 (100)



## **CHAPTER V: DISCUSSION, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS**

The results of this study carry implications for policymakers and nursing advocacy groups as they explore solutions to address increasing access to care in U.S. populations. There were three main purposes of this study. The first purpose was to explore overall NP perceptions of the impact that physician oversight has on patient care and NP practice. The second was to investigate if SRE ranking, type of regulation, years of NP experience and type of physician oversight influenced the perceptions of the impact physician oversight has on patient care and NP practice. The third was to examine how well the combination of SRE ranking, type of regulation, years of NP experience and type of physician oversight relate to NP perceptions regarding how physician oversight impacts patient care and NP practice.

Evaluation of NP perceptions is important because it facilitates discussions related to consumer access to care (Center to Champion Nursing in America, 2010), supports legislative initiatives to reduce or eliminate physician oversight (Institute of Medicine, 2010; NCSBN, 2011) and contributes to the body of literature on NP practice (Lugo et al., 2007; O'Grady & Brassard, 2011; Pearson, 2010). Failure to address the growing demand for consumer access to high quality health care will result in continued evidence of disparity in the US.

The impact of physician oversight on patient care (safety, access to care, and costs) and NP practice (scope of practice, job mobility, job satisfaction, autonomy, and resolution of practice and disciplinary complaints) was evaluated. This concluding chapter provides an overview of the major findings of this study. The findings are discussed with implications and recommendations for NP practice, education and research. Limitations of the study are outlined along with recommendations for future research.

## Discussion of Findings

### The Sample

The study sample of NPs practicing in states requiring physician oversight of NP practice closely paralleled national demographics reported by the American Academy of Nurse Practitioners (2012). The sample was mostly Caucasian (86.7%), female (91%) with a mean age of 48.2 years. Similarly, the national demographics for the NP profession reflect that the average NP is female (96%) and 48 years old. The majority of participants were educated at the graduate level with 81.9% with earned master's degrees in nursing and 11.8% with earned doctorates in nursing. The majority of sample respondents worked as FNP practitioners (66.5%). National norms for NPs reflect 93% educated at the graduate level and almost half (49%) are FNPs. The mean age of participants in this study was 48.21 years compared to 48 years in the national NP population (AANP, 2012b).

### Research Question #1

The first question addressed overall NP perceptions regarding the impact of physician oversight on patient care (safety, access to care, and costs) and NP practice (scope of practice, job mobility, job satisfaction, autonomy, and resolution of practice and disciplinary complaints). Responses to survey questions relevant to this research question indicated that physician oversight did *not* promote safe NP practice (61%), improve patient safety (71%), enhance public safety (74.2%) or promote safe medication management (71.6 %). Furthermore, study participants reported that physician oversight of NP practice decreased consumer access to NP care (76%) and decreased access to healthcare (78%). Seventy-eight percent of participants agreed that physician oversight did not improve access to healthcare. These findings support the findings in the National Academies, Institute of Health report, *The Future of Nursing: Leading*

*Change, Advancing Health* (Institute of Medicine, 2010) as well as the findings of noted legal scholar, Barbara Safriet (2010) that requirements for physician oversight of NP practice unnecessarily limits access to these proven primary care providers.

Participants also reported that they felt physician oversight increased healthcare costs for consumers (70%), while constraining reimbursement for NP providers (90%). Furthermore, study participants perceived that physician oversight restricts the use of diagnostic and management tests (52.1%), impedes transitions to other care levels (71%), while promoting provider-patient confusion (75%) hindering provider patient trust (53%). Moreover, study participants felt that physician oversight limits where NPs can serve by limiting employment mobility (72%) and discouraging NP practice ownership (86%). Hence, participants perceived that physician oversight neither improved patient safety or access to care.

The study group reported decreases in job satisfaction (74.2%) and reduced autonomy (86.4%) related to physician oversight. Finally, requirements for physician oversight were perceived to delay resolution of NP practice and disciplinary complaints (52.8%).

## **Research Question #2**

The second research question examined if there were differences in NP perceptions regarding the impact of physician oversight on patient care and NP practice related to SRE ranking, type of regulation, years of NP experience, and type of physician oversight. Chi-square analysis was used to examine differences between the IVs (SRE ranking, type of regulation, NP experience, and type of physician oversight) and each of the dependent variables of patient care and NP practice. The point of overall level of agreement was identified with cross tabulation of areas of agreement and Pearson's chi square identifying the level of statistical significance. Overall low levels agreement were noted among study participants that physician oversight

improves access to healthcare (22%), promotes consumer access to NP care (24%) or enhances public safety (25.8%) when NP experience was considered. NPs with more than 5 years of NP experience were more likely to disagree with these statements. Moreover, direct oversight emerged as a statistically significant predictor regarding NP perceptions as to whether physician oversight enhances public safety. Those NPs who did not have direct physician oversight of their practice were 1.5% more likely to disagree that physician oversight enhanced public safety compared to those NPs with direct physician oversight of their practice.

The number of years of NP experience and the type of physician oversight emerged as predictors of agreement for the variables. There was discordance was in perceptions of whether or not physician oversight promoted safe NP practice, enhanced NP safety, promoted safe medication management and decreased access to NP care and healthcare. Furthermore, discordance was noted in agreement whether physician oversight increased the cost of healthcare, constrained direct reimbursement for NPs, limited NP use of diagnostic and management tests or transitions to other care levels. Finally discordance was noted among study participants' perceptions whether physician oversight limited NP mobility, autonomy or job satisfaction. These findings support the research that consumer choice is limited when transitions in care require unnecessary physician oversight such as ordering home health or hospice care (AANP, 2012a; Lugo et al., 2007).

Univariate analysis of each independent variable using binary outcomes of agreement or disagreement, demonstrated that years of NP experience and the type of physician oversight were statistically significant predictors of NP perceptions regarding the impact of physician oversight on patient care and NP practice. Nurse practitioners with more than five years experience and those with NPs with indirect physician oversight were more likely to indicate that physician

oversight restricted patient care and NP practice compared to those NPs with less than or equal to 5 years of NP experience and those with direct physician oversight of their practice.

Nurse practitioners who agreed that physician oversight promotes safe practice were 2.7 times more likely to have less than or equal to 5 years of NP experience and 1.5 times more likely to have direct physician oversight of their practice compared to those NPs who disagreed. Lugo et al. (2007) support findings that physician oversight negatively impacts patient safety by confounding accountability for patient outcomes and clinician follow-up for medication prescriptions and diagnostic test results.

These findings also support previous discussions in the literature that physician oversight neither improves patient safety or access to care, and actually increases the cost of NP-delivered care (Hansen-Turton et al., 2006; Institute of Medicine, 2010; Lugo et al., 2007; Safriet, 2010). Study participants agreed (70.7%) that physician oversight increases the cost of healthcare. The strongest predictors of agreement were NP experience ( $P = .003$ ) and type of regulation ( $P = .034$ ), supporting the findings in the literature that restrictive regulatory environments limit NP practice and consumer choice (Lugo et al., 2007; Pearson, 2010).

Study participants also felt that NP practice (scope of practice, job mobility, job satisfaction, autonomy, and resolution of practice and disciplinary complaints) were negatively impacted by physician oversight. In support of findings from the literature, direct physician oversight and NP experience emerged as the strongest predictors of agreement (Bahadori & Fitzpatrick, 2009; Benner, 1982; Center to Champion Nursing in America, 2010; Hudspeth, 2007; 2009; Institute of Medicine, 2010; Lugo et al., 2007; Safriet, 2010). Similar to previous findings in the literature, study participants felt strongly that physician oversight limited NP employment mobility. However, there were no statistically significant predictors of agreement

among study participants. This supports the findings of the early research of Whelan (2000a) where NPs found creative solutions to work around regulatory requirements.

