

National Association of Neonatal Nurses

National Association of **Neonatal Nurse Practitioners** A division of NANN

The State of Neonatal APRN Role and Action for the Future

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For years, the National Association of Neonatal Nurses (NANN) and the National Association of Neonatal Nurse Practitioners (NANNP) have been monitoring aspects of neonatal advanced practice nursing and providing leadership and advocacy to address concerns related to workforce, education, competency, fatigue, safety, and scope of practice. This professional practice paper summarizes the current state of neonatal advanced practice registered nurse (APRN) practice and presents strategies to promote and protect the longevity of the neonatal APRN role.

Introduction

NANN and NANNP define the scope of practice for neonatal advanced practice registered nurses in accordance with the APRN Consensus Model for APRN Regulation (APRN Consensus Work Group & the National Council of State Boards of Nursing APRN Advisory Committee, 2008; NANNP, 2002, 2009; National Council of State Boards of Nursing, 2021). The neonatal community is served by two neonatal APRN roles: the neonatal nurse practitioner (NNP) and the neonatal clinical nurse specialist (NCNS), both of which require a graduate degree in population-specific education (NANNP, 2013b, 2014). Additionally, the role of the APRN requires population-specific board certification and continued competence through role certification (American Nurses Association & NANN, 2021; APRN LACE Network, 2021, Bissinger & Burns, 2018; Institute of Medicine, 2011).

Background and Significance

The neonatal population was traditionally identified as patients in the neonatal intensive care unit (NICU) and has been inclusive of preterm (<37 weeks) infants, term neonates, infants, and toddlers through 2 years of age consistently since 2009 (Keels et al., 2019; NANNP, 2002, 2009, 2014, 2017). Although the definition of the neonatal population has remained unchanged, the scope and environment within which the APRN practices has evolved to meet the complex needs of the neonatal patients within the healthcare system and to deliver care for complex infants with primary, acute, and chronic conditions in various settings, including telehealth. As healthcare is restructured to improve care across the continuum, decrease disparity, and improve access, telehealth expands healthcare delivery in a new setting (American Association of Colleges of Nursing, 2021; National Academy of Medicine, 2021).

This patient population is served by both the NNP and NCNS. Although there is much overlap between the two APRN roles, there are distinct differences in practice, which are summarized in **Table 1**. Both APRN roles function as the expert clinician that collaborates with the multidisciplinary team to deliver care.

The NNP scope of practice was defined by NANN and further delineated by NANNP (NANNP, 2002, 2009, 2014) as the governing body that outlines educational standards and curriculum for NNP academic programs. The NNP is educated to practice autonomously across various settings and to provide advanced health assessment; critical decision-making; diagnostic reasoning; and advanced clinical competence for the diagnosis, management, and treatment of disease across the continuum of care, from primary care to critical care. Care delivery includes, but is not limited to, the ordering of prescription medications and durable medical equipment and referrals (American Association of Nurse Practitioners, 2021; Keels et al., 2019; NANNP, 2014, 2017).

The NCNS framework encompasses three spheres of impact: patient, nurse, and system. The NCNS is educated to work autonomously to enhance quality, safe care for infants and families—through process change, collaboration, education, case management, modeling, leadership, and research utilization—to promote positive outcomes while decreasing healthcare costs (American Association of Critical-Care Nurses, n.d.-a, 2014; Gabbard et al., 2021; National Association of Clinical Nurse Specialists, 2019; NANNP, 2013a). In addition,

the NCNS can prescribe medications and order durable medical equipment as permitted by state regulations.

Table 1: Differences Between the NNP and NCNS Roles		
	NNP role	NCNS role
Education Standards	NANNP sets educational standards	National Association of Clinical Nurse Specialists (NACNS) and American Association of Colleges of Nursing set broad educational standards. NANN, as the focus- specific organization, is developing a set of neonatal-specific educational standards that align with the broader standards to be working to be published in 2022.
Patient care setting	Performs medical and advanced nursing management of acute/chronic conditions across settings	Improves patient outcomes and nursing care through patient, nursing, and system spheres of impact using core competencies
Clinical Management	Evaluates tests, imaging, treatments, and procedures for the evaluation, management, and treatment of disease	Expert clinician, patient advocate, and consultant to the interdisciplinary team. Advances nursing practice through coaching, mentoring, and professional development
Healthcare delivery	Engages in education, policy, advocacy, and consultation	Identifies gaps and designs interventions to improve healthcare delivery. Facilitates clinical practice changes for the unit and organization and influences systems through collaboration across the organization
Research/QI	Engages in research utilization, primary research, and quality improvement	Drives research utilization and quality improvement and participates in research
Certification	Certification through National Certification Corporation (NCC)	Certification through American Association of Critical-Care Nurses (AACN)

Workforce

NICUs rely on neonatal APRNs to play a vital role in caring for critically ill neonates. As a healthcare provider on an interprofessional team, the neonatal APRN participates in a wide variety of complex patient-care activities in settings that include, but are not limited to, all levels of neonatal inpatient care in both academic- and community-based settings; transport, acute, primary (NANNP, 2017) and chronic care; delivery room management; and outpatient settings (Haycraft & Voss, 2014; NANNP, 2013a).

