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Determining Nurse Practitioner Core Competencies Utilizing A Delphi Approach

Tracey Chan

DETERMINING NURSE PRACTITIONER CORE COMPETENCIES UTILIZING A

DELPHI APPROACH

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the degree of Doctor of Philosophy

By

Tracey Elizabeth Chan

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2019

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Tracey Elizabeth Chan

Approved July 23, 2019

_____   _____
Joan Such Lockhart, PhD, RN, CNE,   Rebecca Kronk, PhD, CRNP, FAAN,
ANEF, FAAN   CNE
Professor of Nursing   Professor of Nursing
(Committee Chair)   (Committee Member)

_____   _____
James Schreiber, PhD   Anne Thomas, PhD, ANP-BC, GNP,
Professor of Nursing   FAANP
(Committee Member)   Professor of Nursing
                                           Michigan State University
                                           (Committee Member)

_____   _____
Marry Ellen Glasgow, PhD, RN, ANEF,   Richard Zoucha, PhD, PMHCNS-BC,
FAAN   CTN-A FAAN
Dean, School of Nursing   Chair, Nursing PhD Programs
Professor of Nursing   Professor of Nursing

ABSTRACT

DETERMINING NURSE PRACTITIONER CORE COMPETENCIES UTILIZING A

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December 2019

Dissertation supervised by Joan Such Lockhart, PhD

Background: Competency-based education (CBE) has been recommended for nurse

practitioner (NP) education. To implement CBE, existing NP core competencies need to

be reduced in number and refined.

Purpose: This study refined and reduced redundancy in the National Organization of

Nurse Practitioner Faculties (NONPF) and American Association of Colleges of Nursing

(AACN) NP core competencies through the consensus of experts in NP practice. This

study used the current *NP Core Competencies (*NONPF*, 2017),* the *Essentials of*

*Doctoral Education for Advanced Nursing Practice (*AACN*, 2006),* and the *Common*

Advanced Practice Registered Nurse Doctoral-Level Competencies,(AACN, 2017a) as

these documents are the competencies accredited NP programs commonly use in

curriculum development. The primary aim of this study was to determine the relevancy

of these competencies; a secondary aim was to ensure that the final competencies were clear and measurable.

Methods: A Delphi approach was used to reach consensus among an expert panel who reviewed the core competencies via an online questionnaire. Descriptive statistics were used to calculate median and interquartile ranges; content analysis was conducted with qualitative data.

Results: Consensus was reached after three rounds and resulted in 49 final core competencies.

Implications for Practice: This study provides the NP community with a manageable list of relevant, clear, and measurable competencies that faculty members can use to implement CBE in their programs.

DEDICATION

This dissertation is dedicated to my mom, Christine Doyle, RN, Dr. Anne

Thomas, NP and the Lord almighty, for through Him all things are possible.

ACKNOWLEDGEMENT

I would like to acknowledge all my family, friends and colleagues that supported me throughout my doctoral studies. I would like to start by thanking my committee for their support, encouragement, and knowledge. Dr. Thomas was the inspiration for my study and spent countless hours listening to my ideas and helping to refine the study. Dr. Lockhart patiently guided me through the entire process and refined my writing. Dr. Kronk shared her knowledge on the Delphi process. Dr. Schreiber provided guidance on statistical analysis. Also David Nolfi was a valuable resource for my integrative literature review.

A big thank you to my husband, Cedar, and son, Cameron, for their patience, love and unending support. I also appreciate all the family, friends, and co-workers that offered encouragement and a willingness to listen.

I want to acknowledge NONPF for their assistance with my dissertation along with my study participants whom made this all possible.

Finally I would be remiss if I did not acknowledge and thank my "Duquense Divas" for all the fun and support they provided.

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1.0 INTEGRATIVE REVIEW OF THE LITERATURE

Manuscript #1

AN INTEGRATIVE REVIEW OF NURSE PRACTITIONER PRACTICE AND ITS RELATIONSHIP TO THE CORE COMPETENCIES

Abstract

Background: Competency based education (CBE) has been suggested for nurse practitioner (NP) education reform. For this to occur, competencies should reflect the knowledge, skills, and attitudes that NPs need for independent practice.

Purpose: This integrative review examined the general practice activities of NPs across all population foci to determine the extent to which these activities are reflected in current NP competencies.

Method: Using the Whittemore and Knafl (2005) integrative review method, 17 studies that focused on NP practice between 2008-2018 were retrieved from three electronic databases. These studies were evaluated, analyzed and synthesized for themes. Afterwards the themes were compared with seven sets of current NP core competencies.

Results: The themes for NP practice activities were direct and indirect patient care activities with a majority of NP time spent performing direct patient care activities. However, only 14% of the NP core competencies reflected these direct care activities.

Conclusion: In order to successfully implement CBE, a need exists for the NP core competencies to reflect current NP practice.

1.1 Introduction

Many organizations, including the Institute of Medicine (IOM), the Robert Wood Johnson Foundation (RWJF), and the National Organization of Nurse Practitioner Faculties

(NONPF) have called for education reform of nurse practitioner (NP) programs (Giddens et al., 2014; IOM, 2011; NONPF, 2010). NP programs need to assure that their graduates are ready to enter the workforce to fill the need for primary care providers. Since the early 2000s, both NONPF and the American Association of Colleges of Nursing (AACN) have endorsed the Doctor of Nursing Practice (DNP) degree as entry for NP practice (AACN, 2004; NONPF, 2015). In 2008, a landmark document entitled the *Consensus Model for APRN Regulation: Licensure, Accreditation, Certification, and Education* was released by the National Council of State Boards of Nursing APRN Advisory Committee which defines advanced practice registered nurses (APRNs) and provides a regulatory model for licensure, accreditation, certification, and education (LACE). Specifically it states:

> "Individuals will be licensed as independent practitioners for practice at the level of one of the four APRN [Advanced Practice Registered Nurse] roles [certified registered nurse anesthetist (CRNA), certified nurse midwife (CNM), clinical nurse specialist (CNS), and certified nurse practitioner (CNP)] within at least one of the six identified population foci [family/individual across the lifespan, adult-gerontology, pediatrics, neonatal, women's health/gender-related, or psych/mental health]." (APRN Consensus Work Group & National Council of State Boards of Nursing APRN Advisory Committee, 2008, p. 6).

The release of this statement was followed by another groundbreaking paper by the IOM called the *Future of Nursing: Leading Change, Advancing Health* (IOM, 2011), which discussed changes that are needed to transform the nursing profession. A significant recommendation included the need for reform in nursing education and for licensed nurses to be allowed to practice to the full extent of their education.

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Problem Identification and Significance

In response to these calls for change in NP education, Sroczynski and Dunphy (2012) conducted a literature review and gap analysis about NP clinical education and found that recommendations have been made to implement CBE within NP programs as has been done successfully in other health professions such as physical therapy, pharmacy, and medicine. Also, a consortium of 20 health care leaders representing nursing, medicine, pharmacy and leadership organizations was convened by the RWJF to explore changes to be made within NP clinical education with recommendations to move to standardized assessments and competency attainment (Giddens et al., 2014).

CBE is an educational framework that focuses on assuring that students attain specific proficiencies. Spady (1977) offers the following definition for CBE: "a data-based, adaptive, performance-oriented set of integrated processes that facilitate, measure, record and certify within the context of flexible time parameters the demonstration of known, explicitly stated, and agreed upon learning outcomes that reflect successful functioning in life roles" (p 10). Within the nursing profession, competency has been defined in a variety of ways, although the definitions all incorporate ability to perform or apply knowledge (Benner, 1982; Chapman, 1999; Fan, Wang, Chao, Jane, & Hsu, 2015; Nolan, 1998). The AACN has recently adopted definitions of "competency" and "competence" based on work by Frank et al. (2010). Competency is defined as "an observable ability of a health professional, integrating multiple components such as knowledge, skills, and attitudes. Since competencies are observable, they can be measured and assessed to ensure acquisition" (AACN, 2017, p. 2). Competence is defined as "The array of abilities (knowledge, skills and attitudes) across multiple domains or aspects of performance in a certain context. Competence is multi-dimensional and dynamic. It

changes with time, experience, and settings" (AACN, 2017, p. 2). These definitions adopted by AACN are the same definitions utilized in this paper.

Several organizations such as NONPF, AACN, the Interprofessional Education Collaborative (IPEC), the American Nurses Association (ANA), and the International Society of Nurses in Genetics and Genomics (ISONG) have each independently defined specific competencies for all advanced practice nurses, including NPs, and refer to them as "core competencies." These core competencies reflect the knowledge and skills that all NPs, regardless of population foci, should have and are considered the "gold standard" (Crabtree, Stanley, Werner, & Schmid, 2002). NP faculties utilize these competencies for NP curriculum development. The core NP competencies need to account for what all NPs are doing within practice. Competencies should also reflect the needs of the workforce (Hallas, Biesecker, Brennan, Newland, & Haber, 2012; Voorhees, 2001). Implementation of CBE requires a well-defined set of competencies that are measurable and reflective of what NPs need to know to enter practice as independent providers. To assure that the competencies reflect practice, an understanding of core NP practice activities needs to occur. In this study, a practice activity is defined as the actions an NP performs.

Purpose and Specific Aims

The purpose of this integrative literature review was to determine the critical elements of core NP practice regardless of their population foci. A secondary aim was to then determine the extent to which there is alignment between NP practice activities and the current core competencies for NPs.

1.2 Methods

This integrative review was based on the Whittemore and Knafl (2005) model that allows inclusion of both empirical and theoretical literature. The inclusion of a variety of literature sources allowed the concept of NP activities to be fully explored. The steps involved include: identifying the problem, searching the literature, evaluating and analyzing the data, then finally synthesizing and presenting the findings. An integrative review is appropriate because it will allow exploration of current NP practice activities throughout the United States (US) so that alignment of these activities with NP core competencies can be accomplished.

Literature Search

A literature search was conducted to locate the relevant literature regarding NP practice activities. The search was conducted in collaboration with a health science librarian using the following electronic databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and Scopus. The search terms included: practice pattern* OR practice characteristic* OR role delineation OR scope of practice AND nurse practitioner*. The search was limited to January 2008- December 2018 as well as being conducted in the US and published in English. The reasons for these criteria were that, in 2008, the LACE consensus model was enacted, which influenced NP practice. Inclusion criteria also indicated that research had to be primary studies that addressed general NP practice and focused on what NPs are doing in practice, such as work activities or the knowledge and skills needed to practice as an NP. Studies were excluded if they addressed specialized NP practice, such as oncology or cardiology, as the consensus model defines population foci for education not specialty areas (APRN Consensus Work Group & National Council of State Boards of Nursing APRN Advisory

Committee, 2008). Ancestry searching was also done, by reviewing the reference lists of appropriate journal articles; however, this approach yielded no further articles.

In addition to these database searches, the web sites of professional organizations that influence NP practice, such as certifying bodies and national NP organizations, were searched for NP or APRN role delineation or practice studies. These sites included the American Association of Nurse Practitioners (AANP), American Nurses Credentialing Center (ANCC), National Certification Corporation (NCC), NONPF, and AACN.

The initial database search resulted in 1,186 articles with 300 being duplicates. The search flow diagram is displayed in Figure 1. The remaining 879 articles were examined at the title and abstract level for inclusion criteria which yielded 39 articles that were read fully; nine articles met the inclusion criteria, one qualitative study and eight quantitative, descriptive studies. The website search yielded eight quantitative role delineation and practice studies that met inclusion criteria and were included. Therefore, the final search result was comprised of 17 studies that met inclusion criteria, one qualitative study and 16 quantitative studies.
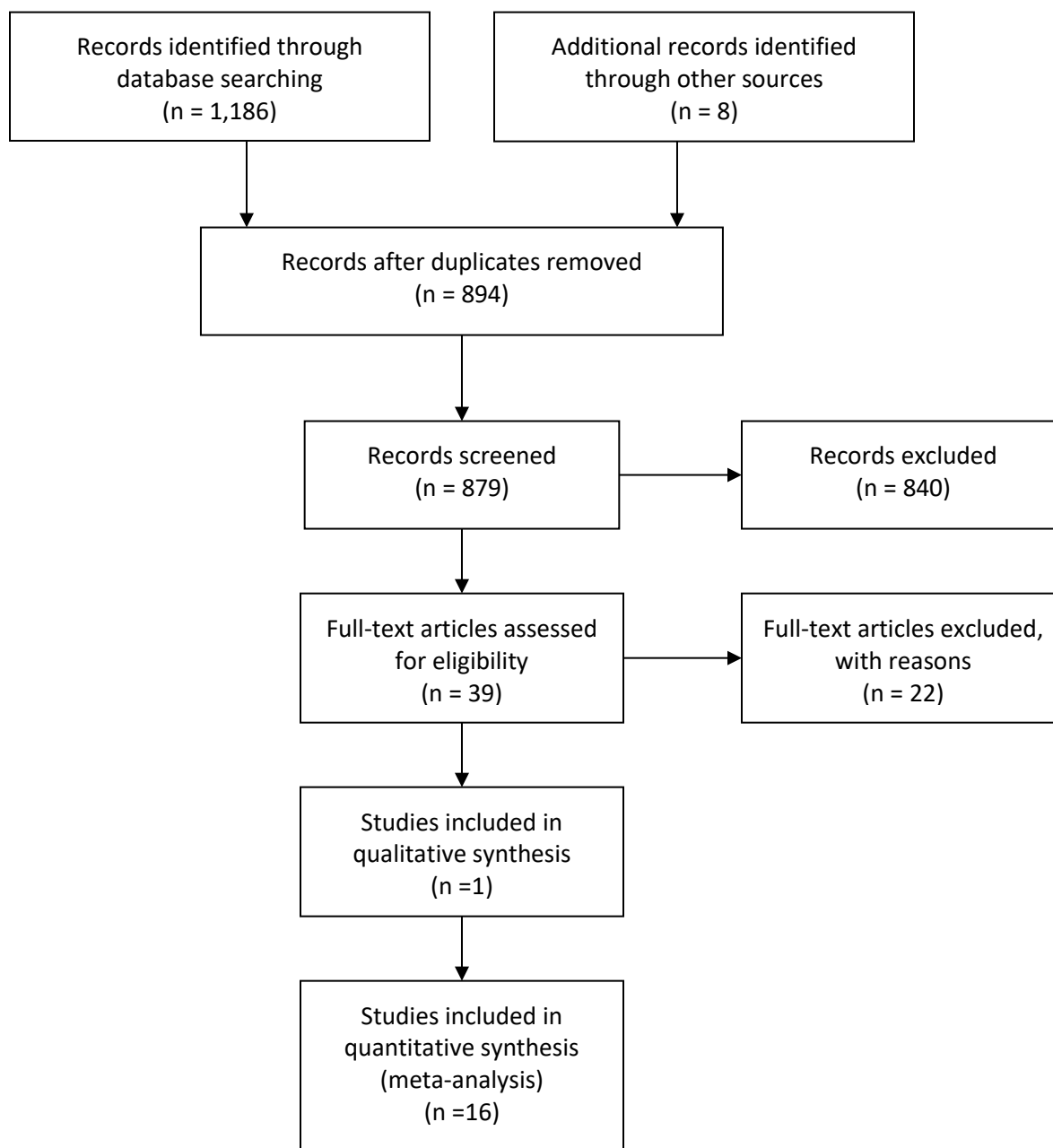
Figure 1 Flow Chart for Literature Search Process. Adapted from Moher D, Liberati A, Tetzlaff

J, Altman DG, The PRISMA Group (2009). Preferred reporting items for systematic reviews and

meta-analyses: The PRISMA statement. *PLoS Med 6*(7): e1000097.

doi:10.1371/journal.pmed1000097

Data Evaluation

All 17 studies were evaluated using a critical appraisal tool from the Joanna Briggs Institute for Quality. The one qualitative study (Poghosyan et al., 2013) was evaluated utilizing the Joanna Briggs Institute *Checklist for Qualitative Research* (The Joanna Briggs Institute, 2017) and the 16 quantitative studies (ANCC, 2012, 2015a, 2015b, 2015c, 2015d; Buerhaus, DesRoches, Dittus, & Donelan, 2015; Farrow, Lawrence, & Schulkin, 2014; Freed, Dunham, Lamarand, Loveland-Cherry, & Martyn, 2010a, 2010b; Freed, Dunham, Loveland-Cherry, & Martyn, 2010; Johnson, Brennan, Musil, & Fitzpatrick, 2016; National Certification Corporation, 2014a, 2014b; Ogunfiditimi, Takis, Paige, Wyman, & Marlow, 2013; U.S. Department of Health and Human Services, 2014; Weyer, Cook, & Riley, 2017) were evaluated using the Joanna Briggs Institute *Checklist for Assessing the Validity of Descriptive/Correlational Studies* (Pearson et al., 2007).

The qualitative study was appraised for congruency between the research method and philosophical perspective, research question, method of data collection, data analysis methods, and result interpretation; discussion of researcher's influence; participants' voices are adequately represented; research was ethical; and conclusions come from the data analysis. The quantitative studies were all descriptive studies and were evaluated based on the following elements: sample recruitment, size, and inclusion criteria; hypotheses and findings were linked to theoretical framework; the tool utilized had reported reliability and validity evidence; appropriate statistical analysis; findings were statistically significant and are generalizable. Each research study could receive a score from 0-10, with zero indicating none of the items were met and 10 indicating all the items were met. The studies were evaluated and received scores ranging from four to seven (Table 1); the studies received these scores because none of them linked their hypotheses or

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findings to a theoretical framework. The cut off score for exclusion was four, so none of the studies were excluded based on their quality, as the missing elements did not impair results.

Data Analysis

Analysis of the articles occurred through the development of a matrix table (Table 1) that included the study purpose, design, sample, and findings extracted from each of the 17 studies. The data were then analyzed by repetitive comparison to determine themes (Whittemore & Knafl, 2005). Initial thematic analysis was completed by lead author and confirmed by the secondary author for inter-rater reliability. This analysis of NP activities resulted in two major categories, direct care and indirect care activities.

Table 1

Quantitative/Qualitative Research Results (N=17)

Author (Year)	Study Purpose	Study Design	Sample/Setting	Relevant Findings	Critical Appraisal Score
ANCC (2012)	Describe current practice expectations, performance requirements, and environments of AGACNPs to update content on certification exam	List of 104 work activities divided into five domains of health promotion, health protection, disease prevention, and treatment; Nurse practitioner-patient relationship for the acute, critical, and/or chronically ill patient in the adult-gerontology population; teaching coaching function for the AGACNP; professional role for the AGACNP; managing and negotiating healthcare delivery systems for the acute, critical, and/or chronically ill patient in the adult-gerontology population; respondents rates the activities on how frequently they did it, when is a new NP expected to be able to perform activity, and the consequences of doing the activity incorrectly; results were combined to reach an overall criticality score ranging from 1-46	404 ACNPs certified by ANCC; 15 DNPs	21 work activities were ranked as highly critical; 17out of 60 in health promotion, health protection, disease prevention, and treatment domain; 1 out of 7 Nurse practitioner-patient relationship for the acute, critical, and/or chronically ill patient in the adult-gerontology population; 1 out of 7 teaching coaching function for the AGACNP; 2 out of 19 professional role for the AGACNP; 0 out of 11 managing and negotiating healthcare delivery systems for the acute, critical, and/or chronically ill patient in the adult-gerontology population;	7
ANCC (2015a)	Describe current practice expectations, performance requirements, and environments of AGPCNPs to update content on certification exam	List of 85 work activities divided into four domains of assessment, diagnosis, clinical management, and role; respondents rates the activities on how frequently they did it, when is a new NP expected to be able to perform activity, and the consequences of doing the activity incorrectly; results were combined to reach an overall criticality score ranging from 1-41	87 AGPCNPs certified through ANCC; 2 DNPs	43 work activities were ranked as highly critical 8 out 20 in assessment domain, 9 out of 10 in diagnosis domain, 19 out of 30 in clinical management domain and 7 out of 25 in role domain	7

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ANCC (2015b)	Describe current practice expectations, performance requirements, and environments of FNPs to update content on certification exam	List of 85 work activities divided into four domains of assessment, diagnosis, clinical management, and role; respondents rates the activities on how frequently they did it, when is a new NP expected to be able to perform activity, and the consequences of doing the activity incorrectly; results were combined to reach an overall criticality score ranging from 1-41	388 FNPs certified by ANCC; 23 DNPs	35 work activities were ranked as highly critical 6 out 20 in assessment domain, 8 out of 10 in diagnosis domain, 13 out of 30 in clinical management domain and 8 out of 25 in role domain	7
ANCC (2015c)	Describe current practice expectations, performance requirements, and environments of PPCNPs to update content on certification exam	List of 83 work activities divided into four domains of assessment, diagnosis, clinical management, and role; respondents rates the activities on how frequently they did it, when is a new NP expected to be able to perform activity, and the consequences of doing the activity incorrectly; results were combined to reach an overall criticality score ranging from 1-41	187 PPCNPs certified through ANCC; 12 DNPs	30 work activities were ranked as highly critical 7 out 19 in assessment domain, 6 out of 10 in diagnosis domain, 12 out of 30 in clinical management domain and 5 out of 24 in role domain	7
ANCC (2015d)	Describe current practice expectations, performance requirements, and environments of PMHNPs to update content on certification exam	List of 95 work activities divided into five domains of assessment and diagnosis; planning/outcomes; interventions; evaluation; and professional role and practice; respondent rates the activities on how frequently they did it, when is a new NP expected to be able to perform activity, and the consequences of doing the activity incorrectly; results were combined to reach an overall criticality score ranging from 1-41	257 PMHNPs; 20 DNPs	41 work activities were ranked as highly critical; 17 out of 22 in assessment and diagnosis domain; 5 out of 13 in planning/outcomes domain; 11 out of 32 in interventions domain; 5 out of 7 in evaluation domain; and 3 out of 21 in professional role and practice domain	7

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Buerhaus et al. (2015)	Identify demographic and practice characteristics of primary care NPs and primary care physicians	Quantitative, descriptive self report survey (2012 National Survey of Primary Care Nurse Practitioners and Physicians) on personal and practice characteristics, as well as clinical and nonclinical activities	505 physicians and 467 NPs that practice in primary care; 28 NPs with doctorate degree	Over 45% of NPs time is spent in direct patient care and more than 10% of time is spent either providing patient education or documentation; less than 10% of time is spent on patient phone calls, continuing education, research, teaching, and administration which are similar to physicians; collaboration and team work between NPs and physicians is important	6
Farrow et al. (2014)	Describe the range of services provided by non-physician WHCPs and explore the collaboration between ob-gyns and WHCPs	Quantitative, descriptive, survey on types of services provided by WHCPs as well as collaboration between Ob-gyns and WHCPs	175 ob-gyns and 179 WHCPs (93 NPs, 69 midwives, 20 PAs)	Over 95% of NPs provided office care, over 88% performed office procedures, and 60% provided hospital care	6
Freed, Dunham, et al. (2010a)	Understand the role and scope of practice of NNPs	Quantitative descriptive, 15 question fixed choice survey with 1 open-ended item focused on practice setting, scope, and career plans	394 NNPs	Over 95% of NNPs worked in NICU and only 2% engaged in independent practice; NNPs over 90% of time perform assessment and diagnosis, as well as develop and manage treatment plans; over 80% of the time they are coordinating care; over 60% of the time NNPs are providing patient education and caring for children with complex chronic illness; over 40% of the time initiate referrals, provide immunizations, manage psychosocial issues, and write prescriptions less than 20% of time is spent performing well-child exams	6