State regulatory environment (SRE) was also a predictive variable impacting participant perceptions 26.3% of the time when tested across variables. The SRE was a statistically significant predictor of agreement in predicting consumer access to NP care ( $p=.036$ ). Furthermore SRE was statically significant in predicting levels of agreement regarding the impact of physician oversight on components of NP practice. The SRE was predictive for constrains NP reimbursement ( $p<.001$ ), restricts use of diagnostic and management tests ( $p=.006$ ), discourages NP practice ownership ( $p=.018$ ), reduces NP autonomy ( $p=.035$ ) and delays resolution of NP practice complaints ( $p=.035$ ). This data emphasizes the importance of SRE rankings and how they impact NP practice. Previous research had evaluated the SRE but, no previous studies were identified where NPs were studied regarding their perceptions on how regulation impacted their practice.

Ironically, type of regulation was the least predictive of all the variables, predicting agreement only 10.5% of the times tested. However, participants working in states with the more restrictive JR perceived that their practice was more negatively impacted by oversight compared to those NPs working in states with less restrictive PAR. This finding is consistent with the findings of Whelan (2000) who found that regulatory model was not as influential as anticipated. The findings support that despite regulatory restrictions, NPs found creative ways to work within regulatory restrictions to meet the needs of consumers seeking NP-delivered care (Whelan, 2000a).

### **Research Question #3**

The final research question addresses how well does the combination of SRE ranking, type of regulation, NP experience, and type of physician oversight relate to the NP perceptions regarding the impact of physician oversight on patient care and NP practice. This question was answered using a multivariate binary logistic regression model where the same independent variables were used to predict the likelihood that a NP respondent would report agreement to each of the dependent variables. Nurse practitioner experience and the type of physician oversight emerged as most consistent statistically significant ( $P = < .005$ ) variables in predicting study participant's perception of physician oversight on NP practice.

NP experience and direct physician oversight were consistent predictors of whether physician oversight was perceived to promote safe NP practice, improve patient safety, enhance public safety or promote safe medication management. Nurse Practitioner experience was statistically significant at a rate of 41.7% compared to type of physician oversight (direct oversight  $f=16.7%$  and indirect oversight  $f=12.5%$ ) for a combined frequency of 29.2%. These findings support the work of Mundinger et al. (2000), Lenz et al. (2004) and more recently Dierick-Van Dael et al. (2009) that NPs provide care at least and with comparable or better outcomes compared to physician colleagues (Avom et al., 1991; Dierick-van Daele et al., 2009; Herrick, 2000; Lenz et al., 2004; Mundinger et al., 2000; Ohman-Strickland et al., 2008).

Prior research has demonstrated that requirements for physician oversight limits consumer choice, constrains NP reimbursement and access to diagnostic studies and jeopardizes public safety by confounding prescriptive accountability (Lugo et al., 2007). NP experience was statistically significant in predicting NP perception of whether physician oversight improves access to care, impedes transition to other levels of care, and increases cost of healthcare.

Restrictive requirements for physician oversight were perceived as having a negative impact on these variables.

State regulatory environment ranking was a significant predictor of NP perceptions regarding the impact of physician oversight on NP practice. With a 25% frequency rate, SRE ranking was a significant predictor of whether physician oversight delays NP practice complaints, provided provider-patient confidence, restricts NP use of diagnostic and management tests, discourages NP practice ownership, constrains NP reimbursement and reduces NP autonomy. State regulatory environment ranking findings supports the research (Person, 2010), Lugo et al. (2007) and Rudner et al. (2010) in their findings that restrictive regulation limits consumer choice and NP practice. Moreover, disciplinary research data reported by Hudspeth (2007; 2009) support that restrictive SREs can delay resolution of NP practice complaints, potentially jeopardizing public safety.

The type of regulation proved to be the least reliable predictor of agreement regarding NP perception of physician oversight on study variables. Type of regulation was significant only 2% of the time when coupled with NP experience to predict NP perception of whether of physician oversight increased the overall cost of care. This illuminates the importance of SRE ranking. Even when comparing states with less restrictive PAR compared to JR; if there are regulatory requirements for physician oversight, NP's can be limited in their ability to provide care to the top of their licensure, education, certification and competence (Safriet, 2010).

There were no statistically significant findings that physician oversight hinders provider-patient trust or limits NP mobility. This finding actually supports the work of Whelan (2000a) that despite restrictive SREs, NPs find creative solutions to work around regulatory barriers to provide patient care.



## **Implications of Significant Findings**

Nurse practitioner perceptions regarding the impact of physician oversight on NP practice and patient care are predicted by NP experience, type of physician oversight, and SRE ranking. Although SRE ranking directly relates to type of regulation, type of regulation was the least significant predictive variable.

One of the most significant findings from this study was the impact of NP experience and type of physician oversight in predicting NP perception of physician oversight on NP practice. The discovery that years of experience influence NP perceptions about the impact of physician oversight suggests that NP competency development parallels that of the general nursing population and conforms with the theory of systematic skill acquisition in Benner's five levels of proficiency ranging from novice to expert (Benner, 1982). Benner theorizes that entry-level nursing proficiency occurs when the nurse has been working with the same population for 2 to 3 years. While Benner's theory has been tested in the general nursing population, it has not been evaluated in advanced practice nurses. The consistent differences between NP perceptions based on years of experience suggests that NP competency development may parallel that of general practice nurses (Benner, 1982); however, whether 5 years is the indicator of being an expert requires further investigation since the methodological decision to divide NP experience into the dyad of those NPs with less than or equal to five years was based on theory rather than an evaluation of what clustering of years altered perceptions of the NPs.

Data indicating that NPs with less than 5 years NP experience were less likely to report constraints from physician oversight suggests a stronger reliance on a mentoring relationship for optimal development of expertise. These findings support the consideration of a post-graduate

residency or internship for NPs working in increasingly complex healthcare systems as offered by some Federally Qualified Health Centers.

Nurse practitioner curricula incorporate clinical rotations in an integrated fashion throughout the program of study rather than implementing an intensive residency program similar to the medical school model. Research relating to skill acquisition and moving from novice to expert has been studied among entry level nurses but there has been no research applying this to nurses who have completed additional education and clinical experience required for the NP role (Benner, 1982).

The ultimate objective of this study was to provide research that can inform policy makers and nursing advocacy groups of the impact NPs perceive physician oversight has on patient care and their practice. A requirement for oversight of one profession over another is an anomaly among professional groups (Safriet, 1992; Safriet, 1994; Safriet, 2010). Research has consistently demonstrated that regulatory requirements for physician oversight of NP practice limit the full utilization of NPs in the delivery of proven safe, effective healthcare. Study findings support that regulatory requirements for physician oversight of NP practice does, from the perspective of NPs, limit practice and patient care by handicapping the full deployment of skills for which the NP is educated, credentialed and competent to provide.

It is of note that type of physician oversight and NP experience proved to be more predictive than did SRE ranking. Numerous studies have evaluated the impact of SRE ranking on the practice and care delivered by NPs, PAs and CNMs (Center to Champion Nursing in America, 2010; Institute of Medicine, 2010; Lugo et al., 2007; Mullinix & Bucholtz, 2009; Pearson, 2010; Rudner et al., 2010; Safriet, 1992; Safriet, 1994; Sekscenski, 1994; Whelan, 2000a). State regulatory environments requiring physician oversight of NP practice involve

those states with PAR and JR. Joint regulation is the most restrictive form of regulation wherein NP practice is regulated by both the boards of Nursing and Medicine.