From 2019 to 2029, the job growth rate for APRNs in general is expected to increase by 52% from 2019 to 2029 (Bureau of Labor Statistics, 2021). Despite this growth, a shortfall of primary-care and specialty providers, including the APRN in the NICU, is forecast over the next decade (National Academy of Medicine, 2021). It is expected that many of these APRNs will be focused on primary care where there is a growing need for APRNs, particularly in rural areas. It is imperative that neonatal APRNs, governing bodies, and academic institutions encourage and support the growth of the neonatal APRN workforce by advocating for federal and state funds to be equally distributed based upon specific workforce shortage needs.

NNP

Globally, NNPs comprise approximately 1% of the national nurse practitioner (NP) workforce. There is an estimated 355,000 NPs in the United States (American Association of Nurse Practitioners, 2022a). Historically, the supply of NNPs has rarely met the demand for services, although needs vary by region at any given time (Staebler & Bissinger, 2017; Snapp et al., 2021).

Since 2017, the demand for NNPs has continued to escalate as more states require an official level of care designation via on-site survey (Keels et al., 2019; Texas Department of State Health Services, 2021). The national shortage is further confounded by the aging NNP workforce, with an estimated 7% set to retire by 2025 (Staebler & Bissinger, 2017). There are currently 38 active NNP programs in the US (R. Bissinger, personal communication, January 11, 2021). Together, these programs resulted in 346 and 397 graduates nationally over the past 2 years, respectively (T. Mattis, personal communication, October 12, 2021).

NCNS

In the 2020 National Association of Clinical Nurse Specialist (NACNS) survey, only 3.3 percent of 2,475 respondents described having population-specific neonatal training. The top three activities that CNSs reported participating in were training students, evidence-based practice projects, and assisting staff nurses with direct patient care (National Association of Clinical Nurse Specialists, 2020b).

As of March 2022, there were only 90 neonatal CNSs in the United States: 48 who were certified through the neonatal-specific exam and 42 who had passed a previous examination and are eligible for certification by renewal only (American Association of Critical-Care Nurses, n.d.-b). Despite the small number of CNSs, the role has been described as "the second-best job in the country for growth pay and satisfaction" (Fischer-Cartlidge et al., 2019, p. 266).

Threats to the APRN Role NNP

The certified NNP workforce increased 8% in the 6 years since the first NNP workforce survey in 2014. Though this looks to be a positive trend, the NNP workforce is relatively static when analyzed in the context of the global workforce and the number of NNPs set to retire by 2025. NNP faculty continue to report a shortage of preceptors and clinical sites necessary for students in NNP programs. These factors, coupled with a limited number of faculty, limits the number of NNP applicants admitted to education programs. Reports suggest an on-going nationwide shortage of NNPs in both academic and community hospitals, although some geographical areas are saturated (Freed et al., 2010; Klein, 2005; Moss & Jackson, 2019; NANNP, 2013b, 2018b; Snapp et al., 2021).

Amid the NNP shortage, some NICUs have resorted to alternative staffing solutions to fill the void, such as the utilization of hospitalists, APRNs certified in other patient foci, or physician assistants (PAs). Utilizing any of these practitioners in the NICU requires strict individually focused guidelines regarding the patients each may provide care for based on licensing, education, and certification of the individual practitioner (National Organization of Nurse Practitioner Faculties, 2012). Furthermore, there are no national standards for the education and training of PAs in neonatal care nor is there a mechanism to validate knowledge competency via board certification (American Board of Nursing Specialties, 2018). In comparison, the NNP is trained as a specialist in the role and neonatal population exclusively, with validation of knowledge and training through a national board certification exam. There are now several neonatal PA fellowship training programs across the country offering didactic content and 3–9 months of additional clinical "fellowship" training in care of the neonate. However these programs taken by PA's or NP's certified in another patient foci are not a substitute for graduate-level education nor are their participants eligible to seek certification (Gonzalez & Gigli, 2021; Niebruegge et al., 2019).

NCNS

Historical variation in competency and educational preparation related to the broad reach of the NCNS role has led to confusion and underutilization of the role (Fischer-Cartilage et al., 2019; Mohr & Coke, 2018; McClelland et al., 2013). Roles often confused with the NCNS may include academic nurse educators, nursing professional development specialists, clinical practice leaders, and nurse practitioners (Mohr & Coke, 2018). Although there may be some overlap within roles, educational preparation and scope of practice for these roles are distinct, not interchangeable, and vital to enhancing nursing care (Koeppel, 2021).

Although the APRN consensus model has standardized role delineation, education, and competence for entry-level practice, NCNS scope, entry to practice and recognition of the role continue to vary state to state (Gabbard et al., 2021). Furthermore, the CNS does not have title protection in three U.S. states. As of July 2020, CNSs can practice autonomously in 28 states, performing patient diagnosis and treating patients without the oversight of a physician. An additional 13 states recognize CNSs as APRNs but require them to have a practice agreement with a physician (National Association of Clinical Nurse Specialists, 2020a).

Variability in state title protection has allowed nurses who are not trained as NCNSs to be in a role titled NCNS within organizations. The shortage of trained NCNSs also led to organizations replacing the NCNS with other graduate-prepared nursing roles. These inconsistencies make capturing data difficult and contribute to the overall CNS role confusion for other providers and the public (Fischer-Cartilage et al., 2019).

Barriers to Neonatal APRN Practice

Although APRNs are acknowledged as integral members of the healthcare system, there is a lack of consistency in regulations across state boundaries in the United States. APRN licensure and scope of practice is determined by state boards of nursing and other legislative parties at the state level, interfering with APRNs' ability to practice to the full extent of their education and training (Stucky et al., 2021; American Association of Nurse Practitioners, 2021).