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Freed, Dunham, et al. (2010b)	Understand the role, practice focus, and professional responsibilities of PNPs	Quantitative descriptive, 15 question fixed choice survey with 1 open-ended item focused on practice setting, scope, and career plans	662 PNPs	Majority of PNPs work in primary care and most had no inpatient role; and only 11% of PNPs practice independently; PNPs over 90% of the time perform assessment and diagnosis, develop and manage treatment plans, coordinate care, provide patient education, over 80% of the time initiate referrals, care for children with complex chronic illnesses, manage psychosocial issues, and write prescriptions, and over 60% of time perform well-child exams and provide immunizations	6
Freed, Dunham, Loveland-Cherry, et al. (2010)	Understand the pediatric role, and scope of practice of FNPs caring for pediatric patients	Quantitative descriptive, 16 item survey on practice setting and scope of pediatric practice	626 FNPs	66% of FNPs provided care to children with majority of those working in primary care but pediatric patients were not a large proportion of FNPs patients; FNPs caring for pediatric patients spent over 80% of time providing patient education and assessment and diagnosis; over 70% of time developing and managing treatment plans and writing prescriptions; over 50% of time was spent coordinating care, initiating referrals, performing well-child examinations or providing immunizations; management of psychosocial issues and care of children with complex chronic illness was performed less than 45% of the time	4

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Johnson et al. (2016)	Examine the practice patterns and organizational commitment of inpatient NPs	Quantitative, descriptive tool: "Practice patterns among acute care nurse practitioners"- NPs indicated number of work hours spent each week in direct patient care, indirect patient care, education, research, administration, and personal time; and "Organizational Commitment Questionnaire"- NPs commitment to the work organization; also reported weekly hours spent during off duty time doing indirect patient care, education, research, and administration	183 NPs practicing in an inpatient setting throughout the US; 8 DNPs	Over 65% of inpatient NPs work time is spent on direct patient care activities and over 20% time indirect patient care activities, 5% of time is spent on education or administrative duties, 3% spent on personal time, and 2% on research; 79% of NPs were involved in professional activities after work hours; NPs had moderate commitment to their work organization with significant positive correlation between time NP spends in indirect patient care, education and administrative activities and level of organizational commitment	6
National Certification Corporation (2014a)	Describe the domain of practice, knowledge, skills, and abilities that are essential to WHNP and update the WHNP certification exam	Content validation survey on frequency and essentiality of WHNP core competencies, and specific items under the categories of physical assessment and diagnostic evaluation, primary care health issues, obstetrics and normal prenatal management, pharmacology, skills, and professional practice; and newly certified WHNPs surveyed to see if exam reflected their practice	1664 WHNPs certified by NCC & 92 newly NCC certified WHNPs; 54 DNPs	5% of WHNPs are in independent practice; Over 90% felt core competencies were essential; majority of specific items were considered essential to WHNP practice and majority newly certified WHNPs felt exam reflected practice	5
National Certification Corporation (2014b)	Describe the domain of practice, knowledge, skills, and abilities that are essential to NNPs and update the NNP certification exam	Content validation survey on frequency and essentiality of NNP core competencies, and specific items under the categories of general assessment, general management, disease process, pharmacology, and skills; and newly certified NNPs surveyed to see if exam reflected their practice	608 NNPs certified by NCC & 56 newly NCC certified NNPs; 29 DNPs	Over 90% felt core competencies were essential and frequent; majority of specific items were considered essential to NNP practice and majority newly certified NNPs felt exam reflected practice	5

Ogunfiditimi et al. (2013)	Assess daily responsibility of NPs and PAs by quantifying the time spent on medical and surgical services	Quantitative, time and motion study; every 15 to 30 minutes providers were randomly notified to record their location and activity from a specified list of codes	19 advanced practice providers; 5 inpatient NPs, 8 outpatient NPs, 3 outpatient PAs, and 3 inpatient PAs	Outpatient providers spent over 42% of time on patient visits; over 17% of time was spent on analysis of clinical data and over 15% of time was spent on documentation; 59% of time was spent on revenue generating activities and 38.2% of time on service value activities; inpatient providers spent over 30% of time providing follow up hospitalized patient care, and over 15% of time doing discharge management, or team conferences; over 61% of time was spent in revenue generating activities and over 35% was spent in service value activities	4
Poghosyan et al. (2013)	Investigate NP roles and responsibilities as primary care providers in Massachusetts	Qualitative, descriptive, individual or group interviews guided by questions that focused on their NP practice	23 NPs currently practicing in a primary care setting in Massachusetts; 0 DNPs	Themes emerged were NP responsibilities and roles-what they do in practice, regulatory environment- effect state legislation has on practice abilities, comprehension of NP role- patients and colleagues do not always know the NP role, and work environment- support the NP receives in the office	7
U.S. Department of Health and Human Services (2014)	Provide accurate national estimates of the NP workforce and profile their education, certification, and practice patterns	Survey via mail with 60 questions divided into 4 areas: NP education, licensure, and workforce participation; all nursing employment; NP employment only; and demographics	12,923 NPs completed survey; 217 DNPs	On most patients 75-85% of NPs counsel and educate patients and families; conduct physical examinations and obtain medical histories; prescribe drugs for acute and chronic illness; and order, perform, and interpret diagnostic studies; on most patients 53-68% of NPs diagnose, treat and manage acute and chronic illnesses; provide preventive care; and provide care coordination; 46% of NPs make referrals on most patients; 26% of NPs perform procedures on most patients	7

Weyer et al. (2017)	Direct observation of NPs delivering primary care to patients	Quantitative, tool Davis Observation Code- to characterize clinician patient interaction researcher observed NP-patient interaction and every 15 seconds documented observation based on 20 behaviors; also NP completed Nurse Practitioner Ambulatory Health Care Survey for each patient observed as well as demographic and practice description survey; patients completed survey on overall health, chronic illness resources survey, and patient enablement instrument	22 NPs with 245 patients in outpatient setting; 5 DNPs	Most time during a visit was spent on planning treatment, obtaining history from patient, and providing health education to patient; top nursing diagnoses relevant to the visits were knowledge deficit: disease process, individual coping impairment, and knowledge deficit: medication regimen and these related to three of the top five health education categories: medication action/side effects, disease process, and behavioral/ psychosocial counseling	4

Legend. AGACNP = Adult-Gerontology Acute Care Nurse Practitioner; NP = Nurse Practitioner; ACNP = Acute Care Nurse Practitioner; ANCC = American Nurses Credentialing Center; AGPCNP = Adult Gerontology Primary Care Nurse Practitioner; FNP = Family Nurse Practitioner; PPCNP = Pediatric Primary Care Nurse Practitioner; PMHNP = Psychiatric Mental Health Nurse Practitioner; WHCP = Women's Health Care Provider; Ob-gyn = Obstetrics and Gynecology; PA = Physician Assistant; NNP = Neonatal Nurse Practitioner; NICU = Neonatal Intensive Care Unit; WHNP = Women's Health Nurse Practitioner; NCC = National Certification Corporation

1.3 Results

Description of Sample Studies

Sample sizes in the included studies ranged from 13 to 12,923 participants. Three of the studies also included physicians or physician assistants in their sample (Buerhaus et al., 2015; Farrow et al., 2014; Ogunfiditimi et al., 2013). The NPs practiced in both inpatient and outpatient settings and were certified in one of the six identified population foci: family/individual across the lifespan, adult-gerontology, pediatrics, neonatal, women's health/gender-related, or psych/mental health. The education level of NPs was specified in 12 of the 17 studies (ANCC, 2012, 2015a, 2015b, 2015c, 2015d; Buerhaus et al., 2015; Johnson et al., 2016; National Certification Corporation, 2014a, 2014b; Poghosyan et al., 2013; U.S. Department of Health and Human Services, 2014); DNPs were not well represented, with Weyer et al. (2017) being the only study with over 7% of the sample having a DNP degree. All 17 studies reported that NPs are involved in direct patient care activities, while 11 studies discussed the indirect patient care activities in which NPs are involved (American Nurses Credentialing Center, 2015a, 2015b, 2015c; ANCC, 2012; Buerhaus et al., 2015; Johnson et al., 2016; National Certification Corporation, 2014a, 2014b; Ogunfiditimi et al., 2013; Poghosyan et al., 2013).

Direct patient care. Direct patient care was defined differently in each of the 17 sample studies, but the definitions involved direct interactions by NPs with a patient to provide healthcare services. Through their direct observation study, Weyer et al. (2017) described exactly what NPs were doing in practice. A time and motion study by Ogunfiditimi et al. (2013) had NPs record their daily activities every 15 to 30 minutes. The remaining 15 sample studies were based on providers reporting what they did in practice. For example, Buerhaus et al. (2015) and Johnson et al. (2016) had NPs report the amount of time they spent in direct care activities;

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results ranged from 58% to 66% of their time being spent in direct care activities. Four of the 17 studies (Freed, Dunham, et al. (2010a, 2010b); (Freed, Dunham, Loveland-Cherry, et al., 2010; U.S. Department of Health and Human Services, 2014) had the NPs report how frequently they provided services; Farrow et al. (2014) asked what services were provided by the NPs. The ANCC (2012, 2015a, 2015b, 2015c, 2015d) role delineation surveys asked providers to rate specified items on frequency, essentiality, and consequences which were then combined into a single criticality score. The National Certification Corporation (2014a, 2014b) validation survey items were evaluated by the practitioners for frequency performed and essentiality of activities for practice.

As previously noted, each of the studies defined direct patient care differently. Johnson et al. (2016) considered direct patient care to include: assessing patients, performing history and physical exams, developing treatment plans, performing procedures, educating patients or family members, and monitoring and following up on treatment plans. Results revealed that NPs (N=183) spent 66% of their time engaged in these direct care activities, but the researchers did not break down the times per item (Johnson et al., 2016). Ogunfiditimi et al. (2013) reported that both inpatient and outpatient NPs spent the majority of their time engaged in direct, revenue generating activities, but was not specific about what those activities were. The direct observation study by Weyer et al. (2017) is the only study that actually broke down the time that a NP spends doing different activities during patient visits. Results showed that NPs generally engaged in two behaviors simultaneously and that NPs spend over 38% of their time planning treatment, followed by 34% of their time obtaining a history. The researchers also reported that almost a quarter of a patient's visit time is spent by the NP providing health education, about

20% is spent on health promoting behaviors; conducting physical examinations accounted for about 17% of a visit (Weyer et al., 2017).

Three studies reported the frequency with which NPs engaged in behaviors and reported results similar to Weyer et al. (2017), in that NPs are frequently engaged in assessment and diagnosis (90%, n=1035) as well as in development and management of treatment plans (88%, n=1006) (Freed, Dunham, et al., 2010a, 2010b; Freed, Dunham, Loveland-Cherry, et al., 2010). Patient education was often provided by NPs (85%, n=977), along with writing prescriptions (72%, n=826), initiating referrals (68%, n=774), administering immunizations (64%, n=726), and managing psychosocial issues (59%, n=670) (Freed, Dunham, et al., 2010a, 2010b; Freed, Dunham, Loveland-Cherry, et al., 2010). The 2012 National Sample Survey of NPs reported the frequency with which NPs engaged in activities while providing direct patient care and had similar results to the studies by Weyer et al. (2017) and Freed and colleagues (2010) (U.S. Department of Health and Human Services, 2014). The Farrow et al. (2014) study was more general in regards to women's health care NP (WHNP) activities and reported that 98% (n=87) of WHNPs provided office care, 81% (n=71) performed office procedures, and 57% (n=36) provided hospital care.

The ANCC role delineation surveys (ANCC, 2012, 2015a, 2015b, 2015c, 2015d) and NCC validation surveys (National Certification Corporation, 2014a, 2014b) reported the most specified list of general work activities with most of them comprised of direct patient care activities. Comparing across these surveys, highly critical direct care items were similar to other studies and included: assessing patients, diagnosing acute and chronic conditions, managing episodic and chronic diseases by developing treatment plans, prescribing medications, assuring patient safety/minimizing risk, and referring patients that are beyond scope of practice. Patient

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education was also noted as being critical in all populations, except psychiatric-mental health nursing, which did not list patient education in the work activities.

In the qualitative study by Poghosyan et al. (2013), the NPs discussed providing comprehensive and holistic primary care that included managing episodic and chronic diseases as well as educating patients. The exact time NPs spent doing these activities was not discussed.

Indirect patient care. NP practice goes beyond providing direct patient care to include indirect care activities. The most frequent and time-consuming indirect activity cited was documentation of care (Buerhaus et al., 2015; Ogunfiditimi et al., 2013). According to Buerhaus et al. (2015), other indirect activities in which NPs are engaged in include making patient related phone calls, teaching, participating in continuing education, and conducting research; each activity consumed less than 10% of a NP's time. Ogunfiditimi et al. (2013) reported similar indirect care activities including making telephone consultations, analyzing clinical data, conducting team conferences, and precepting students; these activities combined consumed around 35% of the NP's time. Johnson et al. (2016) considered the following activities to be indirect care: consulting and collaborating with other physicians or RNs, discharge planning, writing orders, utilizing references for patient care, case management, and insurance precertification. The authors also listed continuing education, precepting, and conducting research as separate practice activities, but are included under "indirect activities" in this integrative review. Johnson et al. (2016) also found that NPs spent approximately 35% of their time engaged in all of these indirect patient care activities.

The role delineation and validation surveys had an extensive list of indirect care activities but NPs did not rate many of them as being critical. Maintaining patient privacy and confidentiality was ranked as the most critical of all work activities by family NPs (FNP) and

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adult-gerontology acute care NPs (AGACNP) and ranked as highly critical by adult-gerontology primary care NPs (AGPCNP) and pediatric NPs (PNP); however, it was not included as a work activity on the psychiatric-mental health NP (PMHNPs) survey (ANCC, 2012, 2015a, 2015b, 2015c, 2015d). The only other indirect activities that all NP populations ranked as being critical were reporting suspected abuse and documenting patient care. Other indirect activities ranked as being critical by at least one of the populations were: synthesizing data, advocating for patients, utilizing evidence-based guidelines, billing for services, collaborating with other health care providers, and evaluating clinical practice according to statues, regulations, and professional scope and standards of practice. The NCC surveys, in addition, discussed understanding and applying research to practice as well as awareness and application of legal and ethical principles (National Certification Corporation, 2014a, 2014b).

The NPs that Poghosyan and colleagues (2013) interviewed did not discuss indirect practice activities, but expressed regulatory and work environment issues that hindered their practice. These issues included comments indicating that colleagues and patients "did not have a clear understanding of NP roles and competencies" (Poghosyan et al., 2013, p. 11) and that they (NPs) did not receive the same support or access to resources as physicians did.

1.4 Competency Review

The second focus of this integrative review was to determine alignment between what NPs are doing in practice and the NP core competencies. Table 2 outlines seven different sets of core competencies for all advanced practice nurses. These competencies were located through a web search for "nurse practitioner core competencies" and "advanced practice nurse core competencies" as well as through a review of references from the located competencies.

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Table 2

Nurse Practitioner Core Competencies

Title/Date	Competencies
Core Competencies for Interprofessional Collaborative Practice, (Interprofessional Education Collaborative, 2016)	39 sub-competencies under 4 core areas 1. Values/Ethics for Interprofessional Practice (10 sub-competencies; 1 direct patient care/9 indirect patient care) 2. Roles/Responsibilities (10 sub-competencies; 2 direct patient care/8indirect patient care) 3. Interprofessional Communication (8 sub-competencies; 8 indirect patient care) 4. Teams and Teamwork (11 sub-competencies; 11 indirect patient care)
Common Advanced Practice Registered Nurse Doctoral-Level Competencies, (AACN, 2017)	31 competencies in 8 domains 1. Patient Care (5 competencies; 5 direct patient care) 1. Knowledge of Practice (3 competencies; 3 indirect patient care) 2. Practice-Based Learning & Improvement (4 competencies; 4 indirect patient care) 3. Interpersonal and Communication Skills (3 competencies; 2 direct patient care/1 indirect patient care) 4. Professionalism (6 competencies; 6 indirect patient care) 5. Systems-Based Practice (3 competencies; 3 indirect patient care) 6. Interprofessional Collaboration (4 competencies; 4 indirect patient care) 7. Personal and Professional Development (3 competencies; 3 indirect patient care)
Essential Genetic and Genomic Competencies for Nurses with Graduate Degrees, (Greco, Tinley, & Seibert, 2012)	38 competencies under 7 major headings 1. Risk Assessment and Interpretation (6 competencies; 4 direct patient care/2 indirect patient care) 2. Genetic Education, Counseling, Testing, and Results Interpretation (11 competencies; 11 direct patient care) 3. Clinical Management (5 competencies; 5 direct patient care) 4. Ethical, Legal, and Social Implications (ELSI) (4 competencies; 4 indirect patient care) 5. Professional Role (5 competencies; 5 indirect patient care) 6. Leadership (4 competencies; 4 indirect patient care) 7. Research (3 competencies; 3 indirect patient care)

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Establishing a Culturally Competent Master's and Doctorally Prepared Nursing Workforce, (AACN, 2009)	22 Competencies under 6 Core Cultural competencies 1. Prioritize the social and cultural factors that affect health in designing and delivering care across multiple contexts (2 specific competencies; 2 indirect patient care) 2. Construct socially and empirically derived cultural knowledge of people and populations to guide practice and research (6 specific competencies; 1 direct patient care/5 indirect patient care) 3. Assume leadership in developing, implementing, and evaluating culturally competent nursing and other healthcare services (4 specific competencies; 1 direct patient care/3 indirect patient care) 4. Transform systems to address social justice and health disparities (3 specific competencies; 3 indirect patient care) 5. Provide leadership to educators and members of the healthcare or research team in learning, applying, and evaluating continuous cultural competence development (4 specific competencies; 4 indirect patient care) 6. Conduct culturally competent scholarship that can be utilized in practice (3 specific competencies; 3 indirect patient care)
Graduate-Level QSEN Competencies, (AACN QSEN Education Consortium, 2012)	166 knowledge skills and attitudes (competencies) in the 6 areas of: 1. Quality (10 knowledge, 14 skills, and 16 attitudes; 40 indirect patient care) 2. Safety (8 knowledge, 15 skills, 15 attitudes; 38 indirect patient care) 3. Teamwork and collaboration (13 knowledge, 20 skills, 16 attitudes; 4 direct patient care/45 indirect patient care) 4. Patient-centered care (11 knowledge, 13 skills, 15 attitudes; 8 direct patient care/31 indirect patient care) 5. Evidence-based practice (11 knowledge, 13 skills, 11 attitudes; 35 indirect patient care) 6. Informatics (8 knowledge, 21 skills, 13 attitudes; 42 indirect patient care)
National Organization of Nurse Practitioner Faculties Core Competencies, (NONPF, 2017)	52 Competencies under 8 competency areas 1. Scientific Foundations (4 competencies; 4 indirect patient care) 2. Leadership (7 competencies; 7 indirect patient care) 3. Quality (5 competencies; 5 indirect patient care) 4. Practice Inquiry (6 competencies; 6 indirect patient care) 5. Technology and Information Literacy (5 competencies, 1 direct patient care/4 indirect patient care) 6. Policy (7 competencies; 7 indirect patient care) 7. Health Delivery System (7 competencies, 1 direct patient care/6 indirect patient care) 8. Ethics (3 competencies; 3 indirect patient care) 9. Independent Practice (8 competencies, 6 direct patient care/ 2 indirect patient care)

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The Essentials of Doctoral Education for Advanced Practice Nursing, (AACN, 2006)	38 competencies under 8 foundational Essentials 1. Scientific Underpinnings for Practice (3 competencies; 3 indirect patient care) 2. Organizational and systems leadership for quality improvement and systems thinking (3 competencies; 3 indirect patient care) 3. Clinical Scholarship and analytical methods for evidence-based practice (7 competencies; 7 indirect patient care) 4. Information systems/technology and patient care technology for the improvement and transformation of health care (5 competencies; 5 indirect patient care) 5. Health care policy for advocacy in health care (7 competencies; 7 indirect patient care) 6. Interprofessional collaboration for improving patient population health outcomes (3 competencies; 3 indirect patient care) 7. Clinical prevention and population health for improving the nation's health (3 competencies; 3 indirect patient care) 8. Advanced nursing practice (7 competencies, 4 direct patient care/3 indirect patient care)

Seven documents outlining core competencies for advanced practice nursing were located, totaling 385 competencies published by a variety of organizations. A thematic analysis, utilizing themes derived from the integrative literature review, was conducted of the NP core competencies in order to determine which competencies reflect direct patient care activities and which reflect indirect care activities. It was found that the majority of the *DNP essentials (AACN, 2006)*, NONPF NP core competencies (NONPF, 2017), and common APRN doctoral-level competencies (AACN, 2017) focus on practice at an organizational or population level rather than at an individual level since, as previously stated, these organizations support entry to NP practice being at the DNP level and have written their competencies at this level. Only 16 of the 121 competencies within these three documents reflect the direct patient care items discussed in the sample studies. The Quality and Safety Education for Nurses (QSEN) competencies focus on assuring advanced practice nurses can be leaders in health care and provide "high quality, safe, effective, and patient centered-care" (AACN QSEN Education Consortium, 2012, p. 2), regardless of whether APRNs receive a master's or doctoral degree. Twelve of the 166

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competencies from QSEN reflect direct patient care. Competencies on genetics reflect the growing knowledge on the impact that genetics have on health care and the need for any graduate level nurse to "translate genetic and genomic advances into effective health care" (Greco et al., 2012, p. 9), regardless of education level or practice setting. The genetics competencies reflected the highest number of direct patient care activities among all competency sets, with 20 of the 38 competencies indicating direct patient care. The IPEC competencies reflect the importance of team-based care and collaboration between healthcare disciplines to assure patients receive quality care (Interprofessional Education Collaborative, 2016), with three of the 39 competencies reflecting direct patient care. Cultural competencies are also an integral part of providing care for diverse populations (AACN, 2009), although only two of the 22 competencies reflect direct patient care.

1.5 Discussion

The purpose of this integrative literature review was twofold: to determine the critical elements of NP practice and determine the extent to which the reported NP practice activities align with core competencies. NPs were primarily engaged in direct care activities but had indirect care responsibilities as well.

The results revealed that NPs spent their time assessing patients by obtaining histories and performing physical exams, then using the data gathered to determine issues and develop a management plan. Educating patients and families was also an important part of NP practice. Another integral component was incorporating a nursing focus by providing holistic care to patients. These findings aligned with the scope and standards of practice for NPs, which are also key documents for NPs (AANP, 2013, 2015).

Indirect responsibilities included documentation, care coordination, advocacy activities, and continuing education. NPs also utilized evidence-based guidelines and analyzed their practice to assure it aligned with national standards. Although these indirect activities may not be performed as frequently in practice, and are different than the indirect activities reflected in the competencies, they are still an important part of the role and need to be recognized as such.