The majority of states utilizing JR are geographically located in the southeastern United States (Center to Champion Nursing in America, 2010; Pearson, 2010). Study participants perceived that physician oversight was an impediment to NP practice and patient care at rates higher in states with JR compared with states with PAR. Carper's sociopolitical knowing calls for an amplification of current and alternate regulatory realities in the four states with a continued JR mode. Whose voice is heard? What externalities perpetuate these restrictive regulatory models? New and innovative models of healthcare delivery must address these questions to meet the growing demand for access to primary health care.

State regulatory environment ranking is directly tied to the type of regulation. However, the type of regulation was a significant variable only in predicting NP perception that physician oversight increases the overall cost of healthcare. NPs practicing in states with JR were more likely to report that physician oversight increases the cost of healthcare because of delays in clinical management decisions, duplicative evaluation and consultation for the patient, and the costs associated with physician oversight of NP practice. Nurse practitioners with more than five years experience were more likely to report these findings compared to those NPs with less than five years experience.

In summary, this study frames an understanding of the variables impacting NP perceptions regarding the impact of physician oversight on NP practice. The findings strongly suggest that while NP experience and the type of physician oversight are the strongest predictive variables. NPs with more than five years NP experience who worked in states requiring direct oversight perceive more limitations to their practice and patient care than those with less than or

equal to five years experience who worked in states without requirements for direct physician oversight.

### **Conceptual and Research Model Findings**

Using the conceptual model of sociopolitical knowing (see appendix A) provided a useful theoretical framework for this study. Carper's modified work on sociopolitical knowing supported understanding for the NP, as a leader and advocate in complex sociopolitical policy and regulatory arenas impacting NP practice and patient care. Carper's work on the sociopolitical context was particularly appropriate as the majority of study participants perceived that regulatory requirements for physician oversight of NP practice impeded their ability to advocate and provide safe, effective care to consumers seeking NP-delivered care. This model amplified the hierarchal power structure of the medical profession as a sociopolitical, governing power over the nursing profession in the NP role.

The sociopolitical knowing model provides a much larger lens for examining the impact of physician oversight on NP practice and patient care. This research supports asking stakeholders to expose the impact of physician oversight on NP practice while exploring alternate realities for evidence based regulation of NP practice.

The research model (see Figure 4) also proved useful. After exploring preliminary data, further focusing of research questions precluded examination of AR and geographic location as indicated in the research model.

NP experience and type of physician oversight are the strongest predictors of the impact of physician oversight on NP practice. In contrast to previous research suggesting no relationship between years of experience as an entry-level nurse and NP experience (Bahadori & Fitzpatrick, 2009), NPs with more than five years NP experience were more likely to report that

physician oversight limited their practice and autonomy and posed patient safety issues compared to those participants who had less than or equal to five years NP experience.

Consistent with previous research, SRE ranking was a significant predictive variable regarding NP perception regarding the impact of physician oversight on NP practice (Center to Champion Nursing in America, 2010; Institute of Medicine, 2010; Lugo et al., 2007; Mullinix & Bucholtz, 2009; Pearson, 2010; Rudner et al., 2010; Safriet, 1992; Safriet, 1994; Sekscenski, 1994; Whelan, 2000a). Nurse practitioners in states with more restrictive SREs perceived that physician oversight limited the full utilization of their skills and potentially jeopardized public safety.

In this study, the only dependent variables that did not rise to the level of statistical significance when evaluating NP perception were that physician oversight hinders provider-patient trust or limits NP mobility. Despite the lack of statistical significance of these variables, the findings support early research of Whelan (2000a) that NPs find creative solutions to work within regulatory barriers to meet the needs of consumers seeking NP-delivered care.

### **Strengths and Limitations**

Increasingly complex and evolving healthcare delivery models call for evidence-based regulation that is protective of the public while increasing access to care. Critical inquiry regarding the impact of physician oversight on NP practice requires an evidence-based approach as represented in the research model drawn from the literature (see Figure A1). The empirical evidence must also be considered as residing in an environment filled with sociopolitical influences that provide meaning to this dynamic process as represented in the conceptual model guiding the research (see Figure 3).

This study was strengthened by a conceptual model merging a systematic policy framework for understanding regulation found in the Advocacy Coalition Framework (see Figure 2), with nursing theory, Carper's Sociopolitical Knowing (see Figure 3), to investigate the impact of physician oversight on NP practice and patient care. Strengths of this model included the dynamic process of evaluating whose voice is heard and silenced by the study variables. For example, physician oversight limits direct reimbursement to NPs (Hansen-Turton et al., 2006). When physician oversight constrains NP reimbursement or forces NPs to bill under physician numbers, their voice and contributions to healthcare are silenced and consumer choice may be limited from a reimbursement stand-point.

An additional study strength is confirmation that the study sample closely parallels the demographics of the U.S. NP population. All states with the most restrictive form of regulation, JR, were included in the sample, providing insight into the impact of the most stringent requirements for physician oversight of NP practice. Lastly, the instrument collected large amounts of qualitative data for further analysis regarding the fiscal cost of physician oversight, creative ways NPs work around regulatory barriers and external, sociopolitical influences impacting NP regulation. Several new areas important to best practices in regulation were evaluated that will provide new data for nurses as leaders in policy arenas, regulators and consumers, alike. A large stratified sample provided a wealth of data to inform the areas of inquiry. Despite these strengths, some limitations exist, requiring amplification to fully understand and apply the data.

Instrument content validity was established through linkages in the literature and through input from ten content experts. However, dependence upon self-report for the measurement of dependent variables raises concern about the validity of causal conclusions for a range of

reasons, including systematic response distortions and reporter bias. It is also suggested that most of these issues have wider relevance in the field of best practices in regulation, namely in those domains which focus on access to care and public safety which could benefit from similar methodological attention. Furthermore, evidence of survey fatigue was noted among the data. Some participants did not complete all of the survey items, suggesting a more concise survey may have been indicated.

A low response rate (12.69%) limits the generalizability of study findings. Survey distribution in close proximity to the Christmas and New Year's holiday seasons may have negatively impacted the response rate. The stratified sampling plan for the survey may also limit the generalizability of the study results to the entire population of NPs. Because of the sampling design, NPs who were not included in the FHEA data base were excluded from the population. Furthermore, NPs included in the FHEA data base may not be reflective of the entire population of NPs in regards to their views on the impact of physician oversight on NP practice. Lastly, NPs who may feel constrained in their practices may have been more likely to respond to this survey, raising the potential for response bias.

### **Recommendations for Practice, Education and Research**

**Practice.** The findings of this study offer nurse practitioners, educators, health care organizations, policy leaders, regulators, legislators and stakeholders a better understanding regarding the impact of physician oversight on NP practice and patient care. The association between NP experience, type of physician oversight and SRE support the need for further emphasis on standardized, evidence-based regulation that focuses on public safety and access to care. As healthcare reform continues to evolve, the demand for qualified primary care providers will continue to grow. As opportunities for NP residencies evolve, experienced NPs should

serve as mentors to new NPs. This is an evolving opportunity for NPs as health systems leaders and as nurse scientists to partner in the generation and translation of new knowledge.

As state and federal budgets constraints continue to constrict, priority and incentives should be provided to those states that remove regulatory barriers limiting the full utilization of NPs and other qualified PCPs. Nurse practitioners should be involved in the development and implementation of current and evolving models of care delivery. The National Council of State Boards of Nursing has drafted model rules and regulations to facilitate this process.