What to call the APRN varies by state and within healthcare settings, regardless of degree. Titles such as "mid-level provider" or "physician extender" are disrespectful, inaccurate, and not inclusive of the full scope of APRN practice (Stucky et al., 2021). Additionally, eight states still do not recognize the title APRN (Gonzalez & Gigli, 2021). Furthermore, the variation in state practices infiltrates the local level, resulting in underutilization of knowledge and expertise founded in the full scope of practice because institutions do not fully understand the role or how the role meets the needs of the setting (Mohr & Coke, 2018). Removing barriers to practice for the APRN would expand public access to safe and affordable healthcare (National Academy of Medicine, 2021).

NNP-Specific Barriers

Barriers to practice created by the lack of standardization are counterproductive, exacerbating regional shortages of qualified NNPs. Twenty-four U.S. states, the District of Columbia, Guam, and Northern Mariana Islands allow autonomous practice by NPs (American Association of Nurse Practitioners, 2021a; National Academy of Medicine, 2021). However, 11 states still require physician oversight for any level of NP practice, and other states have varying levels of restriction (National Academy of Medicine, 2021). These variations make data collection difficult and create confusion around the meaning of FPA.

NCNS-Specific Barriers

There are only five NCNS education programs in the United States, which limits the number of students (NACNS, n.d.). Clinical placements for these future NCNSs are limited by the number of practicing NCNSs and state nursing board regulations. To increase the number of NCNSs, there must be an increase in the number of programs and a greater ability to complete clinical requirements in all states where NCNSs practice.

Prescriptive Authority for Neonatal APRNs

Barriers continue to block implementation of full prescriptive authority for Scheduled II-V drugs for neonatal APRNs. Although APRNs were granted prescriptive authority as early as 30 years ago, full prescriptive authority (i.e., the ability to prescribe independently or through a collaborative or supervisory arrangement with a physician) is determined by state laws with

oversight provided by state boards of nursing and/or medical boards (Gonzalez & Gigli, 2021; Vacek & Vuckovic, 2019;).

As of 2022, only 26 U.S. states and the District of Columbia allow NPs full practice authority to prescribe, diagnose, and treat patients without physician oversight; 14 states require physician authorization to prescribe; and 11 states require physician oversight for any level of practice (National Academy of Medicine, 2021; AANP, 2022b). As of July 2020, 19 of the 28 states that allow full scope of CNS practice also allow the CNS to prescribe independently. In the most recent National Association of Clinical Nurse Specialists workforce survey (2020b), however, only 24.4 percent of 2,475 respondents stated that they were authorized to prescribe medications (National Association of Clinical Nurse Specialists, 2020a, 2020b). More information is needed to understand the disparity in state prescriptive allowances versus the number of CNSs reporting to have prescriptive authority.

Several states have specific formulary requirements for APRNs. For APRNs to effectively and responsively care for patients, state legislatures throughout the United States must remove barriers to prescriptive authority. This is especially critical in intensive care units where uncontrolled pain harms long-term outcomes (Anand & Hickey, 1987; Grunau et al., 1994; Gunnar et al., 1995; National Academy of Medicine, 2021; Taddio et al., 1997).

Institutional Restrictions

Credentialing and privileging are processes hospitals use to ensure healthcare professionals are educated, trained, certified, and licensed to provide safe and competent care. *Credentialing* involves primary source verification of licensure and authorization to practice as well as checking relevant certifications, education, and training, all of which are reported to malpractice carriers or other databanks. The credentialing process also confirms professional references and checks for past disciplinary actions and criminal history. *Privileging* is the process through which a provider is granted authority to perform specific procedures or provide diagnostic and therapeutic services within the organization. Each provider must follow the privileges granted within the institution or health system. An individual's permitted patient-care activities (i.e., privileges) may include all those allowed by state and federal laws or may be restricted by the institution (Brassard & Smolenski, 2011; Keels et al., 2019; McMullen & Howie, 2020).

Each hospital's bylaws specify which privileges APRNs may or may not be granted and can include provisions for supervision that are more restrictive than state laws. The Institute of Medicine (IOM; 2011) report recommends that APRNs be eligible for hospital clinical privileges, admitting and discharge privileges, and hospital medical staff membership and also be permitted to perform hospital admission assessments, document medical histories, and perform physical examinations (IOM, 2011). Typically following the guidelines set by The Joint Commission, hospitals credential APRNs through medical staff services with the same level of rigor as their physician counterparts. However, this often occurs without medical staff membership which leaves the APRN with no voice in medical staff governance to change policy (Brassard & Smolenski, 2011). Institutional restrictions in excess of state regulations should be removed to enhance interprofessional collaboration within the system (Fealy et al., 2018).

A key driver to moving APRNs toward FPA and scope is ensuring the credentialing board includes an APRN who can speak to the full scope and limitations of APRN practice based on different roles and patient foci. This ensures that other disciplines are not making uninformed decisions regarding APRN practice. Equally important is the need to engage public awareness and support for the various APRN roles (Fealy et al., 2018; Miller, 2019).

Lost Revenue for APRN Services Due to Physician Oversight and Billing

Nursing services, which traditionally have included APRN care, have been treated as an expense rather than a revenue source. APRN services are seldom separated from institutional charges, promoting the misperception that they are not revenue generators despite physicians and APRNs having financially equivalent relative work values (Fealy et al., 2018; Frakes & Evans, 2006). APRNs can receive reimbursement from third-party payers for direct patient care but may not generate revenue due to institutional, practice, or regulatory barriers.