The core NP and advanced practice nurse competencies weakly reflected what NPs were stating they did in practice, as only 53 of the 385 (14%) competencies reflected direct patient care activities. This literature review revealed that a majority of the NP's time was spent in direct care activities and many of these core competencies reflected indirect care activities that were different from the indirect care activities found in the studies. While these indirect care activities may be important to the development of NPs in order to provide direct patient care, these activities are not well reflected in what NPs do in day-to-day practice. Also, the competencies may not have aligned well because only a small percentage of NPs in the 17 sample studies were DNPs; many of the competencies have been written at the DNP level, which focuses more on population health and quality initiatives.

Implications for Practice, Policy and Research

Although NP education has been moving toward CBE, it is critical that the NP core competencies are relevant, measurable, and reflective of the current state of healthcare. With the current momentum by AACN and NONPF to move entry-level education for NPs to the DNP, now is the time to refine the NP core competencies to assure they reflect practice. NP programs are accredited and reflective of the current NP core competencies, but if the competencies do not represent actual NP practice, then the education may not meet the work force needs. NP programs need to prepare graduate students who are competent to provide

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independent patient care within the settings in which they have been trained in order to assist in alleviating the healthcare provider shortage. Sargent and Olmedo (2013) found that new NPs in a primary care setting were challenged by complex patients with 70% of the NPs feeling "somewhat uncomfortable in the NP role, and 55% somewhat prepared" (p. 605). Hart and Bowen (2016) conducted a cross-sectional descriptive study of 698 recent NP graduates across the US regarding their perceptions of being adequately prepared to care for patients upon graduation; only 42.2% felt very well or generally well prepared for practice. The first step towards assuring NPs are competent and feel prepared for practice is having a succinct and refined list of core competencies reflective of current NP practice.

While NPs are prepared for a variety of different population foci, all NPs need to possess a core set of knowledge, skills, and attitudes. These core competencies need to reflect what all NPs, regardless of their population foci, are doing in practice. This integrative review revealed that all NPs need to be able to provide direct patient care, although it is unclear what specific competencies are needed for NPs to provide direct patient care. Next steps include, research aimed at understanding the core competencies necessary for NPs to be able to provide safe and quality direct patient care is needed. It will also be necessary to refine the NP core competencies to reflect daily NP practice activities.

Limitations

There are some limitations in this integrative review. All of the studies utilized were descriptive with many relying on NP self-reflections or recall of activities through surveys. Only eight studies (ANCC, 2012, 2015a, 2015b, 2015c, 2015d; Johnson et al., 2016; U.S. Department of Health and Human Services, 2014; Weyer et al., 2017) reported using reliable and valid tools. It was also unclear in six of the studies (Buerhaus et al., 2015; Farrow et al., 2014; Freed,

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Dunham, et al., 2010a, 2010b; Freed, Dunham, Loveland-Cherry, et al., 2010; Ogunfiditimi et al., 2013) if the sample sizes were adequate and representative of the population. Level of education was only identified in 12 studies (ANCC, 2012, 2015a, 2015b, 2015c, 2015d; Buerhaus et al., 2015; Johnson et al., 2016; National Certification Corporation, 2014a, 2014b; Poghosyan et al., 2013; U.S. Department of Health and Human Services, 2014; Weyer et al., 2017) and in those studies, DNPs comprised less than 7% of the sample, except in the study by Weyer et al. (2017) which had 23% DNPs. This lack of DNPs in the studies could impact the alignment of practice activities and the competencies, since many competencies have been written at the DNP level. Finally, the search terms utilized in this review may have failed to capture all the relevant literature. While an effort was made to locate non-formally published gray literature, all relevant sources may not have been found.

Conclusions

NP practice activities are mainly related to providing direct patient care. NPs need to be prepared to be able to provide independent, quality patient care.   The current NP core competencies weakly reflect day-to-day general NP practice as only 14% of the competencies are direct patient care related however, this integrative review indicates that NPs spend a majority of their time engaged in direct patient care activities. As NP education shifts to CBE and moves toward the DNP as entry-level to practice, it is critical to establish NP core competencies that support the major activities of day to day practice which is that of direct patient care.

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NURSE PRACTITIONER CORE COMPETENCIES: A DELPHI APPROACH

2.1 Specific Aims

In today's health care arena there is an impending shortage of primary care providers (PCPs) (Pauly, Naylor, & Weiner, 2014). Nurse practitioners (NPs) can be one solution to remedy that shortage, but change needs to occur in the educational preparation of NPs (Institute of Medicine, 2011). NPs are currently prepared at both the master's and doctoral levels in one of six population foci. Since the early 2000s, both the National Organization of Nurse Practitioner Faculties (NONPF) and American Association of Colleges of Nursing (AACN) have endorsed the Doctor of Nursing Practice (DNP) degree as entry to NP practice (AACN, 2004; NONPF, 2015) and NONPF recently reinforced this with a statement "to move all entry-level NP education to the DNP degree by 2025" (NONPF, 2018b, p. para. 1). It is imperative that NP programs prepare students who are competent to provide safe, quality, and independent patient care for the population foci in which they have been trained.

Competency-based education (CBE) is an educational framework that has been recommended in nursing education (Giddens et al., 2014; Sroczynski & Dunphy, 2012) and has been reported in other disciplines such as medicine and education. CBE focuses on assuring that students attain specific proficiencies at various times during the education trajectory. Several prerequisites are needed prior to implementing CBE in NP education. First, selected competencies need to be defined. Although the term "competency" has been defined in a variety of ways, they all incorporate the learners' abilities to perform or apply their knowledge (Benner, 1982; Chapman, 1999; Fan, Wang, Chao, Jane, & Hsu, 2015; Nolan, 1998). Second, CBE requires a well-defined set of competencies that are measurable and reflective of what NPs need

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to know to enter practice as a new provider. Currently, NONPF and AACN have each individually defined specific NP competencies written at the DNP level; these competencies reflect the knowledge and skills that all NPs, regardless of their level of education or population foci, should have and are considered "core competencies". An integrative literature review determined the critical elements of general NP practice, what all NPs regardless of population foci need to know, then verified if that aligned with the core competencies for NPs (Chan, Lockhart, Thomas, Kronk, & Schreiber, 2018). Findings revealed that NPs spent a majority of their time in direct patient care activities and that only 14% of core NP competencies are direct care activities, as many reflect DNP level indirect care activities (Chan et al., 2018).

Therefore, the purpose of this study is to refine and reduce redundancy in the NONPF and AACN NP core competencies through the consensus of experts on NP practice. This goal will be accomplished through a descriptive study utilizing a Delphi technique to examine the competencies that all DNP prepared NP students, regardless of their population of focus, need to achieve by the completion of their NP education. The Delphi technique utilizes a questionnaire in an iterative multistage process to determine expert group consensus (Hasson, Keeney, & McKenna, 2000). A panel of experts will refine and reduce the number of core competencies by completing rounds of questionnaires until consensus is reached.

Aim 1: To identify relevant core competencies that are vital for entry into NP practice as a DNP based on expert NP clinician input.

Aim 2: To assure that the relevant core competencies are clear and measurable.

This study has the potential to impact the care that patients receive from NPs nationwide. NPs need to be prepared to provide safe, quality, and independent patient care in order to alleviate the primary care shortage. In order to accomplish this goal, the core competencies that

NPs need to possess must be refined and align with what NPs are doing in practice. NP education needs to focus on a manageable, realistic, and agreed upon set of core competencies. To accomplish this goal, it is imperative that the number of existing core competencies for NPs be reduced, reflect day-to-day general NP practice, and are measurable.

2.2 Significance

Overview

Refining the NP competencies and moving toward CBE in NP education may assist in allowing NPs to practice to the full extent of their education since NP competence will be assured thus assisting to relieve the impending healthcare workforce shortage.

Healthcare workforce shortage in primary care. The demand for health care providers, particularly PCPs, is rising as the population grows, ages and more Americans receive health insurance (Pauly et al., 2014). Unfortunately, these demands are challenged as the supply of primary care physicians is dwindling. According to predications made by the U.S. Health Resources and Service Administration (HRSA), by 2020, a shortage of 20,400 primary care physicians (U.S. Department of Health and Human Services, 2013) will exist; other projections (Auerbach et al. (2013) estimate an even greater shortage of 45,000 primary care physicians in 2025. In order to meet the higher demand for PCPs, healthcare systems need to change to allow NPs to "practice to full extent of their education and training" as recommended by the Institute of Medicine (2011, p. 4) and a recent study published by Buerhaus (2018).

NPs part of solution. Nurse practitioners are a potential answer to this shortage of PCPs. The number of NPs in primary care practice will grow by 85% between 2010 and 2025 where the growth in primary care physicians for the same time frame will be 3% and physician assistants (PAs) will be 37% (Auerbach et al., 2013). Utilizing NPs and PAs as PCPs has the

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potential to decrease the shortage to only 6,400 PCPs (U.S. Department of Health and Human Services, 2013). The Institute of Medicine (IOM) report, *Future of Nursing: Leading Change, Advancing Health,* also calls upon NPs to fill this gap in primary care, but states that reform in and further research on NP education is needed (IOM, 2011). NP education programs need to defend that their graduates are competent and able to practice to the full extent of their education. Implementation of CBE can allow this to occur.

Nurse Practitioner Education

NPs complete graduate education and training at either a master's or doctoral level (DNP) within one of six identified population foci (family/individual across the lifespan, adult-gerontology, pediatrics, neonatal, women's health/gender-related, or psych/mental health), which qualifies them to sit for national certification (AANP, 2013). Since 2002, NONPF has endorsed the DNP degree as entry to NP practice and has recently called for this to occur by 2025 (NONPF, 2015, 2018b). In 2004, AACN released a statement supporting the move to the DNP as the education degree needed for entry into practice as a NP (American Association of Colleges of Nursing, 2004). According to American Association of Nurse Practitioners (2013) the majority of currently accredited NP programs are at the master's level. However, there has been a steady increase in the number of DNP programs; currently there are 303 DNP programs available nationwide, 187 are BSN-DNP, with at least an additional 124 DNP programs in the planning stages (AACN, 2017b). The current requirement for national certification as an NP through the AANP – Certifying Board is that graduates need to have completed an accredited NP program at the masters or doctoral level, with a minimum of 500 hours of supervised clinical practice and pass a written certification exam (AANP, 2015). While these requirements are expected to assure that the applicant is competent, past research does not support that earning

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certification equates to clinical competency (Hallas, Biesecker, Brennan, Newland, & Haber, 2012; Whittaker, Carson, & Smolenski, 2000). Upon receiving national certification, NPs transition into their role as an independent provider. While numerous NP competencies have been published since the 1990s, most NP programs incorporate them into traditional time-based knowledge acquisition higher education models, rather than solely assuring achievement of the competencies using a CBE approach (NONPF, 2013).

Competency Based Education

Competency based education is an educational framework that has been recommended by various leaders within nursing and healthcare (Giddens et al., 2014; Institute of Medicine, 2011; Lucey, 2017; Sroczynski & Dunphy, 2012). It focuses on assuring that students attain specific proficiencies before moving on to new information and is not based on a set time frame. Competency based education has been defined as "a data-based, adaptive, performance-oriented set of integrated processes that facilitate, measure, record and certify within the context of flexible time parameters the demonstration of known, explicitly stated, and agreed upon learning outcomes that reflect successful functioning in life roles" (Spady, 1977, p. 10).

Implementation of CBE requires an agreed upon definition of competency. Within the nursing profession, competency has been defined in a variety of ways, although they all incorporate learners' abilities to perform or apply their knowledge (Benner, 1982; Chapman, 1999; Fan et al., 2015; Nolan, 1998). The AACN recently adopted definitions of "competency" and "competence" based on work by Frank et al. (2010). *Competency* is defined as "an observable ability of a health professional, integrating multiple components such as knowledge, skills, and attitudes. Since competencies are observable, they can be measured and assessed to ensure acquisition" (AACN, 2017a, p. 2). *Competence* is defined as "The array of abilities

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(knowledge, skills and attitudes) across multiple domains or aspects of performance in a certain context. Competence is multi-dimensional and dynamic. It changes with time, experience, and settings" (AACN, 2017a, p. 2).

Physical therapy, pharmacy and medicine have more routinely implemented CBE in their programs compared to nursing. In fact, physical therapy was one of the first health care professions to implement CBE. In 1992, they implemented the Clinical Performance Instrument, a valid tool used to measure students' attainment of necessary competencies; the tool is utilized by a majority of PT programs throughout the U.S. and Canada (Roach et al., 2012). In addition, the American College of Clinical Pharmacy (ACCP) has well-defined and accepted competencies for their graduates that assure they are ready to enter into pharmacy practice (Saseen et al., 2017). Finally, medical education research within the U.S. is ongoing regarding CBE with a defined set of competencies having been developed and accepted for general physicians (Englander et al., 2013). At least two U.S. medical schools, the University of Minnesota Medical School and Brown University School of Medicine, have successfully implemented CBE (Andrews et al., 2018; Carraccio, Wolfsthat, Englander, Ferentz, & Martin, 2002; Lucey, 2017).

In order for these health professions to implement CBE, they had to develop a well-defined set of measurable and attainable competencies. The Association of American Medical Colleges has 58 competencies in eight domains for general physician competencies (Englander et al., 2013). The ACCP has six essential domains which encompass 31 competencies that clinical pharmacists need to obtain (Saseen et al., 2017). Each of these professional organizations has evaluated the literature and the practice of their discipline to reach well-defined appropriate and measurable competencies. It is timely for nursing to do the same for NPs.

Nurse Practitioner Competencies

Several health-related organizations including NONPF, AACN, Interprofessional Education Collaborative (IPEC), American Nurses Association (ANA), and International Society of Nurses in Genetics (ISONG) have collectively defined 354 specific competencies for all advanced practice registered nurses (APRNs) which includes NPs and refer to them as "core competencies." These core competencies reflect the knowledge and skills that all NPs should have and are considered the "gold standard" (Crabtree, Stanley, Werner, & Schmid, 2002).

Recently, the AACN convened a work group representing the four APRN roles [NP, clinical nurse specialist, certified nurse midwife, and certified registered nurse anesthetist] to develop "a common taxonomy for competencies for the doctoral-prepared APRN" (AACN, 2017a, p. 1). As previously noted, AACN supports the movement of APRN education to the doctoral level via the DNP degree. Ultimately, the group adopted Englander et al. (2013) *Common Taxonomy for Competency Domains in the Health Professions* (AACN, 2017a). The eight domains include: patient care; knowledge for practice; practice based learning and improvement; interpersonal and communication skills; professionalism; systems-based practice; interprofessional collaboration; and personal and professional development (Englander et al., 2013). This group also developed yet another list of 31 competencies within these eight domains that are to be applicable to all four of the APRN roles (AACN, 2017a). It is recognized by AACN that each of the APRN roles now need to further this work in order to move towards CBE.

Based on this AACN work, NPs need to refine their core competencies. While no defined number of competencies exist for a profession, the National Task Force on Quality Nurse Practitioner Education (2016) states that the NP curriculum needs to reflect nationally

recognized core competencies that include the NONPF *NP Core Competencies (NONPF, 2017)* and the AACN *Essentials of Doctoral Education for Advanced Nursing Practice (AACN, 2006)*. Since overlaps exist among the different competencies, redundancies need to be lessened and it is imperative that the core NP competencies are relevant, degree to which it is necessary for a new NP, and reflect the current state of healthcare. An integrative review evaluating the current core competencies in relation to NP practice activities found that there is weak alignment between the two (Chan et al., 2018).   It was found that NPs spend a majority of their time in direct patient care, but 86% of the core competencies reflect indirect care activities (Chan et al., 2018). Competencies should reflect the needs of the work force (Hallas et al., 2012; Voorhees, 2001). The IOM "supports the development of a unified set of core competencies across [each level of] the nursing profession and believes it would help provide direction for standards across nursing education" (IOM, 2011, p. 201).

2.3 Proposed Study

The proposed study will refine and reduce redundancy in the NP core competencies. It will utilize the current NONPF (2017) *NP Core Competencies,* the AACN (2006) *Essentials of Doctoral Education for Advanced Nursing Practice,* and the AACN (2017a) *Common Advanced Practice Registered Nurse Doctoral-Level Competencies* (Appendix A) as a basis since these are the competencies accredited NP programs utilize in curriculum development. It will assure the NP core competencies are relevant. The secondary aim is to assure the competencies are clear and measurable.

Theoretical framework

Lenburg's Competency Outcomes and Performance Assessment (COPA) model will be used as an overarching framework for this study (Lenburg, 1999). The COPA model states:

"The basic organizing framework for the COPA Model is simple but comprehensive. It requires the faculty, and/or others responsible for program (or course) development, to analyze and respond realistically and collaboratively to four essential questions: 1. What are the essential competencies and outcomes for contemporary practice? 2. What are the indicators that define those competencies? 3. What are the most effective ways to learn those competencies? And, 4. What are the most effective ways to document that learners and/or practitioners have achieved the required competencies?" (Lenburg, 1999, p. 2).

This proposed research will answer the first question by determining the competencies essential for NP practice. Through the utilization of an expert panel of NPs, a list of relevant, measurable and clear core NP competencies will be devised. The COPA model directs those experts who develop competencies to reflect on what competence is expected at different points in a curriculum (Lenburg, 1999). Lenburg states that competency statements need to be:

"worded as a learner-oriented, essential competence (psychomotor, cognitive, and/or affective) to be achieved by the end of the learning period…clear, specific, unadorned, and concise language readily understood by the learner and teacher, and is measurable… consistent with standards, practice, and real world expectations for performance…contributes to the cluster of abilities needed by the student (graduate) to fulfill the expected overall performance outcomes" (Lenburg, 1999, p. 6)

Although only the first question will guide this research, the other three questions can guide future research. Utilizing the COPA model will guide the researcher regarding how to develop relevant and clear NP core competencies that are measurable.

Delphi design

The proposed design is a descriptive approach utilizing a Delphi technique, which will be explained in more detail in the methods section, to examine the competencies that NP students need to achieve by the completion of their NP education. The Delphi technique utilizes a survey to determine expert group consensus through an iterative multistage process (Hasson et al., 2000). The Delphi technique is appropriate for this study as the aim is to reach consensus on the vital core competencies for entry into NP practice. An expert panel, composed of a variety of healthcare professionals familiar with NP practice, will be utilized to assure the list of NP competencies is relevant, comprehensive, clear and reflective of both NP practice and the current health care system. The expert panel will complete the first on-line questionnaire (Appendix B) by ranking the NONPF (2017) *NP Core Competencies*, the AACN (2006) *Essentials of Doctoral Education for Advanced Nursing Practice,* and the AACN (2017a) *Common Advanced Practice Registered Nurse Doctoral-Level Competencies* based on their relevance; the Principal Investigator (PI) will analyze the results. Based on that analysis, a second questionnaire will be developed from competencies that were considered relevant, based on consensus, in the first round. The panel will receive feedback from the first round along with the second questionnaire asking them to rank the competencies again on their relevance as well as their clarity and measurability. The process of analyzing results (PI) and completing questionnaires (expert panel) will continue until consensus is reached. Generally consensus is reached within three rounds (Crisp, Pelletier, Duffield, Adams, & Nagy, 1997; Day & Bobeva, 2005; Hasson et al., 2000; Keeney, Hasson, & McKenna, 2006; Skulmoski, Hartman, & Krahn, 2007).

Impact on Nurse Practitioner Education and Practice

According to American Academy of Nurse Practitioners (N.D.) "NPs make up the most rapidly growing component of the primary care workforce" (p. 1). The growth in NP graduates has been steadily increasing with the majority trained in primary care areas (American Academy of Nurse Practitioners, N.D.). NP programs need to assure that new graduates are adequately prepared and able to transition into practice as an independent healthcare provider. A solution to assuring NP readiness for practice may be moving to CBE. In order to implement CBE the NP core competencies need to be reduced in number, validated by experts, and measurable. Other healthcare professions are successfully implementing CBE, and NP education has been called to do the same (IOM, 2011; Lucey, 2017).

2.4 Innovation

The proposed study is innovative for the following reasons. First, the Delphi approach that this study will utilize will take into account a variety of expert opinions on NP practice. Experts utilized in this study will be NPs with varying levels of DNP experience. This will assure that the competencies are appropriate and relevant to the current health care system and NP practice.

Second, this study will move NP education closer to being able to fully implement CBE. In order to truly implement CBE, NP education needs to start with well-defined and measurable competencies. CBE is the future for education in health care professions (IOM, 2011; Lucey, 2017). It is imperative that nursing, and in particular NP education, get on board with this movement. AACN began moving APRN education towards CBE by adopting definitions for "competency" and "competence" as well as creating "competency domains." NP education needs to continue this momentum. Physical therapy, medicine and pharmacy have already

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developed specific and measurable competencies utilized by their academic programs. The Institute of Medicine (IOM) report *Future of Nursing: Leading Change, Advancing Health* advises nursing to define their core competencies and implement CBE (IOM, 2011).

Third, this study will assure that the NP competencies reflect current and general DNP practice. Competencies need to reflect the expectations of the workforce in order for CBE to be effective in preparing NPs who can fill the gap in primary care (Hallas et al., 2012). Utilizing an expert panel familiar with DNP practice will assure that the competencies reflect the daily activities of a NP. These competencies are meant to reflect the core knowledge that all NPs educated as a DNP need to possess; population specific competencies will need to be refined at a later time.

2.5 Approach

Research Design

A Delphi approach will be used to research NP competencies. The Delphi technique is a research method that gathers group opinion in order to reach consensus on a topic through a series of questionnaires that build on each other (Goodman, 1987; Hasson et al., 2000). The Rand Corporation first developed it in the 1950s as a forecasting technique as well as to improve group decision-making (Crisp et al., 1997; Goodman, 1987; Hasson et al., 2000; Skulmoski et al., 2007). The Delphi method was developed to allow discussion and judgment on a topic without interpersonal interaction which can create bias and conflict (Goodman, 1987; Grisham, 2008). Since that time the approach has been published as a research method in many disciplines including health care, business, education, and engineering. (Habibi, Sarafrazi, & Izadyar, 2014; Keeney et al., 2006; McKenna, 1994; Skulmoski et al., 2007). The Delphi approach has been

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chosen for this proposed study, as the desire is to collect a group of experts' opinions in order to make a decision.