**Education.** Nurse educators must pay attention to the critical role of skill acquisition in NP students. New graduate NPs must have educational preparation in the competencies of independent practitioners working as part of interprofessional teams. Providing theoretical and experiential experience as leaders in policy arenas impacting health care systems is crucial in the preparation of the future NP workforce. Nurse practitioners must not only have expertise in managing increasingly complex healthcare issue but also expertise in navigating the sociopolitical environment impacting consumer access to NP care.

As NP educational preparation continues to move to doctoral preparation, additional competencies in health systems leadership will ensure a NP workforce prepared to meet the evolving healthcare market. As the market recognizes and embraces doctorally prepared NPs, the value added to the healthcare system will ensure continued safe, accountable, and cost-effective care for consumers. Finally, consideration should be given to the possibility of incorporating NP residency programs into NP curricula as recommended by the 2010 IOM report, *The Future of Nursing: Leading Change, Advancing Health*.

**Research.** Future research regarding the regulation of NP practice should include more specific outcome measurement studies regarding the impact of regulation as it relates to the full



utilization of NPs as primary care providers. Specific indicators measuring safety and quality should be incorporated by incorporating the HPDB data on incidence of disciplinary complaints. More specific outcome measures are needed to measure the impact of physician oversight specifically as it relates to NP reimbursement as this data is often invisible when NP services are billed under a physician's name and reimbursement number. Additionally, extrapolating the cost of physician oversight of NP practice when the oversight is an integrated part of a physician's work-load would provide insight into the cost of this regulatory measure. Additional research is also needed regarding the impact of requirements for physician oversight on NP practice from a reimbursement standpoint. Despite the cost savings of NP-delivered care, a 2009 study conducted by the National Nursing Centers Consortium (NNCC) revealed that nearly half (485) of all major managed care organizations (MCO) in the US do not credential or contract with NPs as PCPs because of requirements for physician oversight (Hansen-Turton, 2010; NNCC, 2011). Restrictive regulatory models and requirements for physician oversight limit consumer choice through restrictive reimbursement policies that increase health care costs and decrease consumer access to NP-delivered services and by decreasing NP access to consumer seeking NP-delivered care (Lowery & Varnam, 2011).

Future research extending beyond the research model used in this study is needed. Comparisons of states with full implementation of the NCSBN's LACE model of regulation compared with those with more restrictive models of regulation would provide insight into best practices in regulation. Finally, research is needed to evaluate the assimilation and mastery of new skills to determine when a NP moves from novice to expert.

In summary, study participants perceived that requirements for physician oversight limit their practice and may jeopardize patient safety. Nurse practitioners with more than 5 years NP

experience and those without direct physician oversight requirements were more likely to report that physician oversight limits their ability to practice to the full extent of their licensure, certification, education and competence. Less experienced NPs may need more mentorship from seasoned PCPs to realize the same perceptions. Nurse educators, policy leaders, stakeholders, regulators and legislators must understand the sociopolitical influences impacting the regulatory process. Funding priorities should support and incentivize the removal of regulatory barriers to NP practice. For the profession of nursing, developing independent, policy-savvy NPs who can lead interprofessional teams is critical to the success of the profession and meeting the healthcare access needs now and in the future.

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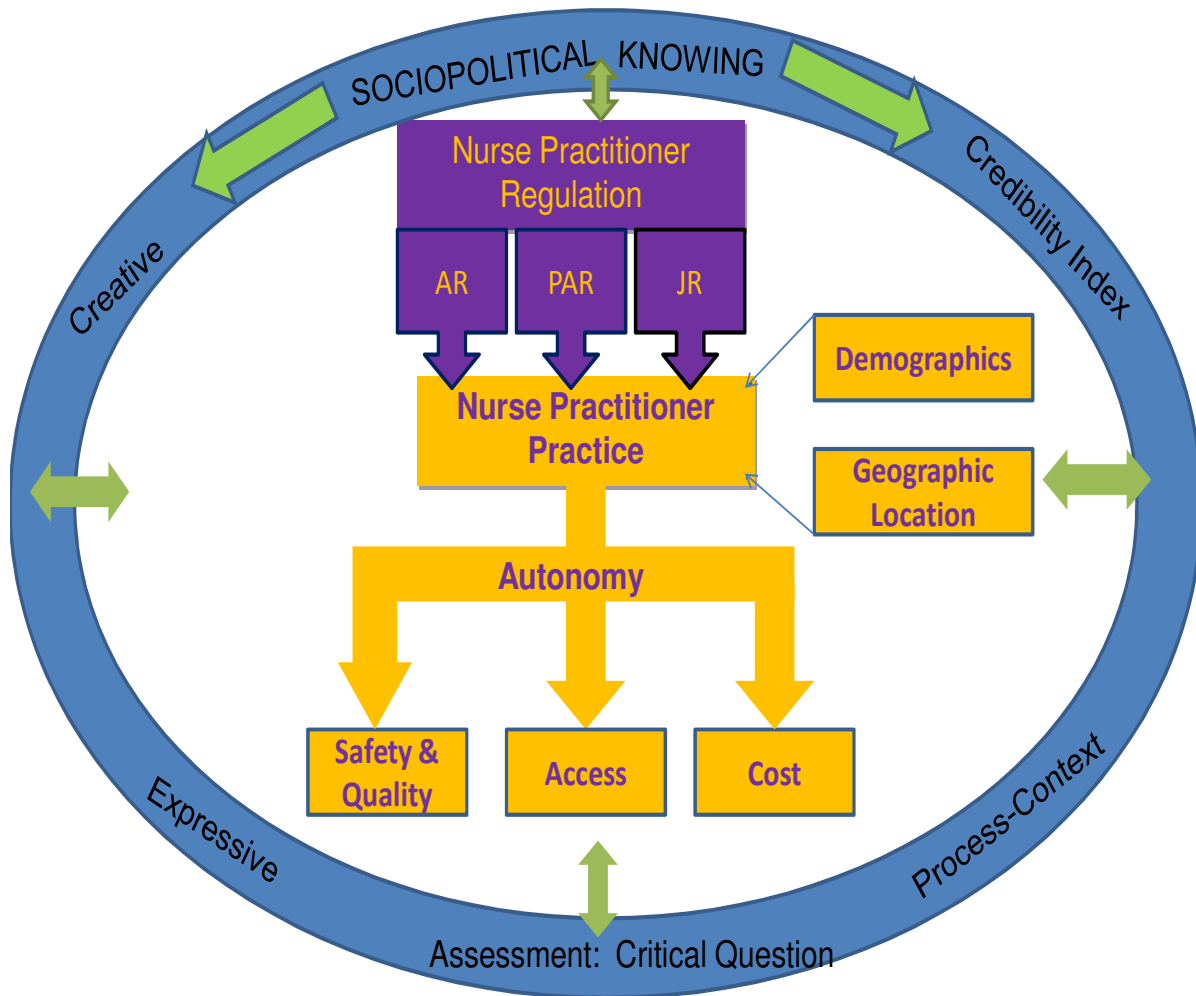
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**APPENDIX A: CONCEPTUAL MODEL OF SOCIOPOLITICAL  
KNOWING FOR NP REGULATION**



*Figure A1.* Conceptual model of “sociopolitical knowing model for NP regulation”.

## **APPENDIX B: FHEA, INC. MEMBERSHIP SAMPLING DOCUMENT**

FITZGERALD HEALTH EDUCATION ASSOCIATES, Inc.  
Incorporated 1988

### **Requests for Data Collection:**

#### **Sampling FHEA Database and FHEA Continuing Education Event Attendees**

An important component of the Fitzgerald Health Education Associates (FHEA) mission is the promotion of excellence in research. FHEA does provide sampling opportunities for researchers conducting research relevant to nurse practitioners (NPs) and their patients. FHEA's Research and Education Department staff will work collaboratively with researchers interested in collecting data from NPs through interviews and/or surveys. In all cases, approval is dependent on the successful review of a one or two page proposal (items 1-5 below) and supporting documents (items 6-10 below), submitted to the attention of the Research and Education Department at least one month prior to the researcher's desired project start date. The application packet/proposal must include the information listed below.