A series of regulations govern healthcare reimbursement for all providers with additional requirements for APRNs. Requirements for "provider services" reimbursement include the following: payment is made only for services defined by current procedural terminology (CPT) or International Classification of Diseases (ICD) codes and must be medically necessary, actually provided, accurately documented, and properly submitted. APRN providers also must have national APRN certification for Medicare/Medicaid reimbursement and a national provider identification (NPI) number. Medicare does not distinguish between APRN roles, so ability to bill for services provided and reimbursement rates for NNPs and NCNSs are a function of scope of practice as defined by individual states and state Medicaid rules (IOM, 2011).

If allowed by state regulations, an APRN can bill in one of two ways: "incident to" or direct billing. The most lucrative reimbursement rate, 100% of the physician rate, requires the APRN to provide care "incident to" or under supervision of a physician. APRNS can be reimbursed for direct care using their own Medicaid provider number (i.e., NPI), but the APRN's reimbursement rate might be lower than the physician rate (rates vary by state). Limited billing practices and reimbursement rates hinder the expansion of APRN services and contribute to the perception that APRNs "cost too much." To recognize the economic viability of their practice, APRNs must understand reimbursement regulations and implement strategies to optimize billing and revenue capture (Centers for Medicare & Medicaid Services, 2020; IOM, 2011; Phillips, 2019).

The COVID-19 pandemic created an unprecedented shortage of healthcare workers. The federal government responded by enacting an emergency contingency plan through the Centers for Medicare & Medicaid Services (CMS) that temporarily allows hospitals to grant NPs FPA to optimize healthcare delivery. Among other advantages, this waiver strengthened reimbursement for NPs. Professional organizations, including the American Association of Nurse Practitioners (AANP), are working through legislation to try to make NP FPA permanent beyond the current 28 states (Stucky et al., 2021).

Focused Strategies to Address Workforce Shortages

To meet current and future needs of high-risk and critically ill newborns, national efforts must focus on implementing FPA for APRNs, recruiting registered nurses as NNP and NCNS students, retaining practicing APRNs, and supporting practicing NNPs and NCNSs to precept and train the next generation.

Focused strategies to achieve these goals include:

- Continue work to ensure full implementation of the APRN Consensus Model in all 50 states and the District of Columbia. Full practice authority ensures uniformity in licensure, accreditation, certification, and education with regulation of safe and competent APRNs in every state and promotes consistency in reimbursement practices (Staebler & Bissinger, 2017; Timoney & Sansoucie, 2012).
- Empower NNPs to develop collaborative practice models with physician colleagues focusing on full partnership, evidence-based practice, and reducing racial disparity in patient outcomes (Staebler & Bissinger, 2017; Timoney & Sansoucie, 2012). These practice models must include dedicated time for NNPs to pursue outcomes-based research, education, and quality initiatives (National Academy of Medicine, 2021).
- Make NNPs visible to consumers, regulatory bodies, and legislators to educate these groups about NNP education, training, and role, which uniquely positions the NNP to be a full partner for the future of healthcare and reduce disparity and infant mortality (Staebler & Bissinger, 2017; Timoney & Sansoucie, 2012).
- Expand workforce diversity as a national priority, with partnership from diverse professional organizations, academic leaders, and neonatal faculty (Siewert et al., 2011; Snapp et al., 2021)
- Employ best practices to manage 24-hour shifts, support time off to safeguard the NNP workforce from burnout and fatigue while protecting provider health to support safe, high-quality patient care (Snapp et al., 2021, NANN & NANNP 2022)
- Support senior expert NPs by using alternative staffing models, capitalizing on experience to enhance care delivery, and supporting leadership roles in lieu of clinical hours (NANNP, 2018a).
- Enhance retention through decreased workload, achieved by increasing workforce (Keels et al., 2019)
- Decrease workload through redistribution of patients with less and/or lower-acuity settings and designing protocols to streamline treatment within and outside of the NICU (e.g., neonatal abstinence syndrome [NAS], hypoglycemia, sepsis evaluation; Keels et al., 2019).
- Encourage work and professional organizations to support ongoing professional development of the neonatal nursing workforce to include higher education as an NNP/NCNS (Keels et al., 2019)
- Recommend that organizations offer scholarships or tuition reimbursement for neonatal nurses seeking advanced degrees (Keels et al., 2019)
- Active recruitment of NNP faculty is needed to expand programs (Keels et al., 2019)
- Improve retention of new graduate NNPs and NCNSs through detailed orientation, mentorship, and fellowship programs (NANNP, 2014; Moss & Jackson, 2019; Keels et al., 2019)

Providing sustainable solutions to workforce issues while ensuring the continued delivery of high-quality care is complicated, but challenges can be minimized through careful strategic planning, dissolution of scope-of-practice barriers, and active recruitment of students, faculty, and funding for neonatal APRN programs.