Core procedure for Delphi. An overview of the Delphi approach is outlined in **Figure 1.** The first step in the Delphi process is to develop the research question (Skulmoski et al., 2007). The research questions proposed include: "What are the core competencies necessary for entry into independent NP practice as a DNP?" and "Are the necessary competencies clear and measurable?" Next, the research sample participant list is developed. The list is not a random sample, but rather selective, utilizing perceived experts in the field; the experts are referred to as "participants" or the "expert panel". Then the round 1 survey is designed with either open-ended questions to collect qualitative data or a pre-developed list of items to which the participants react; this study will utilize a pre-developed list of NP core competencies, see Appendix B. The developed questionnaire will be piloted with a small group of individuals to receive feedback on the survey and assure that there are no issues with the technology or participants understanding of the instructions. Once pilot testing is completed and any issues are resolved, the revised and final round 1 questionnaire will be distributed to the participants for completion. The researcher will than analyze the responses utilizing content analysis for qualitative data and descriptive statistics for quantitative data. The round 2 questionnaire will then be developed based on round 1 analysis. Participants will receive the round 2 questionnaire along with the analytical results and their responses from round 1. While completing the round 2 questionnaire participants will be able to reconsider their responses from round 1. This process of data analysis and questionnaire distribution continues until pre-defined consensus is reached and then results are disseminated. Typically a Delphi study is completed in three rounds (de Meyrick, 2003; Powell, 2003; Skulmoski et al., 2007).
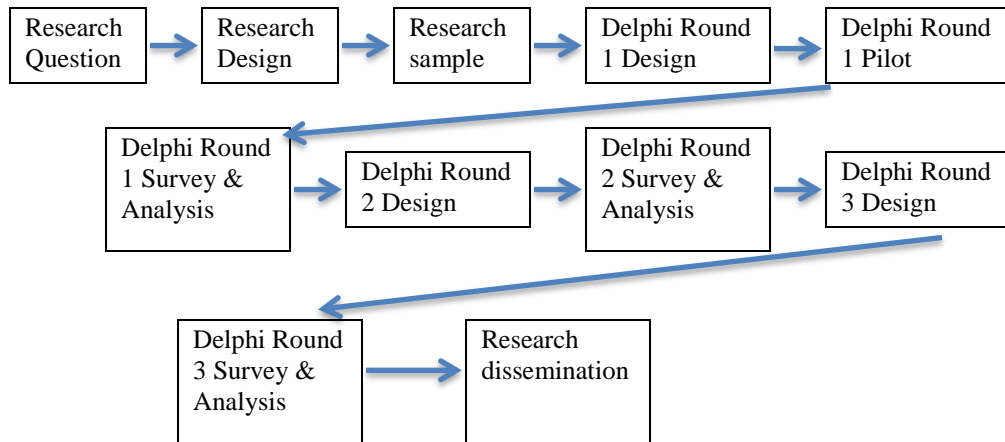
Figure 1. Typical Delphi Approach. Adopted from "The Delphi Method for Graduate Research" by G. Skulmoski, F. Hartman, and J. Krahn, 2007, *Journal of Information Technology Education, 6,* p. 3. Copyright 2007 by the Informing Science Institute.

The core components of a Delphi technique are anonymity, expert input, iteration with controlled feedback, and reaching consensus (Goodman, 1987; Habibi et al., 2014; Keeney, Hasson, & McKenna, 2001; McKenna, 1994; Skulmoski et al., 2007).

Anonymity. An individual participant's questionnaire answers are anonymous to other respondents to prevent persuasion by more influential panel members (Day & Bobeva, 2005; Keeney et al., 2001; Skulmoski et al., 2007). Also, participants are not known to each other, therefore protecting anonymity. The Delphi was developed to prevent the bias and influence that can occur in group decision making when individuals are face-to-face or are known to each other. Since the researcher, however, does know the panel members' responses, the process is not completely anonymous; thus, McKenna (1994) uses the term 'quasi-anonymity'.

Expert input. A Delphi study utilizes individuals who are considered to have expertise in the subject area, have motivation to engage in the process, and can communicate effectively (Day &

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Bobeva, 2005; Goodman, 1987; Keeney et al., 2001, 2006; Skulmoski et al., 2007). Experts are selected for the purpose of applying their knowledge to the research area, and their expertise contributes to the validity of the results (Goodman, 1987; Habibi et al., 2014). Criteria for what constitutes an expert needs to be decided early in the research process and is dependent on the research topic (Hasson et al., 2000). For this study, the core criteria for an expert will be that they are a DNP or DNP educator from throughout the U.S. with varying levels of experience and fluent in English language. There is no accurate means for determining the size of an expert panel, and studies range from fewer than 10 to greater than 100 experts on a panel (Habibi et al., 2014; Hasson et al., 2000).

Iteration with controlled feedback. This Delphi component involves sending out questionnaires multiple times, termed "rounds," to the same group until consensus is reached. After each round, the researcher evaluates the responses, writes a summary, and then refines the questionnaire. The next round commences when the researcher sends out the refined questionnaire and previous round summary that includes overall median ratings for each item along with that individual respondent's prior round responses (Goodman, 1987). Expert panelists are given the opportunity to reconsider their responses and change them if they wish, based on other panelists' responses (Crisp et al., 1997; Skulmoski et al., 2007). While the number of rounds that occur varies and is based on achieving consensus, in general, three rounds are the norm (Crisp et al., 1997; Day & Bobeva, 2005; Hasson et al., 2000; Keeney et al., 2006; Skulmoski et al., 2007)

Consensus. Prior to initiating data collection, a decision also must be made on what constitutes "consensus" (McKenna, 1994). Establishing the percentage of agreement on questionnaire items can determine which are retained and discarded each round (Day & Bobeva,

2005; Keeney et al., 2006). Establishing consensus prior to data analysis contributes to the

credibility of the study (Hasson et al., 2000; Keeney et al., 2006). Additional suggested

approaches are to base decisions on confidence intervals (Keeney et al., 2006), Kendall's

coefficient of concordance (Habibi et al., 2014) or central tendencies and distribution (Day &

Bobeva, 2005; Hasson et al., 2000). In this study, consensus will be determined by median

values and interquartile deviation for each item.

Setting

The Delphi utilizes a group of individuals who have knowledge of the topic and generally are

referred to as experts (Hasson et al., 2000; Keeney et al., 2001). In a Delphi study, an expert is

considered an individual "perceived to have expertise in the subject matter" (Keeney et al., 2006,

p. 208). The experts will complete this Delphi electronically, utilizing Qualtrics software, in

their own environment.

Sampling Process

In a Delphi technique, the researcher selects a panel of individuals who are considered

experts rather than randomly selecting participants. This study will utilize a panel of experts on

NP practice who are dispersed throughout the U.S. These individuals will be recruited with the

anticipated help of the NONPF, the "leading organization for NP faculty" representing over 90%

of U.S. NP programs (NONPF, 2018a). Once IRB approval is obtained for the research the

NONPF board will need to review the request and approve it (L. Finnegan, personal

communication, April 24, 2018). Inclusion criteria for the panel includes: 1) employed in the

U.S.; 2) able to read and write in English; and either 3) faculty with a minimum of three years of

experience in a BSN-DNP program; 4) actively practicing NP clinician educated as a BSN-DNP

with a minimum of five years of experience; or 5) recent BSN-DNP program graduate whom has

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been employed as a NP full-time for 6-18 months. While utilizing a panel with a variety of viewpoints can increase study validity and credibility (Day & Bobeva, 2005; Habibi et al., 2014), it can also make it more difficult to achieve consensus (Skulmoski et al., 2007).

Through email communication from the PI, NONPF board and curricular committee members (over 40 individuals) will be asked to nominate one or two people who fit into each of the 3 panel groups and meet other inclusion criteria by providing a name with credentials, geographical location and contact information (phone number and email) (see appendix C). Individuals can also self-nominate. These nominators will be familiar with BSN-DNP programs and those educated in them. If necessary, a secondary mechanism to obtain panel members will be employed by accessing a list of BSN-DNP program directors through the AACN and National League of Nursing (NLN) websites and contacting them for nominations. Using the list of nominees, the PI will eliminate duplicates; if there are more than twenty nominees per category, then selection will be done based on geographical location to assure representation throughout the US. The goal will be to have 10 to 15 panelists within each category for a total number of 30-45 panel experts, with initial panel (round 1) being on the larger side due to possible attrition. A Delphi study does not have criteria for the number of experts that should be on the panel, and although ideal each category does not have to have equal representation (Habibi et al., 2014; Keeney et al., 2001).

Recruitment

Those experts who are chosen from the nominations will be called by the PI who will follow-up with a letter via e-mail (see appendix D) explaining the study and inviting them to participate. The Delphi process will be explained including time commitment and the importance of engagement in multiple rounds of questionnaires. It will be important for the

participants to remain engaged throughout the study to increase its validity (Hasson et al., 2000). According to Keeney et al. (2006), assuring participants "realize and feel that they are partners in the study and are interested in the topic" (p.207) can help to enhance the response rates.

Nominees will be asked to electronically respond their willingness to participate and confirm they meet the inclusion criteria (employed within the U.S. and able to read and write in English) and fit into one of the 3 groups (new BSN-DNP graduate who has been employed full-time as an NP for 6-18 months; BSN-DNP faculty with a minimum of three years' experience; or actively practicing NP clinician educated as a BSN-DNP with at least five years of experience as a DNP). Those who decline participation will be replaced with another nominee in that category from the list of nominees based on geographical location. Panel recruitment will continue until either the goal categorical panel size is reached, a minimum of 10 experts per category, or the list of nominees is depleted. Recruitment will end at one month to respect the committed panelists' time since questionnaires cannot begin until the full expert panel is in place.

Variables/Instruments

Socio-demographic data will be collected (see Appendix E) from the expert panel, including gender; age; years in practice as a provider; educational level; area in which they are prepared such as primary care, acute care, family, pediatrics, psychiatry; current practice area; state in which they practice. The variables that are being evaluated are the NP core competencies for relevance, clarity, and measurability. The instruments are researcher-devised questionnaires that will be developed based on the NP core competencies with a focus on evaluation to gain consensus.

At the current time, 139 different competencies in three documents are all considered to be NP core competencies and necessary components of curriculum development for accredited NP

programs (see Appendix A). These documents include: *NONPF Core Competencies* (NONPF, 2017)*, The Essentials of Doctoral Education for Advanced Practice Nursing* (AACN, 2006), and *Common APRN Doctoral-Level Competencies* (AACN, 2017a).

The first round questionnaire (Appendix B) will present the competencies in random order rather than by the organization that released them. Pilot-testing of the first questionnaire will be done with a minimum of three NPs who are familiar with the competencies; they will be asked to provide feedback on usability and content as well as the time it takes to complete the survey. The questionnaire will be amended based on pilot study feedback. While the time commitment for questionnaire completion will vary for each individual, in a Delphi, participants should not over think the questions but rather go with their "gut reaction." Therefore, it is anticipated that participants will spend approximately 15 seconds per competency or 30 minutes on the first round.

In the first round, the experts will be asked to rate the competencies for relevancy on a Likert scale ranging from 1- 4 with 1=strongly disagree and 4=strongly agree with no neutral point. Relevancy is defined as the degree to which the competency is necessary for a new NP educated as a DNP.   There will also be an option to add comments or additional recommended competencies.

The first round will be analyzed by the PI and a second questionnaire will be developed based on the analysis. Competencies will be included on the second round questionnaire if the median ranking for relevancy is 3 or above which indicates agreement and if the interquartile deviation is 1 which indicates good consensus (De Vet, Brug, De Nooijer, Dijkstra, & De Vries, 2005). Competencies will also be included on the second round if the interquartile deviation is greater than 1 regardless of the median ranking. In the second round and beyond, the panel will

be asked to again rate the competencies by relevancy but also by clarity and measurability, again utilizing the 1-4 Likert scale. Clarity is defined as the competency being clear and free from ambiguity, and measurability is defined as being able to objectively measure the competency. The option to add comments will continue with additional instructions asking the participant, in the event that a competency is marked as relevant but not measurable or clear, to offer suggestions for change. In round 2 and beyond, the participants will receive personalized results from the previous round that include their individual rating as well as the overall median rating for each competency. Panelists are able to reconsider their responses, and change them if they wish. The third round questionnaire will include competencies that have not reached an interquartile deviation of 1 for relevancy, clarity and measurability. It is anticipated that consensus will be reached within three rounds.

Data Collection

The questionnaires will be administered electronically utilizing the Qualtrics software, a secure online program that has ISO 27001 certification (Qualtrics, 2018). The panel of experts will be emailed a secure link to complete the questionnaire electronically. The questionnaire will be available to respondents for approximately 2 weeks with each round taking a total of 6-8 weeks to complete.

While the survey is open it will be important for the PI to follow-up with non-responders and engage them in the study. After the survey is open for one week, non-responders will be sent a reminder email, and if they still have not completed it 3 days prior to survey closing, they will be reminded by the PI via telephone. Keeney et al. (2006) found that "tenacity and persistence in following up non-responders" (p. 207) and making participants feel that they are partners in the study increased response rate, although participants always have the right to drop

out of the study at any point. Once the questionnaire closes, the responses will be analyzed and the questionnaire will be revised based on the data. Each analysis and questionnaire revision will take 4-6 weeks. Following data analysis and questionnaire revision, the expert panel will be sent the revised questionnaire via a Qualtrics link along with a summary of the previous round's results including their rating and the overall median and interquartile range for each item. The experts have the opportunity to answer differently than they had in the previous round. Participants must have participated in the previous round to continue; for example they cannot participate in round 1, skip round 2, and come back to participate in the 3rd round. Panel members will also be asked to provide current contact information including email and telephone number with each round. Participants will receive a $10 gift card as an incentive for each round of participation.

Data Analysis

Qualitative comments on the questionnaires will be analyzed through content analysis. Content analysis is "a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" (Hsieh & Shannon, 2005, p. 1278). An inductive approach will be utilized in which each round the PI will initially read through all the comments then reread carefully and make note of key words and determine themes at the literal level (Hsieh & Shannon, 2005; Kondracki, Wellman, & Amundson, 2002). Categories will be developed based on the themes. Data will then be placed into the categories and relation between categories will be analyzed and competencies will be revised as appropriate. A manual approach will be utilized. A journal will be utilized by the PI to capture the thought processes of the researcher along with decisions made throughout the study to assist in creditability and dependability of the study, similar to an audit trail

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(McPherson, Reese, & Wendler, 2018; Skulmoski et al., 2007). Another researcher will independently analyze data via content analysis utilizing the same procedure as PI to assure confirmability (McPherson et al., 2018).

Analysis of the quantitative data will be performed utilizing SPSS version 23. Data from completed questionnaires will be exported into SPSS for analysis. Descriptive statistics of median and interquartile ranges will be calculated. Competencies on the first questionnaire that have a median score of 3 or above for relevancy with an interquartile deviation of 1 will be included in the next round; those items rated less than 3 with an interquartile deviation of 1 will be considered not relevant and eliminated. Competencies that have an interquartile range greater than 1 will also be included in the next round regardless of median rating. The median will be utilized since a Likert scale produces ordinal data (von der Gracht, 2012) and interquartile range will be utilized as an indicator of consensus (De Vet et al., 2005). Competencies in round 2 and beyond will also be rated on measurability and clarity, and items that receive a median of 3 or above on relevancy but less than a median of 3 on clarity or measurability will be rewritten for the next round based on content analysis of comments received. Consensus will be determined by an interquartile deviation of less than or equal to 1 which is considered good consensus (De Vet et al., 2005; von der Gracht, 2012). Competencies that receive consensus, interquartile deviation of less than or equal to 1, with a median score less than 3 for relevancy will be eliminated, and those with a median of 3 or above on relevancy, clarity and measurability will be considered a core NP competency.

Study Limitations

A Delphi technique is not a well-defined research method, and many variations of it exist, so there is no explicit way to conduct a Delphi. A general limitation of the Delphi technique is

related to reliability and validity. According to Hasson et al. (2000) "there is no evidence of the reliability of the Delphi method" (p. 1012) and validity can be affected by response rates, thus it is important to retain participants throughout each round of the Delphi. Validity can also be affected with iterative controlled feedback in that panelists can be persuaded toward conformity rather than true agreement (Goodman, 1987; Keeney et al., 2006).   Another concern with the Delphi technique is that anonymity "can lead to lack of accountability"(McKenna, 1994, p. 1224) implying that since participants are anonymous they do not feel ownership to their responses. Results can also be biased by expert panel composition, as they are not a "representative sample" (Powell, 2003, p. 378). Generally a random sample is utilized in research to assure results are generalizable to the population, but in a Delphi the sample is a selected group based on their expertise, which can cause bias, and results may not be generalizable.

Limitations related to this research topic include that NP practice differs across the nation because of state regulation and could impact what the panel considers relevant competencies. Therefore, it will be important to have a statement that the competencies are to reflect core NP practice across the country. Some experts consider the use of a structured first round as a limitation because the panel can feel restricted (Powell, 2003). However, in this study the use of a structured list is necessary due to competencies already having been developed; participants will have the opportunity to write-in comments or additional competencies. The utilization of NONPF to nominate panel members could produce bias, although the organization is a national leader in NP education and has a wide variety of board and curricular committee members from across the US so bias should be minimized.

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Potential Problems

As with any research study, attrition is always a concern. A Delphi study is at particular risk for attrition due to the number of rounds that must occur for consensus to be reached. It will be important to engage the panel as well as be persistent in contacting them while realizing they always have the right to drop out at any time. As an incentive to participate panel members will be provided with a $10 Panera gift card after each round they complete.

Feasibility is also a concern. This includes recruiting an adequate panel size and then getting the panel to respond in a reasonable amount of time. Utilization of NONPF for panel recruitment should yield a large number of potential experts. Timing of questionnaire delivery will also be important, avoiding times when participants may already be busy with other responsibilities. Since the researcher is a practicing NP as well as NP faculty, timing will be based on her knowledge of busy faculty and NP practice times.

Protection of Research Participants

Permission will be obtained from the institutional review board (IRB) at Duquesne University prior to initiation of the research. Participants will be informed of the purpose of the research, time commitment, voluntary nature of participation, along with potential risks and benefits of participation (see Appendix F for informed consent). Potential risks include loss of confidentiality and time. Potential benefits include the opportunity to have a voice in the development of NP core competencies. Voluntary consent to participate will be obtained on-line prior to initiation of the survey. Qualtrics will be utilized for data collection and requires a password to access the results, which will only be known by the primary investigator (PI). Data will be stored on a password-protected computer, and will be de-identified and numerically

coded by the PI. Documents connecting names to numeric codes will be kept in a separate

locked area.

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Appendix A

Nurse Practitioner Core Competencies

Title/Date	Competencies
Common Advanced Practice Registered Nurse Doctoral-Level Competencies, 2017	31 competencies in 8 domains Domain 1: Patient Care 1. Perform a comprehensive evidence-based assessment. 2. Use advanced clinical judgment to diagnose 3. Synthesize relevant data to develop a patient-centered, evidence-based plan of care. 4. Manage care across the health continuum including prescribing, ordering, and evaluating therapeutic interventions 5. Educate patients, families, and communities to empower themselves to participate in their care and enable shared decision making. Domain 2: Knowledge of Practice 1. Demonstrate an investigatory, analytic approach to clinical situations 2. Apply science-based theories and concepts to guide one's overall practice. 3. Leads scholarship activities which focus on the translation and dissemination of contemporary evidence into practice. Domain 3: Practice-Based Learning & Improvement 1. Continuously assess strengths and weaknesses of one's own knowledge and skills and actively seek opportunities for continuous improvement. 2. Use current evidence from a variety of sources to continually improve one's practice. 3. Use information technology to optimize one's own learning. 4. Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, and services that have been demonstrated to improve outcomes. Domain 4: Interpersonal and Communication Skills 1. Demonstrate interpersonal and communication skills that result in effective exchange of information and collaboration with patients. 2. Use effective communication tools and techniques that include a nonjudgemental attitude, respect, and compassion when addressing sensitive issues to promote therapeutic relationships. 3. Use technology for effective exchange of information and collaboration with patients and the health care team. Domain 5: Professionalism 1. Demonstrate compassion and accountability to patients, society, and the profession. 2. Demonstrate integrity and respect for others. 3. Demonstrate a commitment to ethical principles pertaining to the provision or withholding of care in

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compliance with relevant laws, policies and regulations.

4. Engage in the education and mentoring of students, peers and other health team members.
5. Demonstrate a commitment to the nursing profession.
6. Advocate for patients and populations considering social justice and equity.

Domain 6: Systems-Based Practice

1. Collaborate in the development, implementation, and evaluation of systems level strategies to reduce errors and optimize safe, effective healthcare delivery.
2. Demonstrate stewardship of financial and other resources for the delivery of quality care that is effective and affordable.
3. Shape healthcare policy at local, state, and national levels to optimize access to and delivery of quality, cost-effective, health care.

Domain 7: Interprofessional Collaboration

1. Promote a climate of respect, dignity, inclusion, integrity, civility and trust to foster collaboration within the healthcare team.
2. Provide leadership of an interprofessional team to address complex care issues.
3. Advocate for the role of the patient as a member of the healthcare team.
4. Assume different roles (e.g. member, leader) within the interprofessional, healthcare team to establish, develop, and continuously enhance the team to provide and improve patient-centered care.

Domain 8: Personal and Professional Development

1. Demonstrate healthy coping mechanisms to responds to the demands of professional practice.
2. Practice flexibility and maturity in adjusting to rapidly changing professional environments.
3. Demonstrate leadership, trustworthiness, and self-assurance that inspire the confidence of patients and colleagues.

National Organization of Nurse Practitioner Faculties Core Competencies, 2017	52 Competencies (13 subcompetencies) under 8 competency areas

Scientific Foundations

1. Critically analyzes data and evidence for improving advanced nursing practice.
2. Integrates knowledge from the humanities and sciences within the context of nursing science.
3. Translates research and other forms of knowledge to improve practice processes and outcomes.
4. Develops new practice approaches based on the integration of research, theory, and practice knowledge.

Leadership

1. Assumes complex and advanced leadership roles to initiate and guide change.
2. Provides leadership to foster collaboration with multiple stakeholders (e.g. patients, community, integrated health care teams, and policy makers) to improve health care.
3. Demonstrates leadership that uses critical and reflective

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thinking.
4. Advocates for improved access, quality and cost effective health care.
5. Advances practice through the development and implementation of innovations incorporating principles of change.
6. Communicates practice knowledge effectively, both orally and in writing.
7. Participates in professional organizations and activities that influence advanced practice nursing and/or health outcomes of a population focus.

Quality
1. Uses best available evidence to continuously improve quality of clinical practice.
2. Evaluates the relationships among acess, cost, quality, and safety and their influence on health care.
3. Evaluates how organizational structure, care processes, financing, marketing, and policy decisions impact the quality of health care.
4. Applies skills in peer review to promote a culture of excellence.
5. Anticipates variations in practice and is proactive in implementing interventions to ensure quality.

Practice Inquiry
1. Provides leadership in the translation of new knowledge into practice.
2. Generates knowledge from clinical practice to improve practice and patient outcomes.
3. Applies clinical investigative skills to improve health outcomes.
4. Leads practice inquiry, individually or in partnership with others.
5. Disseminates evidence from inquiry to diverse audiences using multiple modalities.
6. Analyzes clinical guidelines for individualized application into practice.

Technology and Information Literacy
1. Integrates appropriate technologies for knowledge management to improve health care.
2. Translates technical and scientific health information appropriate for various users' needs.
   a. Assesses the patient's and caregiver's educational needs to provide effective, personalized health care.
   b. Coaches the patient and caregiver for positive behavioral change.
3. Demonstrates information literacy skills in complex decision making.
4. Contributes to the design of clinical information systems that promote safe, quality and cost effective care.
5. Uses technology systems that capture data on variables for the evaluation of nursing care.

Policy
1. Demonstrates an understanding of the interdependence of policy and practice.
2. Advocates for ethical policies that promote access, equity,

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quality, and cost.

3. Analyzes ethical, legal, and social factors influencing policy development.
4. Contributes in the development of health policy.
5. Analyzes the implications of health policy across disciplines.
6. Evaluates the impact of globalization on health care policy development.
7. Advocates for policies for safe and healthy practice environments.