1. Purpose statement
2. Statement of significance and implications to nurse practitioners and FHEA
3. Brief description of methodology
4. Data analysis plan
5. Identification of sources of support for study, if applicable
6. Copy of cover letter to participants
7. Copies of any instruments/questionnaires (research copyright is recognized for all tools and instruments)
8. Copy of consent form, if applicable
9. Copy of IRB approval, if applicable
10. Copy of researcher's bios ketch (1-2 pages, only)
11. Completed copy of the appropriate Application Cover Sheet, depending on whether data collection is FHEA requested to occur during a FHEAFHEA event or through one-time rentals of our database research cohort.
12. Agreement to submit a hard copy summary of the completed research to the FHEAFHEA Research and Education Department.

FHEA does not provide support for any costs associated with the proposed research.. The following information is provided specific to whether the research methodology involves data collection during an FHEA conference or mailed survey.

#### **One-Time Use Rental of Mailing List/Research Cohort**

FHEA, upon approval of the submitted research proposal and required supporting documents, as well as the submission of the appropriate fees (see below), a cohort of the specified number of NPs will be randomly drawn from the membership and a list of their mailing addresses will be provided.

FHEA does not release individuals' phone numbers or email addresses. Sampling can be stratified by a number of variables, including specialty and geographic location. Questions regarding possible sampling strategies should be referred to the FHEA Research Coordinator, Marc Comstock at [marc@fhea.com](mailto:marc@fhea.com). Upon signing the required Application Cover Sheet, the researcher attests to limiting the use of the list for only the approved purpose and to protect list access from other individuals and groups.

Rental fee\* for basic random cohort from the FHEA database:  
FHEA individual member \$.05 per name use  
FHEA group member \$.15 per name use  
Non-member \$.25 per name use

\*If the methodology includes repeated surveys (so that multiple mailings to the same names are required), the fee for subsequent uses (after the first) is \$ .05 per name for FHEA individual member, \$ .15 per name for FHEA group member and \$ .25 per name for non-member. If the researcher requests a complex sampling strategy, rental fee will be determined on an individual basis, according to the complexity of the requirements requested.

From time to time, researchers decide to expand their data collection beyond their original plan. Once the proposal has been approved, researchers may request additional sampling from the FHEA database for a period of one year without submitting another application, providing that their research methodology has not changed, other than expanding sampling. The fee for these additional cohorts will be at the same prices listed above for the original cohort. The application cover sheet for one-time rental of FHEA research cohort names is attached as page 3.

### **Data Collection During FHEA Continuing Education Event**

The FHEA sponsors multiple continuing education events each year. Individuals may perform data collection during these meetings if proposal approved in advance. However, the number of researchers allowed to perform on-site data collection at conference may be limited and members will be given priority. If on-site data collection is approved, the researcher will be provided with a separate Table, at which data collection can be performed. There is no fee for on-site data collection at an FHEA conference, although the researcher must register for the continuing education event.

The application cover sheet for data collection during an FHEA continuing education event is attached as page 4. Completed application packets should be submitted to:

Attn: Mark Comstock, Research Coordinator  
Fitzgerald Health Education Associates  
85 Flagship Dr.  
North Andover, MA 01845-6154  
Voice: 800-927-5380  
Fax: 978-974-2455  
Email: [marc@fhea.com](mailto:marc@fhea.com)

**Questions?** For questions please contact Marc Comstock, Research Coordinator, at 1-978-794-8366



**FITZGERALD HEALTH EDUCATION ASSOCIATES, INC.**

NAME \_\_\_\_\_ PHONE \_\_\_\_\_

ADDRESS \_\_\_\_\_

EMAIL \_\_\_\_\_

ORGANIZATION/SCHOOL/AGENCY \_\_\_\_\_

TITLE \_\_\_\_\_ DEGREE \_\_\_\_\_

SPECIALTY AREA \_\_\_\_\_

I hereby request a one-time use rental of \_\_\_\_\_

(Description and number of cohort)

from the American Academy of Nurse Practitioners data base of nurse practitioners for the research project entitled

It is agreed that this list will be used only for the purpose stated and will be protected from further use by me or any other group or individual.

\_\_\_\_\_ am a nurse practitioner \_\_\_\_\_ am a non-NP registered nurse

\_\_\_\_\_ am a non-nurse researcher

I agree to pay a fee of \$ \_\_\_\_\_ for this list.

I have attached all of the material listed in items 1-10 on page 1 of the application packet.

A check or money order for \$ \_\_\_\_\_ made payable to the Fitzgerald Health Education Associates is enclosed to cover this fee.

\_\_\_\_\_  
(Applicant's Signature)

\_\_\_\_\_  
(Date)

**FITZGERALD HEALTH EDUCATION ASSOCIATES, INC.**

NAME \_\_\_\_\_

PHONE \_\_\_\_\_

ADDRESS  
\_\_\_\_\_

EMAIL \_\_\_\_\_

ORGANIZATION/SCHOOL/AGENCY  
\_\_\_\_\_

TITLE \_\_\_\_\_ DEGREE \_\_\_\_\_

SPECIALTY AREA  
\_\_\_\_\_

I hereby request access to a convenience sample of nurse practitioners attending the following FHEA Continuing Education Event:

to be held on (date): \_\_\_\_\_ at (city):  
\_\_\_\_\_

for the project entitled:  
\_\_\_\_\_  
\_\_\_\_\_

It is agreed that the sampling will be performed only for the purpose stated and that all data will be protected from further use by me or any other group or individual.

\_\_\_\_\_ am a nurse practitioner

\_\_\_\_\_ am a non-NP registered nurse

\_\_\_\_\_ am a non-nurse researcher

I have attached all of the material listed in items 1-10 on page 1 of the application packet.

\_\_\_\_\_  
(Applicant's Signature)

\_\_\_\_\_  
(Date)

## APPENDIX C: SURVEY INVITATION #1 OF 2

Dear < >

Variability in the regulation of nurse practitioner (NP) practice has been an area of intensive research over the past ten years. Although many studies have examined NP regulatory environments, there is a lack of current knowledge about NP perception of the impact of regulation and physician oversight on NP practice.

I am asking you to complete 34-item a research survey entitled “***Impact of Regulatory Requirements for Physician Oversight on Nurse Practitioner Practice***”. Your name was randomly selected from the Fitzgerald Health Education Associates, Inc. sampling data Base. The survey can be completed in 20 minutes or less. All responses to the survey are anonymous and will be reported only as group data. You may access the anonymous survey at the following link: [https://ecu.qualtrics.com/SE/?SID=SV\\_8xhEP3Mldgrx2yU](https://ecu.qualtrics.com/SE/?SID=SV_8xhEP3Mldgrx2yU) .

This research will satisfy my dissertation requirements in the PhD in nursing program at East Carolina University College of Nursing while expanding the body of knowledge regarding the impact of NP regulation and physician oversight.

Your input will greatly increase our understanding of the impact of regulation and physician oversight on NP practice, safety and quality, consumer access to healthcare and healthcare costs. Study findings will expand nursing knowledge and inform NPs, policy makers and legislators regarding the impact regulation and physician oversight on NP practice. Nurse leaders can translate this research in policy settings as equal partners in healthcare and policy

If you have any questions or comments about this study, I would be happy to talk with you. My direct number is 252-916-2391 or you may write to me at the address on the letterhead.