Retention Strategies

NNP

Retention of NNPs is a priority because the NNP role is a collaborative one and a shortage of NNPs creates a gap in the team approach to care (Freed et al., 2010; Keels et al., 2019). Through many studies and surveys, NNPs have disclosed why they sought the role and what they appreciate about it, offering organizations a list of what to prioritize when seeking to retain NNPs:

- Cusson and Strange (2008) found that the primary motivators to becoming an NNP include increased autonomy and knowledge base.
- Most NNPs are very satisfied with their careers, citing enhanced contribution to the interprofessional team, increased autonomy, and increased status and professionalism as key factors for their satisfaction (Freed et al., 2010; Smith & Hall, 2011).
- Bailey et al., (2021) found that increases in autonomy were correlated with years of experience and perceived level of expertise provided by collaborating physicians.
- Snapp, Moore, Wallman, and Staebler (2021) found that job satisfaction was positively correlated with advanced educational preparation, years of experience, and compensation.
- Factors that influence role satisfaction and, ultimately, recruitment and retention include compensation package, level of autonomy and inclusion in decision making, respect for the role by physician colleagues, workload, shifts worked, and ability to take time off when desired (Snapp et. al., 2021).

NICU staff nurse perceptions of the NNP role in their unit also affect recruitment and regional NNP shortages. If the staff perception of the NNP role is negative, NICU registered nurses are less likely to seek professional advancement (Barrett & Wright, 2019).

NCNS

Various publications over the past several years have directly described interventions that have led to CNS role satisfaction and improved recruitment and retention. One strategy that has been effectively used is restructuring the CNS role within organizations in an effort to standardize practice.

Decentralized models with unit- or area-based structures have led to role confusion and variation in both the utilization and day-to-day responsibilities of the CNS. CNSs report their practice as solving day-to-day questions, precepting, educating, evaluating unit-based competencies, and acting as direct care nurses, not recognizing their full scope of practice (Catania et al., 2012; Fischer-Cartlidge et al., 2019; Katlen et al., 2020).

Centralized structuring within organizations allows CNSs to function to their full scope of practice and to partner with leadership on units to create and implement change (Brooks, 2020). It also leads to improvements in nursing-sensitive indicators, cost avoidance, increased implementation of evidence-based practice, quality improvement, and research participation and publication (Catania et al., 2012, Catania & Tippett, 2015; Fischer-Cartlidge et al., 2019; Katlen et al., 2020).

CNS job satisfaction and intention to stay has been captured through surveys by Catania and Tippett in 2015 and Kilpatrick et al., in 2016. Both found that role satisfaction was directly related to intent to stay in the CNS role. Job satisfaction improved through implementation of evidence-based, population-focused structure within one organization (Catania & Tippett, 2015). Kilpatrick et al., (2016) intent to stay decreased with direct care consultations but improved with clinical, research, scholarly, and professional development. Retention strategies need to be further explored to continue to recruit and retain NCNSs.

Summary

- For APRNs to care for patients effectively and responsively, state legislatures throughout the United States must remove barriers to practice and prescriptive authority.
- Neonatal APRNs are educated and trained as both acute-care and primary-care providers.
- An APRN should sit on each credentialing board at the organizational level to speak to the full scope and limitations of APRN practice based on the different roles and patient foci.
- Interprofessional collaboration is enhanced when APRNs have hospital privileges that allow them to practice to the full extent of their scope of practice, based on education and training.
- An NCNS's population-specific expertise is important to the neonatal team, and organizations should be discouraged from employing CNSs without population-specific education and certification to work in the NICU.
- Neonatal APRNs must actively engage with academic programs to recruit registered nurses as NNP and NCNS students, work to retain practicing APRNs, and engage as preceptors to train future APRNs.
- With specialty certification readily available to all neonatal APRNs, NANNP recommends that all neonatal APRNs obtain and maintain national specialty certification, regardless of state requirements.
- NANNP supports ongoing education and professional development with consistent requirements among all state boards of nursing.
- APRNs must understand reimbursement regulations and implement strategies to optimize billing and revenue capture for economic viability.
- Due to the ever-increasing complexity of the healthcare system and practice, there is a need for doctoral-prepared faculty to maintain and expand neonatal APRN programs.

The role of the neonatal APRN has a long and rich legacy. To promote and protect the neonatal APRN role in healthcare, it is necessary to articulate the role, preparation, and scope of practice of the neonatal APRN (both NNP and NCNS), identify current barriers within neonatal APRN practice, and present future considerations to support longevity of the neonatal APRN. NANNP is committed to working strategically to provide sustainable solutions to neonatal APRN practice issues while ensuring the continued delivery of high-quality care for our vulnerable patients.

References

American Association of Colleges of Nursing. (2021, April 6). *The essentials: Core* competencies for professional nursing education.

https://www.aacnnursing.org/Portals/42/AcademicNursing/pdf/Essentials-2021.pdf American Association of Critical-Care Nurses. (n.d.-a). *Certification benefits patients,*

employers and nurses. Retrieved July 27, 2021, from https://www.aacn.org/certification/value-of-certification-resource-center/nurse-

certification-benefits-patients-employers-and-nurses

- American Association of Critical-Care Nurses. (n.d.-b). *Certification exam statistics and cut scores*. Retrieved March 26, 2022, from https://www.aacn.org/certification/preparation-tools-and-handbooks/exam-stats-and-scores
- American Association of Critical-Care Nurses. (2014). *AACN scope and standards for acute care clinical nurse specialist practice*. Retrieved August 9, 2021, from https://www.aacn.org/nursing-excellence/standards/aacn-scope-and-standards-for-acute-care-clinical-nurse-specialist-practice
- American Association of Nurse Practitioners (2022a, April) NP Fact sheet. Retrieved July 6, 2022. From https://www.aanp.org/about/all-about-nps/np-fact-sheet
- American Association of Nurse Practitioners. (2022b April). *Issues at a glance: Full practice Authority*. Retrieved July 6, 2022, from https://www.aanp.org/advocacy/advocacy-resource/policy-briefs/issues-full-practice-brief
- American Association of Nurse Practitioners. (2021, August 4). *State practice environment*. Retrieved August 9, 2021, from https://www.aanp.org/advocacy/state/state-practiceenvironment
- American Board of Nursing Specialties. (2018, August 1). A position statement on the value of specialty nursing certification.