Health Delivery System

1. Applies knowledge of organizational practices and complex systems to improve health care delivery.
2. Effects health care change using broad based skills including negotiating, consensus-building, and partnering.
3. Minimizes risk to patients and providers at the individual and systems level.
4. Facilitates the development of health care systems that address the needs of culturally diverse populations, providers, and other stakeholders.
5. Evaluates the impact of health care delivery on patients, providers, other stakeholders, and the environment.
6. Analyzes organizational structure, functions and resources to improve the delivery of care.
7. Collaborates in planning for transitions across the continuum of care.

Ethics

1. Integrates ethical principles in decision making.
2. Evaluates the ethical consequences of decisions.
3. Applies ethically sound solutions to complex issues related to individuals, populations and systems of care.

Independent Practice

1. Functions as a licensed independent practitioner.
2. Demonstrates the highest level of accountability for professional practice.
3. Practices independently managing previously diagnosed and undiagnosed patients.
   a. Provides the full spectrum of health care services to include health promotion, disease prevention, health protection, anticipatory guidance, counseling, disease management, palliative, and end-of-life care.
   b. Uses advanced health assessment skills to differentiate between normal, variations of normal, and abnormal findings.
   c. Employs screening and diagnostic strategies in the development of diagnoses.
   d. Prescribes medications with scope of practice.
   e. Manages the health/illness status of patients and families over time.
4. Provides patient-centered care recognizing cultural diversity and the patient or designee as a full partner in decision-making.
   a. Works to establish a relationship with the

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patient characterized by mutual respect, empathy, and collaboration.

 b. Creates a climate of patient-centered care to include confidentiality, privacy, comfort, emotional support, mutual trust, and respect.

 c. Incorporates the patient's cultural and spiritual preferences, values, and beliefs into health care.

 d. Preserves the patient's control over decision-making by negotiating a mutually acceptable plan of care.

 e. Develops strategies to prevent one's own personal biases from interfering with delivery of quality care.

 f. Addresses cultural, spiritual, and ethnic influences that potentially create conflict among individuals, families, staff, and caregivers.

5. Educates professional and lay caregivers to provide culturally and spiritually sensitive, appropriate care.

6. Collaborates with both professional and other caregivers to achieve optimal care outcomes.

7. Coordinates transitional care services in and across care settings.

8. Participates in the development, use, and evaluation of professional standards and evidence-based care.

The Essentials of Doctoral Education for Advanced Practice Nursing, 2006	38 competencies (5 subcompetencies) under 8 foundational Essentials

Essential I: Scientific Underpinnings for Practice

1. Integrate nursing science with knowledge from ethics, the biophysical, psychosocial, analytical, and organizational sciences as the basis for the highest level of nursing practice.

2. Use science-based theories and concepts to:
 • determine the nature and significance of health and health care delivery phenomena;
 • describe the actions and advanced strategies to enhance, alleviate, and ameliorate health and health care delivery phenomena as appropriate; and
 • evaluate outcomes.

3. Develop and evaluate new practice approaches based on nursing theories and theories from other disciplines.

Essential II: Organizational and systems leadership for quality improvement and systems thinking

1. Develop and evaluate care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and other clinical sciences, as well as organizational, political, and economic sciences.

2. Ensure accountability for quality of health care and patient safety for populations with whom they work.

a. Use advanced communication skills/processes to lead quality improvement and patient safety initiatives in health care systems.

b. Employ principles of business, finance, economics, and health policy to develop and implement effective plans for practice-level and/or system-wide practice initiatives that will

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improve the quality of care delivery.

c. Develop and/or monitor budgets for practice initiatives.

d. Analyze the cost-effectiveness of practice initiatives accounting for risk and improvement of health care outcomes.

e. Demonstrate sensitivity to diverse organizational cultures and populations, including patients and providers.

3. Develop and/or evaluate effective strategies for managing the ethical dilemmas inherent in patient care, the health care organization, and research.

Essential III: Clinical Scholarship and analytical methods for evidence-based practice

1. Use analytic methods to critically appraise existing literature and other evidence to determine and implement the best evidence for practice.

2. Design and implement processes to evaluate outcomes of practice, practice patterns, and systems of care within a practice setting, health care organization, or community against national benchmarks to determine variances in practice outcomes and population trends.

3. Design, direct, and evaluate quality improvement methodologies to promote safe, timely, effective, efficient, equitable, and patient-centered care.

4. Apply relevant findings to develop practice guidelines and improve practice and the practice environment.

5. Use information technology and research methods appropriately to:

• collect appropriate and accurate data to generate evidence for nursing practice

• inform and guide the design of databases that generate meaningful evidence for nursing practice

• analyze data from practice

• design evidence-based interventions

• predict and analyze outcomes

• examine patterns of behavior and outcomes

• identify gaps in evidence for practice

6. Function as a practice specialist/consultant in collaborative knowledge-generating research.

7. Disseminate findings from evidence-based practice and research to improve healthcare outcomes.

Essential IV: Information systems/technology and patient care technology for the improvement and transformation of health care

1. Design, select, use, and evaluate programs that evaluate and monitor outcomes of care, care systems, and quality improvement including consumer use of health care information systems.

2. Analyze and communicate critical elements necessary to the selection, use and evaluation of health care information systems and patient care technology.

3. Demonstrate the conceptual ability and technical skills to develop and execute an evaluation plan involving data extraction from practice information systems and databases.

4. Provide leadership in the evaluation and resolution of ethical and legal issues within healthcare systems relating to the use of information, information technology, communication networks, and patient care technology.

5. Evaluate consumer health information sources for accuracy, timeliness, and appropriateness.

Essential V: Health care policy for advocacy in health care

1. Critically analyze health policy proposals, health policies, and related issues from the perspective of consumers, nursing, other health professions, and other stakeholders in policy and public forums.

2. Demonstrate leadership in the development and implementation of institutional, local, state, federal, and/or international health policy.

3. Influence policy makers through active participation on committees, boards, or task forces at the institutional, local, state, regional, national, and/or international levels to improve health care delivery and outcomes.

4. Educate others, including policy makers at all levels, regarding nursing, health policy, and patient care outcomes.

5. Advocate for the nursing profession within the policy and healthcare communities.

6. Develop, evaluate, and provide leadership for health care policy that shapes health care financing, regulation, and delivery.

7. Advocate for social justice, equity, and ethical policies within all healthcare arenas.

Essential VI: Interprofessional collaboration for improving patient population health outcomes

1. Employ effective communication and collaborative skills in the development and implementation of practice models, peer review, practice guidelines, health policy, standards of care, and/or other scholarly products.

2. Lead interprofessional teams in the analysis of complex practice and organizational issues.

3. Employ consultative and leadership skills with intraprofessional and interprofessional teams to create change in health care and complex healthcare delivery systems.

Essential VII: Clinical prevention and population health for improving the nation's health

1. Analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and population health.

2. Synthesize concepts, including psychosocial dimensions and cultural diversity, related to clinical prevention and population health in developing, implementing, and evaluating interventions to address health promotion/disease prevention efforts, improve health status/access patterns, and/or address gaps in care of individuals, aggregates, or populations.

3. Evaluate care delivery models and/or strategies using concepts related to community, environmental and occupational health, and cultural and socioeconomic dimensions of health.

Essential VIII: Advanced nursing practice

1. Conduct a comprehensive and systematic assessment of health and illness parameters in complex situations, incorporating diverse and culturally sensitive approaches.

2. Design, implement, and evaluate therapeutic interventions based on nursing science and other sciences.

3. Develop and sustain therapeutic relationships and

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partnerships with patients (individual, family or group) and other professionals to facilitate optimal care and patient outcomes.

4. Demonstrate advanced levels of clinical judgment, systems thinking, and accountability in designing, delivering, and evaluating evidence-based care to improve patient outcomes.

5. Guide, mentor, and support other nurses to achieve excellence in nursing practice.

6. Educate and guide individuals and groups through complex health and situational transitions.

7. Use conceptual and analytical skills in evaluating the links among practice, organizational, population, fiscal, and policy issues.

Appendix B

Round 1 Delphi Survey

The following survey randomly lists NP core competencies that have been published by AACN and NONPF. Please indicate how relevant you feel each the following competencies are for new nurse practitioners completing their BSN-DNP according to a 4-point Likert scale (1= Strongly Disagree, 2= Disagree, 3= Agree, 4= Strongly Agree). For each of the competencies you are given the opportunity to provide suggested changes to the competency or additional comments regarding the competency or your rating of it. Please remember that the competencies are to reflect core NP practice across the U.S. The questionnaire will take approximately 30 minutes to complete as you are asked to not over analyze the competency but rather go with your "gut reaction". I request that you submit your responses within the next two weeks. Upon completion of data analysis, the questionnaire for round 2 will be developed and specific instructions will be provided for that round.

Competencies	Relevancy 1 strongly disagree – 4 strongly agree	Comments	Suggested rewording of competency
1. Use conceptual and analytical skills in evaluating the links among practice, organizational, population, fiscal, and policy issues.	1 2 3 4		
2. Participates in the development, use, and evaluation of professional standards and evidence-based care.	1 2 3 4		
3. Demonstrate leadership, trustworthiness, and self-assurance that inspire the confidence of patients and colleagues.	1 2 3 4		

4. Perform a comprehensive evidence-based assessment.	1	2	3	4		
5. Critically analyzes data and evidence for improving advanced nursing practice.	1	2	3	4		
6. Integrate nursing science with knowledge from ethics, the biophysical, psychosocial, analytical, and organizational sciences as the basis for the highest level of nursing practice.	1	2	3	4		
7. Develop and evaluate care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and other clinical sciences, as well as organizational, political, and economic sciences.	1	2	3	4		
8. Provides leadership in the translation of new knowledge into practice.	1	2	3	4		
9. Demonstrate interpersonal and communication skills that result in effective exchange of information and collaboration with patients.	1	2	3	4		
10. Demonstrate leadership in the development and implementation of institutional, local, state, federal, and/or international health policy.	1	2	3	4		
11. Demonstrates the highest level of accountability for professional practice.	1	2	3	4		
12. Collaborate in the development, implementation, and evaluation of systems level strategies to reduce errors and optimize safe, effective healthcare delivery.	1	2	3	4		
13. Educate patients, families, and communities to empower themselves to participate in their care and enable shared decision making.	1	2	3	4		
14. Develop and/or evaluate effective strategies for managing the ethical dilemmas inherent in patient care, the health care organization, and research.	1	2	3	4		
15. Applies knowledge of organizational practices and complex systems to improve health care delivery.	1	2	3	4		
16. Assumes complex and advanced leadership roles to initiate and guide change.	1	2	3	4		
17. Apply science-based theories and concepts to guide one's overall practice.	1	2	3	4		

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18. Lead interprofessional teams in the analysis of complex practice and organizational issues.	1	2	3	4	
19. Translates research and other forms of knowledge to improve practice processes and outcomes.	1	2	3	4	
20. Engage in the education and mentoring of students, peers and other health team members.	1	2	3	4	
21. Disseminate findings from evidence-based practice and research to improve healthcare outcomes.	1	2	3	4	
22. Collaborates in planning for transitions across the continuum of care.	1	2	3	4	
23. Promote a climate of respect, dignity, inclusion, integrity, civility and trust to foster collaboration within the healthcare team.	1	2	3	4	
24. Use analytic methods to critically appraise existing literature and other evidence to determine and implement the best evidence for practice.	1	2	3	4	
25. Educates professional and lay caregivers to provide culturally and spiritually sensitive, appropriate care.	1	2	3	4	
26. Continuously assess strengths and weaknesses of one's own knowledge and skills and actively seek opportunities for continuous improvement.	1	2	3	4	
27. Evaluates the relationships among access, cost, quality, and safety and their influence on health care.	1	2	3	4	
28. Design, direct, and evaluate quality improvement methodologies to promote safe, timely, effective, efficient, equitable, and patient-centered care.	1	2	3	4	
29. Integrates appropriate technologies for knowledge management to improve health care.	1	2	3	4	
30. Evaluates the impact of globalization on health care policy development.	1	2	3	4	
31. Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, and services that have been demonstrated to improve outcomes.	1	2	3	4	

32. Use science-based theories and concepts to: determine the nature and significance of health and health care delivery phenomena; describe the actions and advanced strategies to enhance, alleviate, and ameliorate health and health care delivery phenomena as appropriate; and evaluate outcomes.	1	2	3	4		
33. Evaluates the ethical consequences of decisions.	1	2	3	4		
34. Evaluate care delivery models and/or strategies using concepts related to community, environmental and occupational health, and cultural and socioeconomic dimensions of health.	1	2	3	4		
35. Functions as a licensed independent practitioner.	1	2	3	4		
36. Use information technology and research methods appropriately to: collect appropriate and accurate data to generate evidence for nursing practice; inform and guide the design of databases that generate meaningful evidence for nursing practice; analyze data from practice; design evidence-based interventions; predict and analyze outcomes; examine patterns of behavior and outcomes; identify gaps in evidence for practice	1	2	3	4		
37. Analyze and communicate critical elements necessary to the selection, use and evaluation of health care information systems and patient care technology.	1	2	3	4		
38. Provides patient-centered care recognizing cultural diversity and the patient or designee as a full partner in decision-making.	1	2	3	4		
39. Demonstrate compassion and accountability to patients, society, and the profession.	1	2	3	4		
40. Advocate for the nursing profession within the policy and healthcare communities.	1	2	3	4		
41. Assume different roles (e.g. member, leader) within the interprofessional, healthcare team to establish, develop, and continuously enhance the team to provide and improve patient-centered care.	1	2	3	4		

42. Synthesize concepts, including psychosocial dimensions and cultural diversity, related to clinical prevention and population health in developing, implementing, and evaluating interventions to address health promotion/disease prevention efforts, improve health status/access patterns, and/or address gaps in care of individuals, aggregates, or populations.	1	2	3	4	
43. Applies skills in peer review to promote a culture of excellence.	1	2	3	4	
44. Contributes to the design of clinical information systems that promote safe, quality and cost effective care.	1	2	3	4	
45. Facilitates the development of health care systems that address the needs of culturally diverse populations, providers, and other stakeholders.	1	2	3	4	
46. Manage care across the health continuum including prescribing, ordering, and evaluating therapeutic interventions	1	2	3	4	
47. Advocate for social justice, equity, and ethical policies within all healthcare arenas.	1	2	3	4	
48. Design, select, use, and evaluate programs that evaluate and monitor outcomes of care, care systems, and quality improvement including consumer use of health care information systems.	1	2	3	4	
49. Use technology for effective exchange of information and collaboration with patients and the health care team.	1	2	3	4	
50. Function as a practice specialist/consultant in collaborative knowledge-generating research.	1	2	3	4	
51. Provide leadership in the evaluation and resolution of ethical and legal issues within healthcare systems relating to the use of information, information technology, communication networks, and patient care technology.	1	2	3	4	
52. Educate others, including policy makers at all levels, regarding nursing, health policy, and patient care outcomes.	1	2	3	4	

53. Design, implement, and evaluate therapeutic interventions based on nursing science and other sciences.	1	2	3	4		
54. Uses advanced health assessment skills to differentiate between normal, variations of normal, and abnormal findings.	1	2	3	4		
55. Advances practice through the development and implementation of innovations incorporating principles of change.	1	2	3	4		
56. Critically analyze health policy proposals, health policies, and related issues from the perspective of consumers, nursing, other health professions, and other stakeholders in policy and public forums.	1	2	3	4		
57. Disseminates evidence from inquiry to diverse audiences using multiple modalities.	1	2	3	4		
58. Demonstrate a commitment to ethical principles pertaining to the provision or withholding of care in compliance with relevant laws, policies and regulations.	1	2	3	4		
59. Demonstrate healthy coping mechanisms to responds to the demands of professional practice.	1	2	3	4		
60. Analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and population health.	1	2	3	4		
61. Applies ethically sound solutions to complex issues related to individuals, populations and systems of care.	1	2	3	4		
62. Applies clinical investigative skills to improve health outcomes.	1	2	3	4		
63. Use information technology to optimize one's own learning.	1	2	3	4		
64. Conduct a comprehensive and systematic assessment of health and illness parameters in complex situations, incorporating diverse and culturally sensitive approaches.	1	2	3	4		
65. Creates a climate of patient-centered care to include confidentiality, privacy, comfort, emotional support, mutual trust, and respect.	1	2	3	4		

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66. Participates in professional organizations and activities that influence advanced practice nursing and/or health outcomes of a population focus.	1	2	3	4		
67. Demonstrates an understanding of the interdependence of policy and practice.	1	2	3	4		
68. Contributes in the development of health policy.	1	2	3	4		
69. Develop and/or monitor budgets for practice initiatives.	1	2	3	4		
70. Integrates knowledge from the humanities and sciences within the context of nursing science.	1	2	3	4		
71. Demonstrate advanced levels of clinical judgment, systems thinking, and accountability in designing, delivering, and evaluating evidence-based care to improve patient outcomes.	1	2	3	4		
72. Addresses cultural, spiritual, and ethnic influences that potentially create conflict among individuals, families, staff, and caregivers.	1	2	3	4		
73. Demonstrate stewardship of financial and other resources for the delivery of quality care that is effective and affordable.	1	2	3	4		
74. Use advanced communication skills/processes to lead quality improvement and patient safety initiatives in health care systems.	1	2	3	4		
75. Preserves the patient's control over decision-making by negotiating a mutually acceptable plan of care.	1	2	3	4		
76. Use effective communication tools and techniques that include a nonjudgemental attitude, respect, and compassion when addressing sensitive issues to promote therapeutic relationships.	1	2	3	4		
77. Provides leadership to foster collaboration with multiple stakeholders (e.g. patients, community, integrated health care teams, and policy makers) to improve health care.	1	2	3	4		
78. Employ principles of business, finance, economics, and health policy to develop and implement effective plans for practice-level and/or system-wide practice initiatives that will improve the quality of care delivery.	1	2	3	4		

79. Demonstrate an investigatory, analytic approach to clinical situations	1	2	3	4		
80. Analyze the cost-effectiveness of practice initiatives accounting for risk and improvement of health care outcomes.	1	2	3	4		
81. Provides the full spectrum of health care services to include health promotion, disease prevention, health protection, anticipatory guidance, counseling, disease management, palliative, and end-of-life care.	1	2	3	4		
82. Coordinates transitional care services in and across care settings.	1	2	3	4		
83. Apply relevant findings to develop practice guidelines and improve practice and the practice environment.	1	2	3	4		
84. Integrates ethical principles in decision making.	1	2	3	4		
85. Use advanced clinical judgment to diagnose	1	2	3	4		
86. Develops new practice approaches based on the integration of research, theory, and practice knowledge.	1	2	3	4		
87. Demonstrates information literacy skills in complex decision making.	1	2	3	4		
88. Develop and sustain therapeutic relationships and partnerships with patients (individual, family or group) and other professionals to facilitate optimal care and patient outcomes.	1	2	3	4		
89. Works to establish a relationship with the patient characterized by mutual respect, empathy, and collaboration.	1	2	3	4		
90. Design and implement processes to evaluate outcomes of practice, practice patterns, and systems of care within a practice setting, health care organization, or community against national benchmarks to determine variances in practice outcomes and population trends.	1	2	3	4		
91. Analyzes clinical guidelines for individualized application into practice.	1	2	3	4		
92. Demonstrate sensitivity to diverse organizational cultures and populations, including	1	2	3	4		

patients and providers.						
93. Leads scholarship activities which focus on the translation and dissemination of contemporary evidence into practice.	1	2	3	4		
94. Develops strategies to prevent one's own personal biases from interfering with delivery of quality care.	1	2	3	4		
95. Assesses the patient's and caregiver's educational needs to provide effective, personalized health care.	1	2	3	4		
96. Provide leadership of an interprofessional team to address complex care issues.	1	2	3	4		
97. Demonstrate the conceptual ability and technical skills to develop and execute an evaluation plan involving data extraction from practice information systems and databases.	1	2	3	4		
98. Incorporates the patient's cultural and spiritual preferences, values, and beliefs into health care.	1	2	3	4		
99. Evaluate consumer health information sources for accuracy, timeliness, and appropriateness.	1	2	3	4		
100. Effects health care change using broad based skills including negotiating, consensus-building, and partnering.	1	2	3	4		
101. Manages the health/illness status of patients and families over time.	1	2	3	4		
102. Influence policy makers through active participation on committees, boards, or task forces at the institutional, local, state, regional, national, and/or international levels to improve health care delivery and outcomes.	1	2	3	4		
103. Use current evidence from a variety of sources to continually improve one's practice.	1	2	3	4		
104. Evaluates the impact of health care delivery on patients, providers, other stakeholders, and the environment.	1	2	3	4		
105. Prescribes medications with scope of practice.	1	2	3	4		
106. Ensure accountability for quality of health care and patient safety for populations with whom they work.	1	2	3	4		

107. Collaborates with both professional and other caregivers to achieve optimal care outcomes.	1	2	3	4		
108. Synthesize relevant data to develop a patient-centered, evidence-based plan of care.	1	2	3	4		
109. Demonstrates leadership that uses critical and reflective thinking.	1	2	3	4		
110. Guide, mentor, and support other nurses to achieve excellence in nursing practice.	1	2	3	4		
111. Employs screening and diagnostic strategies in the development of diagnoses.	1	2	3	4		
112. Develop, evaluate, and provide leadership for health care policy that shapes health care financing, regulation, and delivery.	1	2	3	4		
113. Uses best available evidence to continuously improve quality of clinical practice.	1	2	3	4		
114. Analyzes ethical, legal, and social factors influencing policy development.	1	2	3	4		
115. Employ consultative and leadership skills with intraprofessional and interprofessional teams to create change in health care and complex healthcare delivery systems.	1	2	3	4		
116. Analyzes the implications of health policy across disciplines.	1	2	3	4		
117. Demonstrate integrity and respect for others.	1	2	3	4		
118. Coaches the patient and caregiver for positive behavioral change.	1	2	3	4		
119. Advocate for patients and populations considering social justice and equity.	1	2	3	4		
120. Uses technology systems that capture data on variables for the evaluation of nursing care.	1	2	3	4		
121. Practice flexibility and maturity in adjusting to rapidly changing professional environments.	1	2	3	4		
122. Analyzes organizational structure, functions and resources to improve the delivery of care.	1	2	3	4		
123. Educate and guide individuals and groups through complex health and situational transitions.	1	2	3	4		
124. Minimizes risk to patients and providers at the individual and systems level.	1	2	3	4		

125. Shape healthcare policy at local, state, and national levels to optimize access to and delivery of quality, cost-effective, health care.	1	2	3	4		
126. Generates knowledge from clinical practice to improve practice and patient outcomes.	1	2	3	4		
127. Demonstrate a commitment to the nursing profession.	1	2	3	4		
128. Advocates for improved access, quality and cost effective health care.	1	2	3	4		
129. Employ effective communication and collaborative skills in the development and implementation of practice models, peer review, practice guidelines, health policy, standards of care, and/or other scholarly products.	1	2	3	4		
130. Advocates for policies for safe and healthy practice environments.	1	2	3	4		
131. Leads practice inquiry, individually or in partnership with others.	1	2	3	4		
132. Develop and evaluate new practice approaches based on nursing theories and theories from other disciplines.	1	2	3	4		
133. Evaluates how organizational structure, care processes, financing, marketing, and policy decisions impact the quality of health care.	1	2	3	4		
134. Advocate for the role of the patient as a member of the healthcare team.	1	2	3	4		
135. Practices independently managing previously diagnosed and undiagnosed patients.	1	2	3	4		
136. Advocates for ethical policies that promote access, equity, quality, and cost.	1	2	3	4		
137. Communicates practice knowledge effectively, both orally and in writing.	1	2	3	4		
138. Anticipates variations in practice and is proactive in implementing interventions to ensure quality.	1	2	3	4		
139. Translates technical and scientific health information appropriate for various users' needs.	1	2	3	4		

Appendix C

NONPF Nomination Request

Dear

I am an active member of NONPF and also a nursing PhD student at Duquesne University School of Nursing. I am conducting a Delphi study to refine and reduce redundancy in the NP core competencies. This will also assure the NP core competencies are relevant and clear as well as measurable. This study has received IRB approval through Duquesne University.