Thank you in advance for participating in this important study.

Sincerely,

***Bobby Lowery, PhD(c), MN, FNP-BC***

Clinical Associate Professor; Director ANP & FNP Concentrations

3131 Health Sciences Building

College of Nursing, East Carolina University

Greenville, NC 27858-4353

Cell (*Preferred*): 252-916-2391

Office PH: 252-744-6363

Email: [Lowerybo@ecu.edu](mailto:Lowerybo@ecu.edu)

## APPENDIX D: SURVEY INVITATION #2 OF 2

LETTER # 2 (one week after first letter)

Dear < >

One week ago you received an invitation to participate in a web-based survey entitled “***Impact of Regulatory Requirements for Physician Oversight on Nurse Practitioner Practice***”. Your name was randomly selected from the Fitzgerald Health Education Associates, Inc. sampling data base. Your input is important. If you have already completed and returned the survey, please accept my sincere thanks. If not, please do so at your earliest convenience. You may access the anonymous survey at the following link:

[https://ecu.qualtrics.com/SE/?SID=SV\\_8xhEP3Mldgrx2yU](https://ecu.qualtrics.com/SE/?SID=SV_8xhEP3Mldgrx2yU) .

Your input will greatly increase our understanding of the impact of regulation and physician oversight on NP practice, safety and quality, consumer access to healthcare and healthcare costs. Study findings will expand nursing knowledge and inform NPs, policy makers and legislators regarding the impact regulation and physician oversight on NP practice. Nurse leaders can translate this research in policy settings as equal partners in healthcare and policy *For your views to be included in this important study, your completed survey must be received no later than February 29, 2012.* Your contribution to the success of this study will be greatly appreciated.

If you have any questions or comments about this study, I would be happy to talk with you. My direct number is 252-916-2391 or you may write to me at the address on the letterhead. Thank you in advance for participating in this important study.

Sincerely,

***Bobby Lowery, PhD(c), MN, FNP-BC***

Clinical Associate Professor; Director ANP & FNP Concentrations

3131 Health Sciences Building

College of Nursing, East Carolina University

Greenville, NC 27858-4353

Cell (*Preferred*): 252-916-2391

Office PH: 252-744-6363

Email: [Lowerybo@ecu.edu](mailto:Lowerybo@ecu.edu)

## APPENDIX E: SURVEY INSTRUMENT

### “Impact of Regulation and Physician Oversight on Nurse Practitioner Practice”

#### Q1 Informed Consent Form

Please read the following informed consent form. If you choose to volunteer to participate in the study, please click on the "I agree to participate" button after reading the informed consent. If you choose NOT to participate, simply close your internet browser and no further action is necessary.

**TITLE OF STUDY:** “Impact of Regulation and Physician Oversight on Nurse Practitioner Practice”

**PRINCIPLE INVESTIGATOR:** Bobby Lowery, PhD (c ), MN, FNP-BC

**Purpose of the Study:** You are invited to participate in a research study. The purpose of this electronic survey is to investigate nurse practitioner perceptions on the impact of regulation and physician oversight on NP practice and consumer access to healthcare. Safety and quality, access and cost outcomes will be assessed for both NPs and consumers. The objective of this research is to determine the perceived impact of regulation and physician oversight across regulatory models. This data will inform nursing and policy makers.

#### **Participants:**

Nurse Practitioner regulatory requirements differ from state to state. Each state independently decides who will regulate and what will be the specific requirements for NP practice. Each state border represents an obstacle to portability, —potentially preventing access to professionals, access to care and potentially impacting safety and health care cost. You are being asked to participate in the study because you are a practicing nurse practitioner in the United States. Your name was randomly chosen through the Fitzgerald Health Education Associates (FHEA) email database sampling program. The selection is completely random and totally anonymous with all contact going through the FHEA sampling program.

#### **Procedures:**

If you volunteer to participate in this study, you will be asked to complete the electronic survey “Impact of Regulation and Physician Oversight on NP Practice” at the end of this consent form. Survey completion will take approximately 15-20 minutes of your time.

#### **Benefits of Participation:**

There may not be direct benefits to you as a participant in this study. However, you may feel positively about adding to the knowledge base of the impact of regulation and physician oversight on NP practice.

#### **Risks of Participation:**

The risk in this study is estimated to be minimal. This is an electronic survey study asking questions about NP regulation, selected demographic data, source of regulatory knowledge, physician oversight, reimbursement and consumer access to NP providers, prescription issues, disciplinary complaint resolution, and NP perceptions regarding the impact of regulation on NP

practice. It is possible that you may feel slightly uncomfortable answering a particular question(s).

**Cost/Compensation:**

There will not be financial costs to you to participate in this study. The study will take approximately 15-20 minutes of your time. You will not be compensated for your time.

**Contact Information:**

If you have any questions or concerns about the study, you may contact Bobby Lowery, PhD (c ), MN, FNP-BC by email at Lowerybo@ecu.edu or by phone at 252-916-2391. Because this research is overseen by the ECU Institutional Review Board, some of its members or staff may need to review my research data. However, the information you provide will not be linked to you in any way. Therefore, your responses cannot be traced back to you by anyone, including me.

If you have questions about your rights as someone taking part in research, you may call the UMCIRB Office at phone number 252-744-2914 (days, 8:00 am-5:00 pm). If you would like to report a complaint or concern about this research study, you may call the Director of UMCIRB Office, at 252-744-1971.

**Voluntary Participation:**

Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with the research team.

**Confidentiality:**

All information gathered in this study will be kept completely anonymous. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at East Carolina University for three (3) years after completion of the study. After the three year period, data will be deleted. All data will be stored and handled in compliance with the Health Insurance Information Portability and Accountability Act (HIPAA).

**Participant Consent:**

By clicking on the “I agree to participate” button below, you acknowledge understanding of your rights and responsibilities as participant.

- I have read the consent and I agree to participate. (1)
- I have read the consent and I choose NOT to participate (2)

If I have read the consent and... Is Selected, Then Skip To End of Survey

Q2 The following questions ask about the state(s) where you have practiced.

Q3 In which state(s) do you currently work as a NP (press Enter for a single option or Ctrl + Enter to select multiple options)

- Alabama (1)
- Alaska (2)
- Arizona (3)
- Arkansas (4)
- California (5)
- Colorado (6)
- Connecticut (7)
- Delaware (8)
- District of Columbia (9)
- Florida (10)
- Georgia (11)
- Hawaii (12)
- Idaho (13)
- Illinois (14)
- Indiana (15)
- Iowa (16)
- Kansas (17)
- Kentucky (18)
- Louisiana (19)
- Maine (20)
- Maryland (21)
- Massachusetts (22)
- Michigan (23)
- Minnesota (24)
- Mississippi (25)
- Missouri (26)
- Montana (27)
- Nebraska (28)
- Nevada (29)
- New Hampshire (30)
- New Jersey (31)
- New Mexico (32)
- New York (33)
- North Carolina (34)
- North Dakota (35)
- Ohio (36)
- Oklahoma (37)
- Oregon (38)
- Pennsylvania (39)

- Puerto Rico (40)
- Rhode Island (41)
- South Carolina (42)
- South Dakota (43)
- Tennessee (44)
- Texas (45)
- Utah (46)
- Vermont (47)
- Virginia (48)
- Washington (49)
- West Virginia (50)
- Wisconsin (51)
- Wyoming (52)
- I do not reside in the United States (53)



Q4 Please check any other states where you have previously worked as a NP (Press Enter for a single option or Ctrl + Enter to select multiple options. If you have not practiced in more than one state, choose "Not Applicable")