https://www.nursingcertification.org/resources/Documents/research/value-certification.pdf

- American Nurses Association & National Association of Neonatal Nurses. (2021). *Neonatal nursing: Scope and standards of practice* (3rd ed.). Nursebooks.org. https://www.nursingworld.org/nurses-books/neonatal-nursing-scope-and-standards-ofpractice2/
- Anand, K. J., & Hickey, P. R. (1987). Pain and its effects in the human neonate and fetus. *The New England Journal of Medicine*, *317*(21), 1321–1329. https://doi.org/10.1056/NEJM198711193172105
- APRN Consensus Work Group & National Council of State Boards of Nursing APRN Advisory Committee. (2008, July 7). *Consensus model for APRN regulation: Licensure,*

accreditation, certification & education. National Council of State Boards of Nursing. https://www.ncsbn.org/Consensus_Model_for_APRN_Regulation_July_2008.pdf

APRN LACE Network. (2021, November 1). LACE statement on APRNs changing a population or role.

https://www.pncb.org/sites/default/files/resources/LACE_Statement_on_APRNs_Changing_Populations.pdf

- Bailey, T., Staebler, S., Pont, M., Christiansen, B., & Champion, J. D. (2021). An exploration of perceived neonatal nurse practioner authority in a restricted practice setting. *Journal of the American Association of Nurse Practitioners, 34*(2), 328–339. https://doi.org/10.1097/JXX.000000000000608
- Barrett, N., & Wright, M. E. (2019). Key elements of advanced practice provider integration. *The Journal for Nurse Practitioners*, *15*(5), 370–373.e2.
- Bissinger, R., & Burns, B. (2018). Third-party assessment and targeted continuing education for maintenance of certification. *Journal of Nursing Regulation*, *9*(3), 53–58. https://doi.org/10.1016/S2155-8256(18)30153-4
- Brassard, A., & Smolenski, M. (2011, September). *Removing barriers to advanced practice registered nurse care: Hospital privileges* (Insight on the Issues, Issue 55). AARP Public Policy Institute. www.aarp.org/health/doctors-hospitals/info-10-2011/Removing-Barriers-to-Advanced-Practice-Registered-Nurse-Care-Hospital-Privileges.html
- Brooks, E. (2020). From shadow to change agent: Revitalization of the clinical nurse specialist role. *Nurse Forum*, *55*(2), 297–300. https://doi.org/ 10.1111/nuf.12429
- Bureau of Labor Statistics. (2021, December 7). *Occupational outlook handbook, nurse anesthetists, nurse midwives, and nurse practitioners*. U.S. Department of Labor. Retrieved February 27, 2022, from https://www.bls.gov/ooh/healthcare/nurse-anesthetists-nurse-midwives-and-nurse-practitioners.htm
- Catania, K., Askew, T., Birkhimer, D., Courtney, L., Hanes, D., Lamprecht, M., Rettig, A., & Vendlinski, S. (2012). From unit based to population focused: Transforming the role of oncology clinical nurse specialists. *Clinical Nurse Specialist*, *26*(2), 103–106. https://doi.org/10.1097/NUR.0b013e31824590d0
- Catania, K., & Tippett, J. E. (2015). Outcomes of clinical nurse specialist role transformation to population-focused model. *Clinical Nurse Specialist*, *29*(6), E1–E10. https://doi.org/10.1097/NUR.0000000000000160
- Centers for Medicare & Medicaid Services. (2020, April). Advanced practice registered nurses, anesthesiologist assistants, and physician assistants [Medicare Learning Network booklet MLN901623]. U.S. Department of Health and Human Services. Retrieved August 9, 2021, from https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/MLN-Publications-Items/CMS1244981
- Cusson, R. M., & Strange, S. N. (2008). Neonatal nurse practitioner role transition: The process of reattaining expert status. *The Journal of Perinatal & Neonatal Nursing, 22*(4), 329–337. https://doi.org/10.1097/01.JPN.0000341365.60693.39
- Fealy, G. M., Casey, M., O'Leary, D. F., McNamara, M. S., O'Brien, D., O'Connor, L., Smith, R., & Stokes, D. (2018). Developing and sustaining specialist and advanced practice roles in nursing and midwifery: A discourse on enablers and barriers. *Journal of Clinical Nursing*, 27(19-20), 3797–3809. https://doi.org/10.1111/jocn.14550