NONPF board members and curricular leadership committee members are being asked to nominate potential panel members for this research study. Panel members will be asked to participate in this Delphi study to refine the core competencies for BSN-DNP nurse practitioners. This is important because of the movement toward competency-based education and the call to make the DNP degree required for entry into NP practice.

A Delphi involves multiple rounds of questionnaires in order to reach consensus. The expert panel will complete the first on-line questionnaire by ranking the NONPF *NP Core Competencies*, the AACN *Essentials of Doctoral Education for Advanced Nursing Practice,* and the AACN *Common Advanced Practice Registered Nurse Doctoral-Level Competencies* based on their relevance; I will analyze the results and develop a second questionnaire from competencies that were considered relevant, based on consensus, in the first round. The second questionnaire will ask panelists to rank the competencies again on their relevance as well as their clarity and measurability. The process of analyzing results (PI) and completing questionnaires (panel) will continue until consensus is reached. Generally consensus is reached within three rounds. It is anticipated that panelists will spend approximately 30 minutes on each survey and there will be 6-8 weeks between rounds. Upon completion of each survey round panel participants will receive an appreciation gift of a $10 gift card.

I am asking that you please nominate potential panel members, you may self nominate, by completing this online survey. From this group of nominees, panelists will be selected based on geographical location to assure representation throughout the U.S.

I can be reached at chant@duq.edu should you have any questions or concerns. I appreciate your help with the nomination of potential panel members for this study.

Sincerely,

Tracey Chan, MSN, ANP-BC
Doctoral Candidate DUSON

Nomination form for Delphi Study of NP Core Competencies

In order to conduct a strong Delphi study of the NP core competencies an adequate sample must be secured. You are being asked to nominate (you may self-nominate) potential Delphi panel members for the 3 different categories noted below. Inclusion criteria includes employed throughout the U.S. and able to read and write in English. If you do not have full contact information please provide what you are able to.

Category 1: Faculty with a minimum of 3 years experience in a BSN-DNP program

Name:
Email:
Phone number:
Institution:

Name:
Email:
Phone number:
Institution:

 Category 2: Actively practicing NP clinician educated as a DNP with a minimum of 5 years experience

Name:
Email:
Phone number:
Institution:

Name:
Email:
Phone number:
Institution:

Category 3: Recent BSN-DNP program graduate whom has been employed as a NP for 6-18 months

Name:
Email:
Phone number:
Institution:

Name:
Email:
Phone number:
Institution:

Appendix D

Invitation to participate

Dear

You are invited to participate in a dissertation research study being conducted by myself, Tracey Chan, a doctoral student at Duquesne University School of Nursing. I am conducting a Delphi study electronically on nurse practitioner competencies. My goal is to identify relevant, clear, and measurable core competencies that are vital for entry into NP practice as a DNP.

The NONPF board and curricular leadership committee was asked to nominate potential panel members who are educators or DNP prepared NP clinicians to participate in this research. Your name was proposed and randomly selected based on your geographical location for inclusion as a member of this expert panel. This letter is to invite you to participate in this important research that will advance NP education and practice. In order to participate you must be employed within the U.S. and able to read and write in English as well as either 1. A faculty with a minimum of 3 years experience in a BSN-DNP program 2. An actively practicing NP clinician educated as a BSN-DNP with a minimum of 5 years experience or 3. A recent BSN-DNP program graduate whom has been employed as a NP for 6-18 months.

A Delphi involves multiple rounds of questionnaires in order to reach consensus. As a member of the expert panel you will complete the first on-line questionnaire by ranking the NONPF (2017) *NP Core Competencies*, the AACN (2006) *Essentials of Doctoral Education for Advanced Nursing Practice,* and the AACN (2017) *Common Advanced Practice Registered Nurse Doctoral-Level Competencies* based on their relevance; I will analyze the results and develop a second questionnaire from competencies that were considered relevant, based on consensus, in the first round. The second questionnaire will ask panelists to rank the competencies again on their relevance as well as their clarity and measurability. The process of analyzing results (PI) and completing questionnaires (panel) will continue until consensus is reached. Generally consensus is reached within three rounds. It is anticipated that panelists will spend approximately 30 minutes on each survey and there will be 6-8 weeks between rounds.

Consistency of the expert panel is key for validity of the results. Each panelist's continued participation is critical, therefore, if for any reason you do not feel able to take part in all three rounds of the study at this time please notify me via email at chant@duq.edu or note decline on the survey link below so that a replacement panelist can be obtained. If you are willing to participate please review the consent form at the survey link and answer the initial demographic questions. Upon completion of each survey round panel participants will receive an appreciation gift of a $10 gift card.

I truly appreciate your willingness to consider participating in this important study to advance NP education and practice. I look forward to working with a distinguished expert panel to develop a list of relevant, clear, and measurable NP core competencies.

Sincerely,

Tracey Chan, MSN, ANP-BC
Doctoral Candidate DUSON
chant@duq.edu

Appendix E

Delphi NP Core Competencies Demographics

Q1 Indicate Full Name

_____

Q2 Please note which category of the expert panel you best fit into:

○ Faculty with a minimum of 3 years experience in a BSN-DNP program (1)

○ Actively practicing NP clinician educated as a DNP with a minimum of 5 years experience (2)

○ Recent BSN-DNP program graduate whom has been employed as a NP for 6-18 months (3)

Q3 Indicate Email Address

_____

Q4 Indicate Best Phone Number to be Reached at

_____

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Q5 Indicate your primary practice setting

○ Outpatient Clinic (1)

○ Hospital (2)

○ University (3)

○ Long Term Care Facility (4)

Q7 In what state is your full time employment located

_____

Q6 Indicate what population your NP certification is in?

○ Adult NP (1)

○ Adult Gerontology Primary Care NP (2)

○ Acute Care NP (3)

○ Adult Gerontology Acute Care NP (4)

○ Family NP (5)

○ Pediatric NP (6)

○ Psychiatric Mental Health NP (7)

○ Neonatal (8)

○ Women's Health (9)

○ Gerontology (10)

○ Not a NP, BSN- DNP educator (11)

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Q8 Indicate your gender

○ Male (1)

○ Female (2)

Q9 Indicate your age

○ 18-25 years (1)

○ 26-35 years (2)

○ 36-45 years (3)

○ 46-55 years (4)

○ 56-65 years (5)

○ 66 + years (6)

Q10 Indicate total years as a nurse

○ less than 5 years (1)

○ 5-10 years (2)

○ more than 10 years (3)

Q11 Indicate total years as a NP

○ 6 months to 4 years (1)

○ 5-10 years (2)

○ more than 10 years (3)

○ not applicable (4)

Q13 Indicate total years as a DNP

○ 6 months to 4 years (1)

○ 5-10 years (2)

○ more than 10 years (3)

○ Not applicable (4)

Q14 Indicate total years as a nurse educator

○ 3-5 years (1)

○ 5-10 years (2)

○ more than 10 years (3)

○ Not applicable (4)

Q12 Indicate total years as a BSN-DNP Educator

◯ 3-5 years (1)

◯ 5-10 years (2)

◯ more than 10 years (3)

◯ Not applicable (4)

Appendix F

Informed Consent

DUQUESNE UNIVERSITY

600 FORBES AVENUE ♦ PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE:
Nurse Practitioner Core Competencies: A Delphi Approach

INVESTIGATOR:
Tracey Chan, MSN, ANP-BC, PhD Student

ADVISOR: (if applicable:)
Dr. Joan Such Lockhart, PhD, RN, AOCN, CNE, ANEF, FAAN
Professor/Chair of Dissertation
412-396-6540

SOURCE OF SUPPORT:
This study is being performed as partial fulfillment of the requirements for the PhD degree in Nursing at Duquesne University and is not receiving any financial support.

PURPOSE:
You are being asked to participate in a research study that seeks to investigate nurse practitioner core competencies. The goal is to identify relevant, clear, and measurable core competencies that are vital for entry into NP practice as a DNP.

In order to qualify for participation you must be employed within the U.S. and able to read and write in English as well as either 1. A faculty with a minimum of 3 years experience in a BSN-DNP program 2. An actively practicing NP clinician educated as a DNP with a minimum of 5 years experience or 3. A recent BSN-DNP program graduate whom has been employed as a NP for 6-18 months.

PARTICIPANT PROCEDURES:
To participate in this study you will be asked to complete multiple rounds of electronic questionnaires in order to reach consensus. You will complete the first on-line questionnaire utilizing Qualtrics by ranking the NONPF *NP Core Competencies*, the AACN *Essentials of Doctoral Education for Advanced Nursing Practice,* and the AACN *Common Advanced Practice*

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Registered Nurse Doctoral-Level Competencies based on their relevance; the PI will analyze the results and develop a second electronic questionnaire utilizing Qualtrics from competencies that were considered relevant, based on consensus, in the first round. The second questionnaire will ask you to rank the competencies again on their relevance as well as their clarity and measurability. The process of analyzing results (PI) and completing electronic questionnaires (participants) in Qualtrics will continue until consensus is reached. Generally consensus is reached within three rounds. It is anticipated that you will spend approximately 30 minutes on each survey and there will be 6-8 weeks between rounds. In addition, you will be asked to fill out a demographic form.

These are the only requests that will be made of you.

RISKS AND BENEFITS:
There are minimal risks associated with participating in this study, but no greater than those encountered in everyday life. A benefit of participation is development of a list of NP core competencies which has potential to advance NP education and practice.

COMPENSATION:
Participants will receive a $10 electronic gift card to Panera Bread after they complete each round of surveys. Participation in this project will require no monetary cost to you.

CONFIDENTIALITY:
Your participation in this study and any personal information that you provide will be kept confidential at all times and to every extent possible.

All written and electronic forms and study materials will be kept secure. Your responses to questions may appear as de-identified quotes, so anything that could identify you will be removed. The study may be published or presented at a professional meeting but at no time will your identity be shared or known. Your response(s) will only appear in statistical data summaries. Any study materials with personal identifying information will be maintained for three years after the completion of the research and then destroyed.

RIGHT TO WITHDRAW:
You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time. To withdraw notify the PI of your desire to withdraw from the study and all data collected from participant will be deleted and destroyed.

SUMMARY OF RESULTS:
A summary of the results of this research will be supplied to you, at no cost, upon request.

VOLUNTARY CONSENT:
I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.
I understand that should I have any further questions about my participation in this study, I may call Tracey Chan, principal investigator, or Dr. Joan Lockhart, advisor, at 412-396-6540.

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Should I have any questions regarding human subject issues, I may contact Dr. David Delmonico, Chair of the Duquesne University Institutional Review Board, at 412-396-1886.

_____   _____

Participant's Signature   Date

_____   _____

Researcher's Signature   Date

3.0 RESEARCH METHODOLOGY AND FINDINGS

Manuscript #2

DETERMINING NURSE PRACTITIONER CORE COMPETENCIES

UTILIZING A DELPHI APPROACH

Abstract

Background: Competency-based education (CBE) has been recommended for nurse practitioner (NP) education. To implement CBE, existing NP core competencies need to be reduced in number and refined.

Purpose: This study refined and reduced redundancy in the National Organization of Nurse Practitioner Faculties (NONPF) and American Association of Colleges of Nursing (AACN) NP core competencies through the consensus of experts in NP practice. This study used the current *NP Core Competencies (*NONPF*, 2017),* the *Essentials of Doctoral Education for Advanced Nursing Practice (*AACN*, 2006),* and the *Common Advanced Practice Registered Nurse Doctoral-Level Competencies,(AACN, 2017a)* as these documents are the competencies accredited NP programs commonly use in curriculum development. The primary aim of this study was to determine the relevancy of these competencies; a secondary aim was to ensure that the final competencies were clear and measurable.

Methods: A Delphi approach was used to reach consensus among an expert panel who reviewed the core competencies via an online questionnaire. Descriptive statistics were used to calculate median and interquartile ranges; content analysis was conducted with qualitative data.

Results: Consensus was reached after three rounds and resulted in 49 final core competencies.

Implications for Practice: This study provides the NP community with a manageable list of relevant, clear, and measurable competencies that faculty members can use to implement CBE in their programs.

Nurse practitioners (NPs) are currently prepared at both the master's and doctoral levels in one of six population foci. Since the early 2000s, both the National Organization of Nurse Practitioner Faculties (NONPF) and the American Association of Colleges of Nursing (AACN) have endorsed the Doctor of Nursing Practice (DNP) degree as entry to NP practice (AACN, 2004; NONPF, 2015) and NONPF recently reinforced this stance with a statement "to move all entry-level NP education to the DNP degree by 2025" (NONPF, 2018b, p. para. 1). The Institute of Medicine (IOM) is recommending nursing and NP education move to a competency based education (CBE) framework (IOM, 2011). It is imperative that NP programs continue to prepare competent students to provide safe, quality, and independent patient care for the population foci in which they have been trained. Research has consistently demonstrated that the quality of care patients receive from NPs is similar or better than care provided by medical doctors (MDs) (Stanik-Hutt et al., 2013). To continue graduating quality NPs and moving NP education to CBE, the NP competencies need to be refined and reflect the current state of healthcare.

3.1 Background and Significance

NPs complete graduate education and training at either a master's or doctoral level (DNP) within one of six identified population foci (family/individual across the lifespan, adult-gerontology, pediatrics, neonatal, women's health/gender-related, or psych/mental health), which qualifies them to sit for national certification (AANP, 2013). Since 2002, NONPF has endorsed the DNP degree as entry to NP practice and has recently called for this to occur by 2025 (NONPF, 2015, 2018b). In 2004, AACN released a statement supporting the move to the DNP

as the education degree needed for entry into practice as a NP (AACN, 2004). According to AANP (2013), the majority of currently accredited NP programs are at the master's level. However, DNP programs have been steadily increasing in number; in 2017, 303 DNP programs were available nationwide, 187 were BSN-DNP, with at least an additional 124 DNP programs in the planning stages (AACN, 2017b). According to the American Academy of Nurse Practitioners Certifying Board, the current requirement for national certification as an NP entails that graduates complete an accredited NP program at the masters or doctoral level with a minimum of 500 hours of supervised clinical practice, pass a written certification exam, and transition into their roles as independent providers (American Academy of Nurse Practitioners, 2015). While these requirements are expected to assure that the applicant is competent, past research does not support that earning certification equates to clinical competency (Hallas, Biesecker, Brennan, Newland, & Haber, 2012; Whittaker, Carson, & Smolenski, 2000). Numerous NP competencies have been published since the 1990s, but most NP programs incorporate them into traditional time-based knowledge acquisition higher education models, rather than solely assuring achievement of the competencies using a CBE approach (NONPF, 2013).

Competency Based Education

CBE is an educational framework that has been recommended by various leaders within nursing and healthcare (Giddens et al., 2014; IOM, 2011; Lucey, 2017; Sroczynski & Dunphy, 2012). CBE has been defined as "a data-based, adaptive, performance-oriented set of integrated processes that facilitate, measure, record and certify within the context of flexible time parameters the demonstration of known, explicitly stated, and agreed upon learning outcomes that reflect successful functioning in life roles" (Spady, 1977, p. 10). Also, CBE focuses on

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assuring that students attain specific skills before advancing to new information and is not based on a pre-determined time period.

Implementation of CBE requires an agreed upon definition of competency. While "competency" has been defined in a variety of ways within the nursing profession, all of the definitions incorporate learners' abilities to perform or apply their knowledge (Benner, 1982; Chapman, 1999; Fan, Wang, Chao, Jane, & Hsu, 2015; Nolan, 1998). The AACN recently adopted definitions of "competency" and "competence" based on work by Frank et al. (2010). *Competency* is defined as "an observable ability of a health professional, integrating multiple components such as knowledge, skills, and attitudes. Since competencies are observable, they can be measured and assessed to ensure acquisition" (AACN, 2017a, p. 2). *Competence* is defined as "The array of abilities (knowledge, skills and attitudes) across multiple domains or aspects of performance in a certain context. Competence is multi-dimensional and dynamic. It changes with time, experience, and settings" (AACN, 2017a, p. 2).

Compared to nursing, physical therapy (PT), pharmacy, and medicine have more routinely implemented CBE in their programs. PT was one of the first health care professions to implement CBE and, in 1992, implemented the Clinical Performance Instrument (Roach et al., 2012). This validated instrument measures students' attainment of necessary competencies and is used by a majority of PT programs (Roach et al., 2012). In addition, the American College of Clinical Pharmacy (ACCP) has well-defined and accepted competencies for their graduates that assure they are ready to enter into pharmacy practice (Saseen et al., 2017). Finally, medical education research within the U.S. is ongoing regarding CBE with a defined set of competencies having been developed and accepted for general physicians (Englander et al., 2013). At least two U.S. medical schools, the University of Minnesota Medical School and Brown University

School of Medicine, have successfully implemented CBE (Andrews et al., 2018; Carraccio, Wolfsthat, Englander, Ferentz, & Martin, 2002; Lucey, 2017).

For these health professions to implement CBE, they had to develop a well-defined set of measurable and attainable competencies. The Association of American Medical Colleges (AAMA) has 58 competencies in eight domains for general physicians (Englander et al., 2013). The ACCP has six essential domains which encompass 31 competencies that clinical pharmacists need to obtain (Saseen et al., 2017). Each of these professional organizations has evaluated the literature and the practice of their discipline to reach well-defined appropriate and measurable competencies. It is timely for nursing to do the same for NPs.

Nurse Practitioner Competencies

Health-related organizations including NONPF, the AACN, the Interprofessional Education Collaborative (IPEC), the American Nurses Association (ANA), and the International Society of Nurses in Genetics (ISONG) have collectively defined 354 specific competencies for all advanced practice registered nurses (APRNs), which includes NPs, and refer to them as *core competencies*. Core competencies reflect the knowledge and skills that all NPs should have and are considered the *gold standard* (Crabtree, Stanley, Werner, & Schmid, 2002).

Recently, the AACN convened a work group representing the four APRN roles [NP, clinical nurse specialist, certified nurse midwife, and certified registered nurse anesthetist] to develop "a common taxonomy for competencies for the doctoral-prepared APRN" (AACN, 2017a, p. 1). As previously noted, AACN supports the movement of APRN education to the doctoral level via the DNP degree. Ultimately, the group adopted *Common Taxonomy for Competency Domains in the Health Professions* described by Englander et al. (2013) as a framework for competency development (AACN, 2017a). The eight domains include: patient

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care; knowledge for practice; practice based learning and improvement; interpersonal and communication skills; professionalism; systems-based practice; interprofessional collaboration; and personal and professional development (Englander et al., 2013). This AACN group of APRNs developed a list of 31 competencies within these eight domains that are applicable to all four APRN roles (AACN, 2017a). The AACN recognizes that each of the APRN roles need to further this work to move towards CBE.

Based on this AACN work, NPs need to first refine their core competencies. While no defined number of competencies exist for a profession, the National Task Force on Quality Nurse Practitioner Education (2016) states that the NP curriculum needs to reflect nationally recognized core competencies that include the NONPF *NP Core Competencies (NONPF, 2017)* and the AACN *Essentials of Doctoral Education for Advanced Nursing Practice (AACN, 2006)*. Since overlaps exist among the different competencies, redundancies need to be lessened. It is imperative that the core NP competencies are relevant, the degree to which they are necessary for newly graduated NPs, and reflect the current state of healthcare. An integrative review evaluating the current core competencies in relation to NP practice activities revealed weak alignment between the competencies and NP practice (Chan, Lockhart, Thomas, Kronk, & Schreiber, 2018). This review revealed that, while NPs spend a majority of their time in direct patient care, 86% of the core competencies reflect indirect care activities (Chan et al., 2018). Competencies should reflect the needs of the work force (Hallas et al., 2012; Voorhees, 2001). The IOM "supports the development of a unified set of core competencies across [each level of] the nursing profession and believes it would help provide direction for standards across nursing education" (IOM, 2011, p. 201).

Therefore, the purpose of this study was to refine and reduce redundancy in the NONPF and AACN core APRN competencies through the consensus of US experts in NP practice. The study used the current *NP Core Competencies (*NONPF*, 2017),* the *Essentials of Doctoral Education for Advanced Nursing Practice (*AACN*, 2006),* and the *Common Advanced Practice Registered Nurse Doctoral-Level Competencies*,(AACN, 2017a) as a basis since these are the competencies accredited NP programs use in curriculum development. The primary aim was to determine that the NP core competencies are relevant with a secondary aim of assuring the competencies were clear and measurable.

3.2 Method

Design

A Delphi approach was used to research NP competencies. The Delphi method allows discussion and judgment on a topic without interpersonal interaction which can create bias and conflict (Goodman, 1987; Grisham, 2008).   This approach was chosen because of the desire to collect a group of experts' opinions to reach consensus. Therefore, the Delphi technique would reach consensus on NP competencies, the main aim of the study, through a series of questionnaires that build on each other (Goodman, 1987; Hasson, Keeney, & McKenna, 2000).

Selection of expert panel. In a Delphi technique, the sample is purposefully chosen because of the need for an expert panel of individuals rather than randomly selected participants. In this current study, a panel of experts on NP practice throughout the US were recruited with the assistance of NONPF, the "leading organization for NP faculty" representing over 90% of U.S. NP programs (NONPF, 2018a). Inclusion criteria for the panel participants included: 1) employed in the U.S.; 2) able to read and write in English; and 3) either a) a faculty member with a minimum of three years of experience in a BSN-DNP program; b) an actively practicing NP

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clinician educated as a DNP with a minimum of five years of experience; or c) a recent BSN-DNP program graduate who has been employed as a NP full-time for 6-18 months. While using a panel with a variety of viewpoints can increase study validity and credibility (Day & Bobeva, 2005; Habibi, Sarafrazi, & Izadyar, 2014), it can also make it more difficult to achieve consensus (Skulmoski et al., 2007).

Through email communication, the lead researcher asked members of the NONPF Curricular Committee and the Program Directors' Special Interest Group to nominate one to two people who fit into each of the three panel groups and met other inclusion criteria; group members were asked to provide their nominees' names with credentials, geographical location, and contact information (phone number and email); members could self-nominate. Next, the researcher eliminated duplicates from the list of nominees. A Delphi study does not have criteria regarding the number of experts that should be on the panel, and although ideal, each category does not have to have equal representation (Habibi et al., 2014; Keeney, Hasson, & McKenna, 2001).