- Not Applicable (53)
- Alabama (1)
- Alaska (2)
- Arizona (3)
- Arkansas (4)
- California (5)
- Colorado (6)
- Connecticut (7)
- Delaware (8)
- District of Columbia (9)
- Florida (10)
- Georgia (11)
- Hawaii (12)
- Idaho (13)
- Illinois (14)
- Indiana (15)
- Iowa (16)
- Kansas (17)
- Kentucky (18)
- Louisiana (19)
- Maine (20)
- Maryland (21)
- Massachusetts (22)
- Michigan (23)
- Minnesota (24)
- Mississippi (25)
- Missouri (26)
- Montana (27)
- Nebraska (28)
- Nevada (29)
- New Hampshire (30)
- New Jersey (31)
- New Mexico (32)
- New York (33)
- North Carolina (34)
- North Dakota (35)
- Ohio (36)
- Oklahoma (37)

- Oregon (38)
- Pennsylvania (39)
- Puerto Rico (40)
- Rhode Island (41)
- South Carolina (42)
- South Dakota (43)
- Tennessee (44)
- Texas (45)
- Utah (46)
- Vermont (47)
- Virginia (48)
- Washington (49)
- West Virginia (50)
- Wisconsin (51)
- Wyoming (52)

If Not Applicable Is Selected, Then Skip To Check the regulatory model used for N...

Q5 Did the other state(s) where you previously practiced as a NP have regulatory requirements for physician oversight of any component of NP practice?

- Yes (1)
- No (2)

Q6 Check the regulatory model used for NP practice in the state(s) where you currently practice as a NP. (Choose all that apply)

- Autonomous Regulation (AR)--NPs regulated by the State Board of Nursing; NPs accountable for all aspects of their care without regulatory requirements for oversight by any other profession) (1)
- Partially Autonomous Regulation (PAR)--NPs regulated by the State Board of Nursing but with continued requirements for physician oversight of parts of NP practice; variable accountability for NP practice depending on specific regulation and rules). (2)
- Joint Regulation (JR)--NPs jointly regulated by State Boards of Nursing and Medicine with requirements for physician supervision of NP practice; Shared accountability for NP practice between NP and physician supervisor). (3)

Q7 Which of the following provides the most useful information about NP regulation in your state?

- NP Education Program (1)
- State Board of Nursing (2)
- State Medical Board (3)
- State Nursing Association (4)
- Other (5) \_\_\_\_\_

Q8 The following questions your perception of the importance of and your knowledge about NP regulation in the states(s) where you currently practice.

Q9 To what degree do you agree or disagree with the following statement?

	Strongly Agree (1)	Agree (2)	Disagree (3)	Strongly Disagree (4)
It is important to remain informed of regulatory issues impacting NP practice. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am knowledgeable about NP regulation in the state(s) where I practice as an NP. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 Professional autonomy, the control and freedom to exercise professional judgment in professional practice, is critical to patient safety and quality, consumer access to care, health care costs and NP satisfaction.

Q11 To what extent do you agree or disagree with the following statements about NP autonomy?

	Strongly Agree (1)	Agree (2)	Disagree (3)	Strongly Disagree (4)
NP practice should be regulated solely by the State Board of Nursing. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physicians should be involved with NP regulation. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NP practice should be jointly regulated by the state boards of nursing and medicine (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 The Consensus Model for APRN Regulation recommends a consumer-focused model of regulation by outlining regulatory requirements in licensure, accreditation, certification, and education (LACE) that should be adopted by every state. To what degree do you agree or disagree with the following statement.

	Strongly Agree (1)	Agree (2)	Disagree (3)	Strongly Disagree (4)
My state's regulation of NP practice is consistent with the LACE model. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q13 To what extent do you agree or disagree regarding the impact of regulatory requirements for physician oversight on NP autonomy in the following areas?

	No Effect (1)	Slight Effect (2)	Some Effect (3)	Large Effect (4)
Independence and judgment in the NP role (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Independence and judgment in clinical management (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Independence and judgment in prescriptive authority (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of NP care (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety of NP care (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to NP care (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost of NP care (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14 Physician oversight (ranging from collaborative practice agreement approval to direct supervision) of NP practice is a regulatory requirement in some states. The following questions relate to how regulatory requirements for physician oversight impact your individual practice.

Q15 Are there requirements for physician oversight of any component of NP practice in the state(s) where you practice?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Block

Q16 Based on the impact of NP regulation in the state(s) where you practice, please rate your level of agreement or disagreement regarding the impact of physician oversight on patient safety and quality, access to care, and health care costs.

	Strongly agree (1)	Agree (2)	Disagree (3)	Strongly Disagree (4)
Promotes safe NP practice (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Confounds NP scope of practice (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improves patient safety (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enhances public safety (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delays resolution of NP practice complaints (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promotes safe medication management (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improves provider-patient communication (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creates provider-patient confusion (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hinders provider-patient trust (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promotes consumer access to NP care (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limits NP work mobility (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improves access to healthcare (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restricts NP use of diagnostic and management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

tests (13)				
Discourages NPs from owning their own practice (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Impedes transition to other levels of care (i.e. hospital or home health) (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increases the overall cost of healthcare (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increases the cost for consumers seeking NP care (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Constrains direct reimbursement for NP care (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lowers NP job satisfaction (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduces NP autonomy (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extends time required for resolution of NP disciplinary complaints (21)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17 List up to three ways regulatory requirements for physician oversight improves your practice. If physician oversight does not improve your practice, write &quot;none&quot; in the first box (the text box will expand as you write)

- Physician oversight improves your practice by: (1)
- Physician oversight improves your practice by: (2)
- Physician oversight improves your practice by: (3)

Q18 List up to three ways regulatory requirements for physician oversight restricts your practice. If physician oversight does not restrict your practice, write "none" in the first box (the text box will expand as you write)

Physician oversight restricts your practice by: (1)

Physician oversight restricts your practice by: (2)

Physician oversight restricts your practice by: (3)

Q19 Do you or your practice pay for physician oversight of your NP practice?

Yes (1)

No (2)

Q20 How much do you or your practice pay per month for physician oversight? (List amount without "\$" symbol i.e. 1000.00)

Price per month (in dollars) (1)



Q21 Physician oversight can be direct (on site) or indirect (off site). Please rate the characteristics of physician oversight of your practice. (Check all that apply)

	Physician oversight activities (please indicate whether activity is direct or indirect)		How often physician oversight activities completed (fill in the number of times each activity occurs. If not applicable enter 0)		
	Direct (1)	Indirect (2)	Weekly (1)	Monthly (2)	Other (3)
Supervision of medical acts (1)	<input type="radio"/>	<input type="radio"/>			
Collaborative evaluation (physician and NP both see a patient together) (2)	<input type="radio"/>	<input type="radio"/>			
Consultation in NP care management (physician provides verbal or written direction in clinical management) (3)	<input type="radio"/>	<input type="radio"/>			
Physician signature for authorization of care (4)	<input type="radio"/>	<input type="radio"/>			
Other (5)	<input type="radio"/>	<input type="radio"/>			

Q22 The following questions deal with external influences on NP regulation.

Q23 Please rate the degree of impact the following items have on NP regulation in the state(s) where you practice.

	Strongly agree (1)	Agree (2)	Disagree (3)	Strongly Disagree (4)
Scientific Evidence (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Patient Safety (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Historical Medical Monopoly (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Competition for Healthcare Dollars (other professional groups' resistance due to concerns of competition for healthcare dollars) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scope of Practice/Professional Turf Issues (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Healthcare Costs (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional Advocacy (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Healthcare access (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gender Influences (feminism) (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q24 Have you used creative ways to work around regulatory barriers to ensure consumer access to NP care?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Block

Q25 What type of activities have you used to work around regulatory barriers to ensure your clients' access to NP care?