- Fischer-Cartlidge, E., Houlihan, N., & Browne, K. (2019). Building a renowned clinical nurse specialist team: Recruitment, role development, and value identification. *Clinical Nurse Specialist*, *33*(6), 266–272. https://doi.org/10.1097/NUR.00000000000482
- Frakes, M. A., & Evans, T. (2006). An overview of Medicare reimbursement regulations for advanced practice nurses. *Nursing Economic*\$, 24(2), 59–65, 55.
- Freed, G. L., Dunham, K. M., Lamarand, K. E., Loveland-Cherry, C., Martyn, K. K., & American Board of Pediatrics Research Advisory Committee. (2010). Neonatal nurse practitioners: Distribution, roles and scope of practice. *Pediatrics*, 126(5), 856–860. https://doi.org/10.1542/peds.2010-1596
- Gabbard, E. R., Klein, D., Vollman, K., Chamblee, T. B., Solits, L. M., & Zellinger, M. (2021). Clinical nurse specialist: A critical member of the ICU team. *Critical Care Medicine*, *49*(6), e634–e641. https://doi.org/10.1097/CCM.00000000000000004
- Gonzalez, J., & Gigli, K. (2021). Navigating population foci and implications for nurse practitioner scope of practice. *The Journal for Nurse Practitioners*, *17*(7), 846–850. https://doi.org/10.1016/j.nurpra.2021.04.008
- Grunau, R., Whitfield, M. F., Petrie, J. H., & Flyer, L. E. (1994). Early pain experience, child and family factors, as precursors of somatization: A prospective study of extremely premature and fullterm children. *Pain*, *56*(3), 353–359. https://doi.org/10.1016/0304-3959(94)90174-0
- Gunnar, M. R., Porter, F. L., Wolf, C. M., Rigatuso, J., & Larson, M. C. (1995). Neonatal stress reactivity: Predictions to later emotional temperament. *Child Development*, *66*(1), 1–13. https://doi.org/10.1111/j.1467-8624.1995.tb00851.x
- Haycraft, K., & Voss, S. (2014). The status of advanced practice registered nurses in Missouri: A white paper (2nd ed.). Missouri Council on Advanced Practice Nurses of the Missouri Nurses Association. https://missourinurses.org/wp-content/uploads/White_Paper-Status_of_APRNs_in_MO_2014_2nd_Ed.pdf
- Institute of Medicine. (2011). *The future of nursing: Leading change, advancing health.* The National Academies Press. http://books.nap.edu/openbook.php?record_id=12956
- Katlen, J., Crosby, L., Singleton, K., Simon, J., Di Fiore, T., Kennedy, K., Haight, K., & Will, B. (2020). Integration and standardization of clinical nurse specialists in a multihospital system: Exemplars in practice. *Clinical Nurse Specialist,* 34(6), 270–275. https://doi.org/10.1097/NUR.000000000000556
- Keels, E. L., Goldsmith, J. P., & Committee on Fetus and Newborn. (2019). Neonatal provider workforce. *Pediatrics*, *144*(6), e20193147. https://doi.org/10.1542/peds.2019-3147
- Kilpatrick, K., Tchouaket, E., Carter, N., Bryant-Lukosius, D., & DiCenso, A. (2016). Relationship between clinical nurse specialist role implementation, satisfaction, and intent to stay. *Clinical Nurse Specialist*, *30*(3), 159–166. https://doi.org/10.1097/NUR.00000000000203
- Klein, T. A. (2005). Scope of practice and the nurse practitioner: Regulation, competency, expansion, and evolution. *Topics in Advanced Practice Nursing eJournal*, *5*(2).
- Koeppel, R. (2021). Neonatal clinical nurse specialist (CNS): The importance of specialized nursing care for NICU patients and families. *Neonatology Today*, *16*(3), 99–103. http://www.neonatologytoday.net/newsletters/nt-mar21.pdf
- McClelland, M., McCoy, M. A., & Burson, R. (2013). Clinical nurse specialists: Then, now, and the future of the profession. *Clinical Nurse Specialist*, *27*(2), 96–102. https://doi.org/10.1016/j.nurpra.2019.10.015

- McMullen, P. C., & Howie, W. O. (2020). Credentialing and privileging: A primer for nurse practitioners. *The Journal for Nurse Practitioners*, *16*(2), 91–95. https://doi.org/10.1016/j.nurpra.2019.10.015
- Miller K. (2019). Setting or patient care needs: Which defines advanced practice registered nurse scope of practice?. The Journal of Nurs Practitioners, 15, 494-495. https://doi.org/10.1016/j.nurpra.2019.03.004
- Mohr, L. D., & Coke, L. A. (2018). Distinguishing the clinical nurse specialist from other graduate nursing roles. *Clinical Nurse Specialist*, *32*(3), 139–151. https://doi.org/10.1097/NUR.00000000000373
- Moss, C., & Jackson, J. (2019). Mentoring new graduate nurse practitioners. *Neonatal Network*, *38*(3), 151–159. https://doi.org/10.1891/0730-0832.38.3.151
- National Academy of Medicine. (2021). *The future of nursing 2020-2030: Charting a path to achieve health equity.* The National Academies Press. https://doi.org/10.17226/25982
- National Association of Clinical Nurse Specialists. (n.d.) *CNS program directory*. Retrieved December 12, 2021, from https://nacns.org/career-education/cns-program-directory/
- National Association of Clinical Nurse Specialists. (2019). *Statement on clinical nurse specialist practice and education* (3rd ed.).
- National Association of Clinical Nurse Specialists. (2020a). CNS scope of practice and prescriptive authority as of 7.31.2020. https://nacns.org/wp-content/uploads/2020/08/PractPrescAuthority7.31.2020.pdf
- National Association of Clinical Nurse Specialists. (2020b). *The role of the CNS: Findings from the 2020 census* [infographic]. https://nacns.org/wp-content/uploads/2021/03/NACNS-2020-Census-Infographic-FINAL.pdf
- National Association fo Neonatal Nurses and National Association of Neonatal Nurse Practitioners (2022). Impact of advanced practice nurses shift length and fatigue on patient safety. Position statement #3054 June 2022.
- National Association of Neonatal Nurse Practitioners. (2002). *Education standards and curriculum guidelines for neonatal nurse practitioner programs*.
- National Association of Neonatal Nurse Practitioners. (2009). Education standards and curriculum guidelines for neonatal nurse practitioner programs.
- National Association of Neonatal Nurse Practitioners. (2013a). Advanced practice registered nurse: Role, preparation, and scope of practice [Position statement #3059]. https://nann.org/uploads/Membership/NANNP_Pubs/APRN_Role_Preparation_position statement FINAL.pdf
- National Association of Neonatal Nurse Practitioners. (2013b). *Neonatal nurse practitioner workforce* [Position statement #3058].