The researcher contacted the nominated experts using an email letter that explained the study and invited them to participate. It was important for panelists to understand the study and remain engaged throughout the study to increase its validity (Hasson et al., 2000). According to Keeney, Hasson, and McKenna (2006), assuring that panelists "realize and feel that they are partners in the study and are interested in the topic" (p.207) can enhance response rates.

Sixty nominees were sent invitations to participate with 37 being BSN-DNP faculty, 13 being actively practicing NPs with five year's of experience as a DNP, and seven being new BSN-DNP graduates employed as NPs. Nominees were asked to electronically respond regarding their willingness to participate, confirm they met the inclusion criteria, and note into which of the three groups they fit. Of the 60 nominees, 37 individuals consented to participate in

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the study providing a 61.7% response rate; 16 individuals never responded and seven either declined or did not meet full criteria for participation.

Study Measures and Instruments

To begin, 139 different NP core competencies were retrieved from three key documents which are the necessary components of curriculum development for accredited NP programs: *NONPF Core Competencies* (NONPF, 2017)*, The Essentials of Doctoral Education for Advanced Practice Nursing* (AACN, 2006), and *Common APRN Doctoral-Level Competencies* (AACN, 2017a). These core competencies compromised the variables that were evaluated by the panel over three rounds of review for their relevance, clarity, and measurability.

A researcher-devised questionnaire based on these 139 NP core competencies was developed to collect responses and gain consensus from the panel. The focus of the questionnaire was on evaluation of the competencies. This questionnaire changed after each round based on the panelists' feedback. The first round's questionnaire presented the competencies in random order, rather than by the organization that created them, to reduce bias (Hasson et al., 2000). Pilot-testing of the first questionnaire was conducted with three NPs who were familiar with the competencies; they were asked to provide feedback on the questionnaire's usability and content as well as the time it took them to complete the questionnaire. The questionnaire did not require any revisions based on pilot study feedback.

For the first round, panelists were asked to rate each of the 139 competencies for its relevancy on a Likert scale ranging from 1 to 4 (1=strongly disagree; 4=strongly agree) with no neutral point in order to force experts to take a stance of either agreement or disagreement. "Relevancy" was defined to panelists as the degree to which the competency is necessary for a

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new NP obtaining the DNP degree. Panelists also had an option to add comments to each item and/or recommend additional competencies.

After analyzing the data obtained from the first round (see Results section), the lead researcher used the feedback to revise the questionnaire for use in round two. Changes included reducing or rewording the competencies based on feedback and grouping the remaining competencies together by a concept. In the second round, the panel was asked to determine if redundancy still existed and if the competency was critical on a 1-4 scale (1= strongly disagree and 4= strongly agree), measurable (yes/no) and clear (yes/no). "Critical" was defined as a competency necessary for a new BSN-DNP graduate to possess; "measurability" was defined as being able to objectively evaluate the competency; and "clear" was defined as the competency being free from ambiguity. The option for panelists to add comments remained. Additionally, panelists were asked to offer suggestions to change the competency if it was marked as "relevant" but not "measurable" or "clear". At the end of the questionnaire panelists were given the opportunity to comment about concepts they believed were missing from the competencies. In round two and beyond, the panelists received personalized results termed "iterative controlled feedback" from the previous round that included their individual rating as well as the overall median rating for each item; this feature allowed the panel to see the panel's collective opinion (Hasson et al., 2000).

The round three questionnaire incorporated the results of the round two questionnaire and reduced or reworded the competencies based on the feedback. In the third round, the competencies were grouped together according to 8 domains as described by Englander, et al (2013) *Taxonomy of Competency Domains for the Health Profession Competencies*. The panelists were asked to determine agreement with each competency again utilizing the 1 to 4

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Likert scale and to determine if the competency was placed in the appropriate domain (by answering yes/no). As in rounds one and two, the opportunity to provide comments or suggested changes was provided. At the end of the questionnaire panelists were again given a chance to comment and/or mention if any concepts were missing from the competencies.

Procedure

The Duquesne University Institutional Review Board approved the study. The questionnaires were administered electronically utilizing the Qualtrics software, a secure online program that has ISO 27001 certification (Qualtrics, 2018). The panel of experts was emailed a secure link to complete the questionnaire electronically. Each rounds' questionnaire was available to respondents for approximately two weeks. Panel members must have participated in the previous round to continue.

Summarizing comments and not sharing the identity of expert panel members with other panel members maintained confidentiality of the panelist's responses. Protecting the anonymity of panel members is a key characteristic of Delphi research (Keeney et al., 2006).

Analysis

Analysis of the quantitative data was performed utilizing SPSS version 23. Data from completed questionnaires were exported in SPSS format from Qualtrics for analysis. Descriptive statistics of median and interquartile ranges were calculated. The median was utilized since a Likert scale produces ordinal data (von der Gracht, 2012) and interquartile range was utilized as an indicator of consensus (De Vet, Brug, De Nooijer, Dijkstra, & De Vries, 2005). Competencies on the first questionnaire that had received a median score of three or above for relevancy with an interquartile deviation of one were included in the next round; those items rated with a median less than three and an interquartile deviation of one were considered not

relevant and eliminated. Competencies that had an interquartile range greater than one were also included in the next round regardless of their median rating. Competencies in rounds two and three were also rated on measurability and clarity; items that received a median of three or above on relevancy but less than 80% agreement on clarity or measurability were rewritten for the next round based on content analysis of comments received. Competencies that received consensus, interquartile deviations of less than or equal to one, with a median score less than three for relevancy were eliminated; those items with a median of three or above on relevancy, and 80% agreement on clarity and measurability, were considered a core NP competency.

Qualitative comments on the questionnaires were analyzed through content analysis, "a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" (Hsieh & Shannon, 2005, p. 1278). An inductive approach was used in each round. The researcher initially read through all the comments in the selected round then reread them again carefully and made note of key words and determined themes at the literal level (Hsieh & Shannon, 2005; Kondracki, Wellman, & Amundson, 2002). Categories were developed based on the themes. Data were then placed into the categories and the relationship between categories was analyzed; competencies were revised, as appropriate. Throughout the study, a manual approach was used. Journal entries captured the thought processes and decisions made by the researcher to assist in creditability and dependability of the study, similar to an audit trail (McPherson, Reese, & Wendler, 2018; Skulmoski et al., 2007). Another researcher with expertise in nursing education independently analyzed data via content analysis utilizing the same procedure to assure confirmability (McPherson et al., 2018) along with inter-rater agreement in order to reach 100 percent consensus.

<center>**3.3 Results**</center>

Socio-demographic data collected from the expert panel over three rounds is displayed in Table 1. Panelists were located throughout the U.S., certified in various foci, and had many years experience as a registered nurse. Initially, 37 experts consented to participate in the study. Of those interested expert panelists, only 27 (73%) responded to the round one questionnaire. The response rate in round two was 21 panelists retained from round one (78%); then 17 of round two's 21 panelists (81%) participated in the final round three.

Round 1

Initial quantitative results of the round one questionnaire did not eliminate any of the competencies (full round 1 results presented in Table 2). Of the 139 competencies, 131 (94%) were rated as "relevant" with a median score of three to four for relevancy and an interquartile range of zero to one. The remaining eight competencies received a median of three or above for relevancy, but the interquartile range was above one, thus not indicating consensus. Content analysis of the comments indicated concern over redundancy among the competencies and the ability to measure some of the competencies. To address redundancy, the researcher clustered the competencies by main concept within the competency then combined or eliminated those that had similar intent. The main concepts that were found included: leadership, policy, information technology/data, ethics, communication, patient care/clinical practice, and outcomes/quality improvement. An additional two doctoral prepared researchers with expertise in nursing education and methodology independently reviewed the work to assure inter-rater reliability. This process resulted in eliminating 51 competencies, leaving 88 competencies to be evaluated in the second round questionnaire.

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Round 2

In round two the resulting 88 competencies were presented by concept as previously described in the round 1 results (full round 2 results presented in Table 3). The verbiage for ranking the competencies was changed from relevant to critical because all the competencies were viewed as being relevant in round one. The panelists were also asked to indicate if each competency was clear and measurable and to indicate if there was redundancy in the competencies. If redundancies were found, the panelists were to indicate the competencies that were redundant.

The quantitative analysis of the round two questionnaire revealed that 47 competencies did not reach consensus due to either an interquartile range above one (42 of the 47) and/or the rating fell below the 80% agreement on either clarity or measurability. With regards to redundancy, only the competencies under the concept of communication were found to not have any redundancy; the remaining concepts and competencies had redundancy. Content analysis of the comments received resulted in reduction of competencies based on redundancies. The content analysis also resulted in competencies being rewritten to clarify them or make them measurable. Finally, four additional competencies were written based on comments in relation to missing concepts including ethics, social determinants of health, and role differentiation. This analytical process resulted in eliminating 39 competencies, leaving 49 competencies to be evaluated in the third round.

Round 3

The 49 competencies in the third round were presented according to domains described by Englander, et al (2013) T*axonomy of Competency Domains for the Health Profession Competencies* adopted by the AACN (full round 3 results presented in Table 4). In the third

round, the panelists were asked to rate their agreement with the competency based on the 1 to 4 Likert scale and to decide if the competency was placed in the correct domain.

The quantitative analysis revealed that 48 of the 49 competencies reached consensus regarding agreement with it being a competency and correct domain placement. The competencies all had a median of four, resulting in a final list of 48 competencies that were agreed upon by the expert panel. The one competency that did not reach consensus was related to health policy. Panelists suggested placing the competency in a different domain and increasing the level for achieving the competency. Based on content analysis, the competency was reworded and moved to a different domain and included on the final competency list. Comments were also received on other competencies that had reached consensus, but based on content analysis and the high level of consensus (all median of four and many with interquartile range of zero), no further competencies were changed. The final list of 49 NP core competencies is displayed in Table 5.

3.4 Discussion

The purpose of this study was to refine and reduce redundancy in the NONPF and AACN NP core competencies through the consensus of experts on NP practice. This goal was achieved by reaching a final list of 49 competencies for NPs.

Initial findings confirmed much redundancy in the NP core competencies. Decreasing the redundancy allows NP programs to have a clearer understanding of the competencies that their students need in order to provide safe, quality care to patients. Despite the noted redundancies, it was surprising that almost all the competencies presented in round one were considered relevant. It was not possible to significantly reduce the competencies using the quantitative analysis during the first two rounds; instead, the qualitative method of content

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analysis became the main strategy for reducing and revising the list. It was clear that panelists were engaged in the study process based on the large number of comments and suggestions they made. The content analysis of the competencies and the panelists' comments resulted in reducing the final number of competencies. Comments received in round one directed how the competencies were presented by concept in round two.

After round one, the instructional wording was changed from "if the competency was relevant" to "if the competency was critical" to have panelists think about the competencies from a distinct perspective. A competency that is relevant to NPs may not be critical for practice as a NP. This modification, however, did not result in a difference in relation to the quantitative data. In round two panelists continued to provide a large amount of qualitative data in the form of competency rewording suggestions and combining competencies that had similar intent to further reduce redundancy.

Round three quantitative data revealed consensus on 48 of the 49 competencies. While comments and suggestions continued in round three, content analysis of the comments revealed the need to only reword one competency and change the domain in which it belonged. This competency was related to *health care policy* and had received diverse comments in all three rounds.

According to the panelists, a few concepts were missing from the competencies. For example, comments received in round two included the need for an ethics competency that reflected "holding oneself to the highest of ethical standards" as well as a competency expanding on social determinants of health and the impact a DNP prepared NP can have on improving them. Finally, it was noted that a competency for differentiating the NP role from other health care providers was necessary. A total of four new competencies were written and presented in

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Round 3; all of them reached consensus on being applicable for NPs graduating from a BSN-DNP program.   In round three no missing concepts were noted and a comment was received that the "competencies are comprehensive and capable of finding activities and assignments to support the demonstration of the objective."

Incorporating an expert panel with a variety of perspectives is necessary to have a complete picture of the competencies necessary for day-to-day core NP practice. This study included perspective from both NP educators and practicing NPs. As the entry level education for NPs changes to the DNP and curricula move to CBE, it will be necessary for NP programs to have a manageable list of core competencies that reflect both doctoral level education and workforce needs. The study results provide evidence for NONPF and AACN to take into account when revising the BSN-DNP core NP competencies.

Limitations

The limitations of this study are similar to other Delphi studies, as it is not a well-defined research method. The first limitation is determination of consensus. Mean, interquartile range and percent of agreement were used as the consensus criteria, as these are acceptable methods (De Vet et al., 2005). Consensus criteria established prior to data analysis contributed to the credibility of the study (Hasson et al., 2000; Keeney et al., 2006). Second, some researchers believe that using a pre-developed list of items can make the panelists feel restricted (Powell, 2003); to overcome this issue, panelists were given (and used) the opportunity to write-in comments or additional competencies. Third, a general limitation of the Delphi technique relates to reliability and validity. According to Hasson et al. (2000) "there is no evidence of the reliability of the Delphi method" (p. 1012) and validity can be affected by response rates, thus it was important to retain panelists throughout each round. Retention was supported through

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follow-up and engaging panelists in the research importance, resulting in an attrition rate of 22% for round 2 and 19% for round 3 which is an acceptable level based on previous Delphi research (Keeney et al., 2006). Validity can also be affected with iterative controlled feedback in that panelists can be persuaded toward conformity rather than true agreement (Goodman, 1987; Keeney et al., 2006). A fourth concern with the Delphi technique is that anonymity "can lead to lack of accountability"(McKenna, 1994, p. 1224), implying that since panelists are anonymous they do not feel ownership to their responses. Fifth, results can also be biased by expert panel composition, as they are not a "representative sample" (Powell, 2003, p. 378). A random sample is typically used in research to assure results are generalizable to the population, but with the Delphi technique, the sample is a selected group based on their expertise, which can cause bias. Therefore, the results may not be generalizable. In this study, most of the panelists were NP educators and only a few were newly graduated practicing NPs, despite an effort to seek a diverse panel. A final concern particular to this study is that NP practice differs across the US due to state regulations and could affect panelists' responses. Therefore, an effort was made to use panelists from a variety of regions within the US. Furthermore, there was a statement on each questionnaire that the competencies are to reflect general NP practice across the entire country.

Conclusion

For NP education to move to the CBE framework, NP core competencies needed revisions. This study produced a refined list of 49 NP core competencies that are relevant, clear, and measurable. Use of this list by national NP organizations and educational programs is a beginning step in moving NP education toward CBE as other health professions have done. NPs

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must continue to provide safe, quality patient care. A change to the CBE educational model in

programs without competency revision could present challenges in meeting this goal.

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Table 1

Expert Panel Members' Demographics

Characteristic	N (%)	Round 1	Round 2	Round 3
Sex				
Male	6 (16%)	4 (15%)	3 (14%)	2 (12%)
Female	31 (84%)	23 (85%)	18 (86%)	15 (88%)
Category				
BSN-DNP Faculty	25 (68%)	17 (63%)	15 (71%)	13 (76%)
Actively practicing DNP 5 year's experience	8 (22%)	7 (26%)	4 (19%)	3 (18%)
BSN-DNP graduate with 6-18 months experience	4 (11%)	3 (11%)	2 (10%)	1 (6%)
Age (years)				
26-35	3 (8%)	2 (7%)	2 (10%)	1 (6%)
36-45	10 (27%)	5 (19%)	4 (19%)	4 (24%)
46-55	6 (16%)	6 (22%)	4 (19%)	3 (18%)
56-65	15 (41%)	12 (44%)	9 (43%)	7 (41%)
66+	3 (8%)	2 (7%)	2 (10%)	2 (12%)
Region of US employed				
Northeast	11 (30%)	9 (33%)	8 (38%)	7 (41%)
Southeast	6 (16%)	4 (15%)	3 (14%)	2 (12%)
Midwest	14 (38%)	10 (37%)	7 (33%)	5 (29%)
Southwest	2 (5%)	2 (7%)	1 (5%)	1 (6%)
West	4 (11%)	2 (7%)	2 (10%)	2 (12%)
NP Certification				
Adult NP/Primary Care	7 (19%)	7 (26%)	6 (29%)	3 (18%)
Acute Care NP	5 (14%)	3 (11%)	3 (14%)	3 (18%)
Family NP	16 (43%)	12 (44%)	8 (38%)	7 (41%)
Pediatric NP	6 (16%)	4 (15%)	3 (14%)	3 (18%)
Psychiatric NP	2 (5%)	0	0	0
Neonatal NP	1 (3%)	1 (4%)	1 (5%)	1 (6%)
Years as a registered nurse				
5-10 years	1 (3%)	1 (4%)	1 (5%)	0
>10 years	36 (97%)	26 (96%)	20 (95%	17 (100%)
Years as a NP				
6 months – 4 years	4 (11%)	3 (11%)	2 (10%)	1 (6%)
5-10 years	4 (11%)	3 (11%)	2 (10%)	2 (12%)
>10 years	29 (78%)	21 (78%)	17 (80%)	14 (82%)
Years as a DNP				
6 months- 4 years	7 (19%)	5 (14%)	3 (14%)	2 (12%)
5-10 years	18 (49%)	14 (38%)	13 (62%)	11 (65%)
>10 years	6 (16%)	3 (11%)	1 (5%)	0
N/A	6 (16%)	5 (19%)	4 (19%)	4 (24%)
Years as a nurse educator				
3-5 years	4 (11%)	3 (11%)	2 (10%)	2 (12%)
5-10 years	6 (16%)	3 (11%)	2 (10%)	2 (12%)
>10 years	24 (65%)	19 (70%)	15 (70%	12 (71%)
N/A	3 (8%)	2 (7%)	2 (10%)	1 (6%)
Years as a BSN-DNP educator				
3-5 years	16 (43%)	11 (41%)	10 (48%)	9 (53%)
5-10 years	11 (30%)	8 (30%)	7 (33%)	6 (35%)
>10 years	2 (5%)	1 (4%)	0	0
NA	8 (22%)	7 (26%)	4 (19%)	2 (12%)

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Table 2

Round 1 Results

Competency	Median	Interquartile Range	N	Comments
1. Use conceptual and analytical skills in evaluating the links among practice, organizational, population, fiscal, and policy issues.	3	1	27	Clarify, comprehensive contextual analysis?; analytical systems thinking
2. Participates in the development, use, and evaluation of professional standards and evidence-based care.	4	1	27	Don't include both EBC and professional standards; develop is too high level
3. Demonstrate leadership, trustworthiness, and self-assurance that inspire the confidence of patients and colleagues.	4	0	27	How measured; move leadership; Demonstrate consistency, trustworthiness, integrity, and respect to inspire the confidence of patients and colleagues
4. Perform a comprehensive evidence-based assessment.	4	0	27	Ambiguous; clinical or practice change, if practice overlaps with 1
5. Critically analyzes data and evidence for improving advanced nursing practice.	4	0	27	
6. Integrate nursing science with knowledge from ethics, the biophysical, psychosocial, analytical, and organizational sciences as the basis for the highest level of nursing practice.	4	1	27	Unclear; what's measured; change organizational science to implementation science
7. Develop and evaluate care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and other clinical sciences, as well as organizational, political, and economic sciences.	4	1	27	Make succinct and clear; too high level, need content expertise to do; break into 2 competencies: 1 Develop and evaluate care delivery approaches that meet current and future needs of patient populations based on scientific finding in nursing and other clinical sciences. 2 Develop and evaluate care delivery approaches that meet current and future

Item	4	0/1	n	Comments
				needs of patient populations in the context of organizational, political, and economic science
8. Provides leadership in the translation of new knowledge into practice.	4	0	27	Cannot all be leaders, need good followers; need content expertise to be able to do
9. Demonstrate interpersonal and communication skills that result in effective exchange of information and collaboration with patients.	4	0	27	Essential for all levels of nursing; add interprofessional team
10. Demonstrate leadership in the development and implementation of institutional, local, state, federal, and/or international health policy.	3	1	27	Too broad and grandiose; too high level; not lead; focus on institutional and engaged at state; how measured; Use expertise to influence local, state, federal, or institutional health policy to advocate for the health of individuals, families, communities and populations.
11. Demonstrates the highest level of accountability for professional practice.	4	0	27	Applies to all levels of nursing; missing leadership/system lens; how measured; what is highest level
12. Collaborate in the development, implementation, and evaluation of systems level strategies to reduce errors and optimize safe, effective healthcare delivery.	4	1	26	Collaborate to develop, implement and evaluate health care strategies which reduce error and optimize safe, effective systems of healthcare delivery
13. Educate patients, families, and communities to empower themselves to participate in their care and enable shared decision making.	4	0	27	RN skill; change to leading teams; Empower patients, families and communities to share in health care decision making
14. Develop and/or evaluate effective strategies for managing the ethical dilemmas inherent in patient care, the health care organization, and research.	4	1	27	Too much variation from practice to practice; need more clarity on expectations; too high level; not entry to practice; needs or; IRB job for research issues

Item				Comment
15. Applies knowledge of organizational practices and complex systems to improve health care delivery.	4	1	27	Be more clear and deliberate; too high level; not entry to practice
16. Assumes complex and advanced leadership roles to initiate and guide change.	3	1	27	Does not apply to all; how can one be advanced as a new grad; not reasonable; need clarity; remove complex and advanced
17. Apply science-based theories and concepts to guide one's overall practice.	4	0	27	Redundant
18. Lead interprofessional teams in the analysis of complex practice and organizational issues.	4	1	27	What is complex? What's an issue? Not realistic for all
19. Translates research and other forms of knowledge to improve practice processes and outcomes.	4	0	27	What other forms of knowledge
20. Engage in the education and mentoring of students, peers and other health team members.	4	1	27	New grads are being mentored not mentoring; not a requisite to practice
21. Disseminate findings from evidence-based practice and research to improve healthcare outcomes.	4	1	27	
22. Collaborates in planning for transitions across the continuum of care.	4	1	27	May not always happens; transitions of what?
23. Promote a climate of respect, dignity, inclusion, integrity, civility and trust to foster collaboration within the healthcare team.	4	0	26	
24. Use analytic methods to critically appraise existing literature and other evidence to determine and implement the best evidence for practice.	4	1	27	What type of analytical method
25. Educates professional and lay caregivers to provide culturally and spiritually sensitive, appropriate care.	4	1	27	RN skill not DNP; change to include leadership or policy implementation; other issues to address
26. Continuously assess strengths and weaknesses of one's own knowledge and skills and actively seek opportunities for continuous improvement.	4	0	27	Change to ongoing assessment; remove strengths and weaknesses

27. Evaluates the relationships among access, cost, quality, and safety and their influence on health care.	4	1	27	Redundant
28. Design, direct, and evaluate quality improvement methodologies to promote safe, timely, effective, efficient, equitable, and patient-centered care.	4	0	27	Redundant; Improve the quality of patient centered care through innovative designs that are effective, equitable, sustainable and cost-effective
29. Integrates appropriate technologies for knowledge management to improve health care.	3	1	27	Not clear; ?EMR; not able to integrate; what types of technology; limiting; include diagnostic technologies to facilitate self-sufficient clinical decision making; more use of technology for timely efficient point of care decision making
30. Evaluates the impact of globalization on health care policy development.	3	1	27	How achieved; why globalization singled out
31. Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, and services that have been demonstrated to improve outcomes.	4	1	27	Redundant; multiple concepts; change continually to ongoing identification
32. Use science-based theories and concepts to: determine the nature and significance of health and health care delivery phenomena; describe the actions and advanced strategies to enhance, alleviate, and ameliorate health and health care delivery phenomena as appropriate; and evaluate outcomes.	**3**	**2**	**26**	**Too much; unclear; too vague; what is a healthcare phenomena; delete; redundant; 3 separate concepts**
33. Evaluates the ethical consequences of decisions.	4	0	26	
34. Evaluate care delivery models and/or strategies using concepts related to community, environmental and occupational health, and cultural and socioeconomic dimensions of health.	3	1	26	A lot of dimensions to one competency; evaluating to what end; lengthy, unclear, redundant; delete; socioeconomic dimensions of health is vague; use social determinants of health or health equity/inequities

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Item				
35. Functions as a licensed independent practitioner.	4	0	27	Practice determined state by state; need to follow state practice laws; new grad not practice independently within scope of own knowledge base know when to ask for help; collaborative practice; Function as a certified autonomous practitioner
36. Use information technology and research methods appropriately to: collect appropriate and accurate data to generate evidence for nursing practice; inform and guide the design of databases that generate meaningful evidence for nursing practice; analyze data from practice; design evidence-based interventions; predict and analyze outcomes; examine patterns of behavior and outcomes; identify gaps in evidence for practice	**3**	**2**	**27**	**Too long; too many concepts; PhD focused; redundant; delete; separate out; repeat of 29; include use of diagnostic technologies and telehealth modalities**
37. Analyze and communicate critical elements necessary to the selection, use and evaluation of health care information systems and patient care technology.	3	1	26	Lengthy, unclear, redundant, delete; don't need analyze; Participate in the evaluation and selection of healthcare information systems and patient care technologies
38. Provides patient-centered care recognizing cultural diversity and the patient or designee as a full partner in decision-making.	4	0	27	
39. Demonstrate compassion and accountability to patients, society, and the profession.	4	0	26	
40. Advocate for the nursing profession within the policy and healthcare communities.	4	0	27	
41. Assume different roles (e.g. member, leader) within the interprofessional, healthcare team to establish, develop, and continuously enhance the team to provide and improve patient-centered care.	4	0	27	Assume different roles (eg. Member, leader) as needed, within the interprofessional health care team to improve the provision of patient centered care
42. Synthesize concepts, including psychosocial dimensions and cultural diversity, related to clinical prevention and population health in	4	1	26	Too long; too complex; redundant; simplify; a lot of variables, separate

developing, implementing, and evaluating interventions to address health promotion/disease prevention efforts, improve health status/access patterns, and/or address gaps in care of individuals, aggregates, or populations.