Q26 Demographics: Research suggests that NP practice is impacted by location, practice environment and personal NP characteristics. Please provide the following demographic data to strengthen the rigor of this research.

Q27 List your current practice setting(s). (Check all that apply)

Primary Care (family practice, internal medicine, long-term care, pediatrics, OB/GYN) (1)

- Public Health (2)
- Hospitalist (not acute care) (3)
- Behavioral Health (4)
- Acute Care (5)
- Specialty Care (6)
- Academia/Research (7)
- Other (8) \_\_\_\_\_

Q28 Describe your practice characteristics. (Check all that apply)

- Federally Qualified Health Center (1)
- Group practice consisting of two or more satellite practices (2)
- HMO (3)
- Hospital-owned practice (4)
- Private, nurse-practitioner owned practice (5)
- Private, physician-owned practice (6)
- Public Health (7)
- Other (8) \_\_\_\_\_

Q29 What is your nurse practitioner population focus? (Check all that apply)

- ACNP (1)
- ANP (2)
- FNP (3)
- GERO (4)
- PNP (5)
- PMHNP (6)
- WHNP (7)
- Other (8) \_\_\_\_\_

Q30 Which of the following clinicians work in your clinical setting? (Check all that apply)

- Certified Nurse Midwives (1)
- Nurse Practitioner(s) (2)
- Physician(s) (3)
- Physician Assistant(s) (4)

Q31 How many patient encounters do the following clinicians see on an average work day in your practice?

	1-10 (1)	11-20 (2)	21-30 (3)	31-40 (4)	> 40 (5)	Not applicable (6)
Certified Nurse Midwife (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurse Practitioner (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physician (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physician Assistant (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q32 Please click on the Rural Grants Eligibility Analyzer to determine if your practice(s) is/are designated as rural or urban as defined by the Health Resources and Services Administration (HRSA). Please check all that apply to your practice setting(s). The purpose of this question is to explore the impact of regulatory requirements for physician supervision across types of practice settings. No individual or practice identifying data is retained from this question.

	Rural (1)	Urban (2)
Practice #1 (1)	<input type="radio"/>	<input type="radio"/>
Practice #2 (2)	<input type="radio"/>	<input type="radio"/>
Practice #3 (3)	<input type="radio"/>	<input type="radio"/>

Q33 Describe your employment status. (Check all that apply)

	Full-time (at least 35 hours weekly) (1)	Part-time (less than 35 hours weekly) (2)
Hourly employee (1)	<input type="radio"/>	<input type="radio"/>
Salaried employee (2)	<input type="radio"/>	<input type="radio"/>
Practice partner (3)	<input type="radio"/>	<input type="radio"/>
Sole proprietor/practice owner (4)	<input type="radio"/>	<input type="radio"/>

Q34 Please list the number of years you have practiced (as a nurse and as a nurse practitioner).  
Years of experience as a nurse (1)  
Years of experience as a nurse practitioner (2)

Q35 What is your gender?

- Male (1)
- Female (2)

Q36 What is your race?

- White/Caucasian (1)
- African American (2)
- Hispanic (3)
- Asian (4)
- Native American (5)
- Pacific Islander (6)
- Other (7) \_\_\_\_\_

Q37 What is your age?

Q38 What was your first degree in nursing?

- Diploma (1)
- Associates Degree in Nursing (2)
- Bachelors Degree in Nursing (3)
- Masters Degree in Nursing (4)
- Doctorate in Nursing (list type of doctorate i.e. PhD, DNP, DNS) (5)  
\_\_\_\_\_

Q39 What is your highest degree in nursing?

- Diploma (1)
- Associates Degree in Nursing (2)
- Bachelors Degree in Nursing (3)
- Masters Degree in Nursing (4)
- Doctorate in Nursing (list type of doctorate i.e. PhD, DNP, DNS) (5)  
\_\_\_\_\_

If Doctorate in Nursing (list ... Is Selected, Then Skip To Please share any other informati...

Q40 Do you plan to pursue a Doctorate of Nursing Practice (DNP) or a Doctorate of Philosophy (PhD) in nursing?

- Yes (1)
- No (2)
- Please indicate your reasons for your either pursuing or not pursuing a DNP or PhD in nursing. (3) \_\_\_\_\_

Q41 Please share any other information on NP regulation that is important to you.

## APPENDIX F: INSTITUTIONAL REVIEW BOARD APPROVAL



**EAST CAROLINA UNIVERSITY**  
University & Medical Center Institutional Review Board Office  
1L-09 Brody Medical Sciences Building- Mail Stop 682  
600 Moye Boulevard · Greenville, NC 27834  
Office 252-744-2914 · Fax 252-744-2284 · [www.ecu.edu/irb](http://www.ecu.edu/irb)

### Notification of Initial Approval: Expedited

**From:** Biomedical IRB  
**To:** [Bobby Lowery](#)  
**CC:** [Elaine Scott](#)  
**Date:** 1/17/2012  
**Re:** [UMCIRB 11-001089](#)  
Impact of Regulatory Requirements for Physician Oversight on Nurse Practitioner Practice

I am pleased to inform you that your Expedited Application was approved. Approval of the study and any consent form(s) is for the period of 1/17/2012 to 1/16/2012. The research study is eligible for review under expedited category #7. The Chairperson (or designee) deemed this study no more than minimal risk.

Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The Investigator must adhere to all reporting requirements for this study.

The approval includes the following items:

Name	Description
<a href="#">"Impact of Regulation and Physician Oversight on.   History</a>	Surveys and Questionnaires
<a href="#">Impact of Regulation and Physician Oversight on Nurse Practitioner Practice   History</a>	Consent Forms
<a href="#">Nurse Practitioner Perceptions of the Impact of Regulatory Requirements for Physician Oversight on Nurse Practitioner Practice   History</a>	Study Protocol or Grant Application

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

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IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418  
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418 IRB00004973  
East Carolina U IRB #4 (Behavioral/SS Summer) IORG0000418



**EAST CAROLINA UNIVERSITY**  
**University & Medical Center Institutional Review Board Office**  
 1L-09 Brody Medical Sciences Building- Mail Stop 682  
 600 Moye Boulevard · Greenville, NC 27834  
 Office 252-744-2914 · Fax 252-744-2284 · [www.ecu.edu/irb](http://www.ecu.edu/irb)

### Notification of Amendment Approval

**From:** Biomedical IRB  
**To:** [Bobby Lowery](#)  
**CC:** [Elaine Scott](#)  
**Date:** 2/13/2012  
**Re:** [Ame1\\_UMCIRB\\_11-001089](#)  
[UMCIRB\\_11-001089](#)  
 Impact of Regulatory Requirements for Physician Oversight on Nurse Practitioner Practice

Your Amendment has been reviewed and approved using expedited review for the period of 2/9/2012 to 1/16/2013 . It was the determination of the UMCIRB Chairperson (or designee) that this revision does not impact the overall risk/benefit ratio of the study and is appropriate for the population and procedures proposed.

Please note that any further changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. A continuing or final review must be submitted to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

The approval includes the following items:

Name	Description	Modified	Version
<a href="#">Impact of Regulation and Physician Oversight on Nurse Practitioner Practice   History</a>	Consent Forms	2/6/2012 4:59 PM	0.02

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

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IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418  
 IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418 IRB00004973  
 East Carolina U IRB #4 (Behavioral/SS Summer) IORG0000418