http://nann.org/uploads/About/PositionPDFS/NNP_Workforce_Position_Statement_01.2 2.13_FINAL.pdf

- National Association of Neonatal Nurse Practitioners. (2014). *Competencies and orientation toolkit for neonatal nurse practitioners* (2nd ed.). https://apps.nann.org/store/product-details?productId=9876350
- National Association of Neonatal Nurse Practitioners. (2017). *Education standards and curriculum guidelines for neonatal nurse practitioner programs*. http://nann.org/uploads/2017_NNP_Education_Standards_completed_FINAL.pdf

- National Association of Neonatal Nurse Practitioners. (2018a). *NNP workforce* [White paper]. http://nann.org/uploads/NNPWorkforceWhitePaper.pdf
- National Association of Neonatal Nurse Practitioners. (2018b). Should I stay, or should I go? Retaining expert-level senior NNP workforce at the bedside: NANNP-recommended solutions and guidelines [White paper].
- http://nann.org/uploads/About/PositionPDFS/SSS_White_Paper_FINAL.pdf National Association of Neonatal Nurse Practitioners. (2009). *Education standards and curriculum guidelines for neonatal nurse practitioner programs*.

http://nann.org/uploads/2017_NNP_Education_Standards_completed_FINAL.pdf

National Council of State Boards of Nursing. (2021). APRN consensus model by state. Retrieved July 27, 2021, from

https://www.ncsbn.org/APRN_Consensus_Grid_Jan2021_FINAL.pdf

National Organization of Nurse Practitioner Faculties. (2012). Statement on acute care and primary care certified nurse practitioner practice.

https://www.pncb.org/sites/default/files/2017-02/NONPF_AC_PC_Statement.pdf

- Niebruegge, B., Holbrook, J. M., Vernon, C., Grotton, C., & Maric, A. (2019). The future of population medicine: Investigating the role of advanced practice providers and simulation education in special patient populations. *Disease-a-Month*, 65(7), 221–244. https://doi.org/10.1016/j.disamonth.2018.09.005
- Phillips, S. J. (2019). 31st annual APRN legislative update: Improving state practice authority and access to care. *The Nurse Practitioner*, *44*(1), 27–55. https://doi.org/10.1097/01.NPR.0000550248.81655.30
- Siewert, R. C., Rasmussen, L. B., Lofgren, M. A., & Clinton, P. (2011). Innovative university partnership meets neonatal nurse practitioner program need amid faculty shortage. *The Journal of Nursing Education*, *50*(3), 159–162. https://doi.org/10.3928/01484834-20101230-11
- Smith, S. L., & Hall, M. A. (2011). Advanced neonatal nurse practitioners in the workforce: A review of the evidence to date. Archives of Disease in Childhood. Fetal and Neonatal Edition, 96(2), F151–F155. https://doi.org/10.1136/adc.2009.168435
- Snapp, B., Moore, T. A., Wallman, C., & Staebler, S. (2021). 2020 neonatal nurse practitioner workforce survey: An executive summary. *Advances in Neonatal Care*, *21*(3), 242–246. https://doi.org/10.1097/ANC.000000000000003
- Staebler, S., & Bissinger, R. (2017). 2016 neonatal nurse practitioner workforce survey: Report of findings. *Advances in Neonatal Care*, *17*(5), 331–336. https://doi.org/10.1097/ANC.00000000000433
- Stucky, C. H., Brown, W. J., & Stucky, M. G. (2021). COVID 19: An unprecedented opportunity for nurse practitioners to reform healthcare and advocate for permanent full practice authority. *Nursing Forum*, *56*(1), 222–227. https://doi.org/10.1111/nuf.12515
- Taddio, A., Katz, J., Ilersich, A. L., & Koren, G. (1997). Effect of neonatal circumcision on pain response during subsequent routine vaccination. *Lancet*, *349*(9052), 599–603. https://doi.org/10.1016/S0140-6736(96)10316-0
- Texas Department of State Health Services. (2021, May 12). *Neonatal system development.* Retrieved May 31, 2021, at

https://www.dshs.texas.gov/emstraumasystems/neonatal.aspx

Timoney, P., & Sansoucie, D. (2012). Neonatal nurse practitioner workforce survey executive summary. *Advances in Neonatal Care*, *12*(3), 176–178.

Vacek, L. D., & Vuckovic, K. M. (2019). Pharmacotherapeutic preparation for nurse practitioner full practice authority. *The Journal for Nurse Practitioners*, *15*(7), e131–e134. https://doi.org/10.1016/j.nurpra.2019.03.028

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