43. Applies skills in peer review to promote a culture of excellence.	4	0	27	Unclear; utilizes peer review
44. Contributes to the design of clinical information systems that promote safe, quality and cost effective care.	4	1	27	Not likely all will participate in design
45. Facilitates the development of health care systems that address the needs of culturally diverse populations, providers, and other stakeholders.	4	1	27	Redundant; development not only approach; too lofty for new grad
46. Manage care across the health continuum including prescribing, ordering, and evaluating therapeutic interventions	4	0	27	Within their population based scope of practice
47. Advocate for social justice, equity, and ethical policies within all healthcare arenas.	4	1	27	Go beyond advocacy; leverage their role to create social change promote health equity and apply social justice to practice
48. Design, select, use, and evaluate programs that evaluate and monitor outcomes of care, care systems, and quality improvement including consumer use of health care information systems.	3	1	27	Redundant, just address consumer health care information systems
49. Use technology for effective exchange of information and collaboration with patients and the health care team.	4	1	27	Unclear; Uses effective communication skills in collaboration with the healthcare team
50. Function as a practice specialist/consultant in collaborative knowledge-generating research.	4	1	27	Unclear; Collaborate with research and CQI teams
51. Provide leadership in the evaluation and resolution of ethical and legal issues within healthcare systems relating to the use of information, information technology, communication networks, and patient care technology.	**3**	**2**	**25**	**Need to be more clear and direct; redundant; yes to ethical issue resolution not legal issues**

52. Educate others, including policy makers at all levels, regarding nursing, health policy, and patient care outcomes.	4	1	26	What is core focus
53. Design, implement, and evaluate therapeutic interventions based on nursing science and other sciences.	4	.5	25	Redundant
54. Uses advanced health assessment skills to differentiate between normal, variations of normal, and abnormal findings.	4	0	26	
55. Advances practice through the development and implementation of innovations incorporating principles of change.	4	1	26	Need more clarity and goal here
56. Critically analyze health policy proposals, health policies, and related issues from the perspective of consumers, nursing, other health professions, and other stakeholders in policy and public forums.	3	1	26	Redundant; multiple concepts; only consumers and nursing perspective
57. Disseminates evidence from inquiry to diverse audiences using multiple modalities.	3.5	1	26	Ambiguous, broad
58. Demonstrate a commitment to ethical principles pertaining to the provision or withholding of care in compliance with relevant laws, policies and regulations.	4	1	25	Not as worded; specific; an end of life statement
59. Demonstrate healthy coping mechanisms to responds to the demands of professional practice.	4	1	25	Not a competency; what does coping mean, who is coping well?
60. Analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and population health.	4	1	25	Redundant; to do what?
61. Applies ethically sound solutions to complex issues related to individuals, populations and systems of care.	4	1	24	Define ethically sound decisions
62. Applies clinical investigative skills to improve health outcomes.	4	.75	24	Unclear
63. Use information technology to optimize one's own learning.	4	1	24	Irrelevant; why technology to learn
64. Conduct a comprehensive and systematic assessment of health and illness parameters in complex situations, incorporating diverse and	4	.75	24	2 statements- one for complex assessment other to incorporate

culturally sensitive approaches.				culturally sensitive approaches when appropriate for all aspects of care
65. Creates a climate of patient-centered care to include confidentiality, privacy, comfort, emotional support, mutual trust, and respect.	4	0	24	Redundant
66. Participates in professional organizations and activities that influence advanced practice nursing and/or health outcomes of a population focus.	4	1	26	Delete "of population focus"
67. Demonstrates an understanding of the interdependence of policy and practice.	4	1	26	Unclear; not measurable; go beyond understanding
68. Contributes in the development of health policy.	3	1	25	What is expectation
69. Develop and/or monitor budgets for practice initiatives.	3	1	26	Budgeting not NP; for admin; keep in mind cost-sharing make clinical decisions based on financial constraints
70. Integrates knowledge from the humanities and sciences within the context of nursing science.	**3**	**1.25**	**26**	**Unclear; what does it mean**
71. Demonstrate advanced levels of clinical judgment, systems thinking, and accountability in designing, delivering, and evaluating evidence-based care to improve patient outcomes.	4	0	26	Too many concepts; what is advanced judgment
72. Addresses cultural, spiritual, and ethnic influences that potentially create conflict among individuals, families, staff, and caregivers.	4	1	26	
73. Demonstrate stewardship of financial and other resources for the delivery of quality care that is effective and affordable.	4	1	26	Add what is effective and affordable within the healthcare and patient centered team
74. Use advanced communication skills/processes to lead quality improvement and patient safety initiatives in health care systems.	4	1	26	What are advanced communication skills or processes
75. Preserves the patient's control over decision-making by negotiating	4	0	26	

a mutually acceptable plan of care.

76. Use effective communication tools and techniques that include a nonjudgemental attitude, respect, and compassion when addressing sensitive issues to promote therapeutic relationships.	4	1	26	Applies across all levels of nursing
77. Provides leadership to foster collaboration with multiple stakeholders (e.g. patients, community, integrated health care teams, and policy makers) to improve health care.	4	1	25	Collaborate not lead; not reasonable for new grad
78. Employ principles of business, finance, economics, and health policy to develop and implement effective plans for practice-level and/or system-wide practice initiatives that will improve the quality of care delivery.	4	1	25	Not for NP; not reasonable for new grad
79. Demonstrate an investigatory, analytic approach to clinical situations	4	1	25	Implement instead of demonstrate not clear
80. Analyze the cost-effectiveness of practice initiatives accounting for risk and improvement of health care outcomes.	3	1	25	Not clear; not realistic
81. Provides the full spectrum of health care services to include health promotion, disease prevention, health protection, anticipatory guidance, counseling, disease management, palliative, and end-of-life care.	4	0	26	Provide to who?; not applicable to all NP populations; provides care across the healthcare continuum; within population boundaries
82. Coordinates transitional care services in and across care settings.	4	1	25	As a member of transition care team; more clarity, within population boundaries
83. Apply relevant findings to develop practice guidelines and improve practice and the practice environment.	4	1	26	Collaborate with group to do; requires large group of interprofessionals, national panel for development; internal protocols?
84. Integrates ethical principles in decision making.	4	.25	26	Redundant
85. Use advanced clinical judgment to diagnose	4	0	25	To diagnosis and develop a treatment plan

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86. Develops new practice approaches based on the integration of research, theory, and practice knowledge.	4	1	26	Too vague; too grandiose for practice entry
87. Demonstrates information literacy skills in complex decision making.	4	1	26	Not clear
88. Develop and sustain therapeutic relationships and partnerships with patients (individual, family or group) and other professionals to facilitate optimal care and patient outcomes.	4	.25	26	
89. Works to establish a relationship with the patient characterized by mutual respect, empathy, and collaboration.	4	0	26	RN skills; obtain prior to DNP
90. Design and implement processes to evaluate outcomes of practice, practice patterns, and systems of care within a practice setting, health care organization, or community against national benchmarks to determine variances in practice outcomes and population trends.	**3**	**1.25**	**26**	**Divide, loses focus, too wordy; use a system to monitor and evaluate own or groups practice system level for executives; competent at microcare level**
91. Analyzes clinical guidelines for individualized application into practice.	4	1	26	
92. Demonstrate sensitivity to diverse organizational cultures and populations, including patients and providers.	4	1	26	
93. Leads scholarship activities which focus on the translation and dissemination of contemporary evidence into practice.	4	1	26	
94. Develops strategies to prevent one's own personal biases from interfering with delivery of quality care.	4	1	26	Unclear; better than self-reflection earlier; not measurable
95. Assesses the patient's and caregiver's educational needs to provide effective, personalized health care.	4	1	26	RN focused
96. Provide leadership of an interprofessional team to address complex care issues.	3	1	26	Complex; good idea but difficult to do
97. Demonstrate the conceptual ability and technical skills to develop and execute an evaluation plan involving data extraction from practice information systems and databases.	**3**	**2**	**26**	**Not clear; not specific; only for an informatics grad; DNP knows what to extract and what to do with data**

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98. Incorporates the patient's cultural and spiritual preferences, values, and beliefs into health care.	4	.25	26	All levels of nursing
99. Evaluate consumer health information sources for accuracy, timeliness, and appropriateness.	4	1	26	All levels of nursing
100. Effects health care change using broad based skills including negotiating, consensus-building, and partnering.	3	1	26	As part of healthcare team; don't expect mastery of negotiating etc. with clinical focus; not new grad
101. Manages the health/illness status of patients and families over time.	4	1	26	Not appropriate to all NP populations- Acute care
102. Influence policy makers through active participation on committees, boards, or task forces at the institutional, local, state, regional, national, and/or international levels to improve health care delivery and outcomes.	**3**	**1.25**	**26**	**How measure**
103. Use current evidence from a variety of sources to continually improve one's practice.	4	.25	26	
104. Evaluates the impact of health care delivery on patients, providers, other stakeholders, and the environment.	4	1	26	
105. Prescribes medications with scope of practice.	4	0	26	Within scope of practice; practice laws within state
106. Ensure accountability for quality of health care and patient safety for populations with whom they work.	4	1	26	Not realistic, not measurable
107. Collaborates with both professional and other caregivers to achieve optimal care outcomes.	4	0	26	
108. Synthesize relevant data to develop a patient-centered, evidence-based plan of care.	4	0	26	Redundant
109. Demonstrates leadership that uses critical and reflective thinking.	4	1	25	How measure
110. Guide, mentor, and support other nurses to achieve excellence in nursing practice.	4	1	26	

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111. Employs screening and diagnostic strategies in the development of diagnoses.	4	0	26	
112. Develop, evaluate, and provide leadership for health care policy that shapes health care financing, regulation, and delivery.	3	1	26	Unclear; unrealistic for new grads; can evaluate not develop or lead
113. Uses best available evidence to continuously improve quality of clinical practice.	4	0	25	Ongoing instead of continuously
114. Analyzes ethical, legal, and social factors influencing policy development.	4	1	25	Where and how; what to measure
115. Employ consultative and leadership skills with intraprofessional and interprofessional teams to create change in health care and complex healthcare delivery systems.	3	1	25	Too wordy; complex care too high
116. Analyzes the implications of health policy across disciplines.	3	1	26	Ambiguous; what does it mean
117. Demonstrate integrity and respect for others.	4	0	26	All levels of nursing
118. Coaches the patient and caregiver for positive behavioral change.	4	.25	26	Vague; what is positive change
119. Advocate for patients and populations considering social justice and equity.	4	1	26	Go beyond advocacy
120. Uses technology systems that capture data on variables for the evaluation of nursing care.	4	1	26	Poorly written; what is being asked; for nurse informatist; create and assure HIT has these capacities
121. Practice flexibility and maturity in adjusting to rapidly changing professional environments	4	1	26	All levels of nursing; can demonstrate flexibility how measure maturity; highly variable; should already have
122. Analyzes organizational structure, functions and resources to improve the delivery of care.	4	1	26	
123. Educate and guide individuals and groups through complex health and situational transitions.	4	1	25	All levels nursing

124. Minimizes risk to patients and providers at the individual and systems level.	4	1	25	
125. Shape healthcare policy at local, state, and national levels to optimize access to and delivery of quality, cost-effective, health care.	**3.5**	**2**	**24**	**Not realistic; instead of shape attempts to influence or advocates for**
126. Generates knowledge from clinical practice to improve practice and patient outcomes.	4	1	26	PhD generate knowledge; if practice based knowledge; too high level
127. Demonstrate a commitment to the nursing profession.	4	0	26	Unclear; demonstrate in what way
128. Advocates for improved access, quality and cost effective health care.	4	0	26	
129. Employ effective communication and collaborative skills in the development and implementation of practice models, peer review, practice guidelines, health policy, standards of care, and/or other scholarly products.	4	1	26	Many concepts; address communication and collaboration in separate competencies
130. Advocates for policies for safe and healthy practice environments.	4	0	26	
131. Leads practice inquiry, individually or in partnership with others.	4	1	26	
132. Develop and evaluate new practice approaches based on nursing theories and theories from other disciplines.	3.5	1	26	
133. Evaluates how organizational structure, care processes, financing, marketing, and policy decisions impact the quality of health care.	4	1	26	Too wordy
134. Advocate for the role of the patient as a member of the healthcare team.	4	.25	26	
135. Practices independently managing previously diagnosed and undiagnosed patients.	4	1	26	Practice autonomously managing previously diagnosed and undiagnosed conditions; state variation by practice law
136. Advocates for ethical policies that promote access, equity, quality, and cost.	4	1	26	Don't promote cost, maybe cost effectiveness

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137. Communicates practice knowledge effectively, both orally and in writing.	4	1	26	
138. Anticipates variations in practice and is proactive in implementing interventions to ensure quality.	4	1	25	Not clear; what variations in practice-caused by NP, patient, environment
139. Translates technical and scientific health information appropriate for various users' needs.	4	1	26	

Note. Bolded items consensus was not reached

Table 3

Round 2 Results

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
1.Assumes leadership roles to initiate and guide change.	85%	15%	95%	5%	4	1	21
2. Collaborates with multiple stakeholders (e.g. patients, community, integrated health care teams, and policy makers) to improve health care.	95%	5%	95%	5%	4	1	21
3.Demonstrates leadership that uses critical and reflective thinking.	**70%**	**30%**	**60%**	**40%**	**4**	**1**	**21**
4.Leads practice inquiry, individually or in partnership with others.	**75%**	**25%**	**75%**	**25%**	**3**	**1**	**21**

Note. Bolded items consensus was not reached

Is there redundancy in the above competencies?
Yes 43%
No 57%

If redundancy, which competencies are redundant?
1 & 4; some in 1 & 3; 1 & 4; 1 & 4; 1 & 4 maybe developed stronger to be inclusive; 1, 3, 4- 3 & 4 are components of 1 remove 1 as assuming a leadership role is not really the point it is they can demonstrate leadership which is what 3 & 4 are addressing; leadership should be combined; 2 & 4; 1 & 4; 1 & 4;

For any competencies in the above group that you believe are not clear or measurable please provide suggested changes; please include the number for the competency being referred to:
How do measure Collaborates and reflective thinking; critical thinking and reflective thinking is hard to measure Engages in evidence based practice to develop critical thinking allows the measurable of using EBP guidelines; beyond those familiar with NONPF I don't think practice inquiry competencies is widely understood would describe the meaning for practice inquiry competence rather than expect the term to be understood; 3 & 4 how do measure someone's critical thinking skills and reflection once they have graduated or are you asking about BSN-DNP students prior to graduation; 1 may need to define leadership roles; need better language to evaluate the use of critical thinking- reflective part is ok; 3 not sure how you'd measure critical thinking skills used as an NP in leadership; 3 be more clear about ways that leadership can demonstrate critical and reflective thinking; 4. What exactly is practice inquiry- define more clearly task; 1 what do you do to assume leadership

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
5. Analyzes ethical, legal, and social factors influencing health policy development from the perspective of consumer and nursing.	**90%**	**10%**	**90%**	**10%**	**4**	**2**	**20**
6. Use expertise to influence local, state, federal or international health policy to improve health care delivery and outcomes.	**80%**	**20%**	**85%**	**15%**	**4**	**2**	**20**
7. Evaluate health care policy that shapes health care financing, regulation, and delivery.	**90%**	**10%**	**100%**		**4**	**2**	**20**
8. Contributes in the development of health policy.	**78.9%**	**21.1%**	**80%**	**20%**	**3**	**2**	**19**
9. Educate others, including policy makers at all levels, regarding nursing, health policy, and patient care outcomes.	94.7%	5.3%	94.4%	5.6%	4	1	19
10. Advocate for the nursing profession within the policy and healthcare communities.	95%	5%	90%	10%	4	1	20
11. Advocate for social justice, equity, and ethical policies within all healthcare arenas.	90%	10%	80%	20%	4	1	20
12. Advocates for policies for safe and healthy practice environments.	100%		90%	10%	4	1	20
13. Demonstrates an understanding of the interdependence of policy and practice.	**70%**	**30%**	**60%**	**40%**	**4**	**2**	**20**
14. Analyzes the implications of health policy across disciplines.	**80%**	**20%**	**80%**	**20%**	**4**	**2**	**20**

Note. Bolded items did not reach consensus

Is there redundancy in the above competencies?
Yes 50%
No 50%

If redundancy, which competencies are redundant?

5, 7, 14 are similar; 6, 10, 11, 12 are similar; 6 & 12 should be combined; 5 & 7; 6, 8 & 10; 11 & 12; 13 & 14; 11, 12 & 14 are very redundant; 13 & 5 are redundant; 10 & 12 seem to be getting at the same thing- might combine Advocates for the nursing profession within policy and health care communities for safe and healthy practice environments; 6, 9, 10 have similar intent and overlap; also the statements that begin analyze would be measurable in the academic environment but challenging to measure for graduates in practice; 5 & 7; 6 & 9; 6, 7, & 8; 7 &14; 11 & 6

For any competencies in the above group that you believe are not clear or measurable please provide suggested changes; please include the number for the competency being referred to:

Many of these competencies can be combined as one and be measurable with evaluation of policies and integrating ethics in a holistic manner; 8 not sure the actual contribution is needed so much as an understanding of how to contribute; 9 who are the others and educating them to what end, how is this different from what is expressed in 6; 13. Interdependence of policy and practice is unclear; 13. Delete-in order to meet other competencies it would be necessary to have an understanding of the relationship of policy and practice; 8 13 & 14 do not provide additional clarity in policy competency; many which would require discussion about expectations and deliverables not all students have equal opportunity unless these are core assignments in course or projects to effect and be involved in policy plus we need clarification on the desired outcomes for shaping policy perhaps require membership in local state or national NP level with attendance at least one event surrounding health policy so as to get involved maybe a start; eliminate 6; 13. What must one do to demonstrate understanding, change verb to describes interrelationship many important but difficult to objectively measure as a student;

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
15. Uses technology systems that capture data on variables for the evaluation and improvement of nursing care.	**100%**		**100%**		**4**	**2**	**19**
16. Critically analyzes data and evidence for improving advanced nursing practice.	100%		100%		4	1	19
17. Use information technology to optimize one's own learning.	**89.5%**	**10.5%**	**84.2%**	**15.8%**	**4**	**2**	**19**
18. Participate in the evaluation and selection of health care information systems and patient care technologies that promote safe, quality and cost effective care.	89.5%	10.5%	89.5%	10.5%	3	1	19
19. Extract data from practice information systems and databases to evaluate care processes	100%		100%		4	1	19
20. Engage with a multidisciplinary team in the evaluation and resolution of ethical issues within healthcare systems relating to the use of information, information technology, communication networks, and patient care technology.	**84.2%**	**15.8%**	**83.3%**	**16.7%**	**4**	**2**	**19**
21.Evaluate consumer health information sources for accuracy, timeliness, and appropriateness.	100%		94.7%	5.3%	4	1	19

Competency							
22. Demonstrates information literacy skills in complex decision making.	**73.7%**	**26.3%**	**68.4%**	**31.6%**	**4**	**2**	**19**
23. Translates technical and scientific health information appropriate for various users' needs.	89.5%	10.5%	84.2%	15.8%	4	1	19

Note. Bolded items did not reach consensus.
Is there redundancy in the above competencies?
Yes 33.3%
No 66.7%

If redundancy, which competencies are redundant?
16 & 19 similar; 15 & 19 could be combined; 15 & 17; 16 & 22; 17 would just delete can't measure one's own learning and if about using IT to optimize health outcomes others get to that point; 15 & 19; 16 & 19; 15 & 19; 18 & 20

For any competencies in the above group that you believe are not clear or measurable please provide suggested changes; please include the number for the competency being referred to:
Not every DNP needs to analyze info literacy in complex decision making but every DNP should understand and be able to apply to concept; not sure how information literacy skills impact complex decision making and how to rework; 17. Unclear what one's own learning means; 22. Complex decision making is relative to the provider and patient; 19. Change the word extract to analyze it is the use that is important more so than just getting the information; 20. Engagement is hard to measure and not clear what the purpose is; change to evaluate ethical issues within the health care system relating to the use of information, information technology….as part of a multidisciplinary team; some competencies can be measured while students are in program but challenging to measure for graduates; some of competencies such as 18 depends on opportunity to be engaged in process; 18 not clear as may not have opportunity to participate in selection; 20 is wordy which makes it unclear; 22 what does one do to demonstrate info literacy do we want health info lit, use health info literacy to support complex decision making; 23 what does one do to translate tech and scientific info, maybe explains

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
24. Evaluates the ethical consequences of decisions.	**84.2%**	**15.8%**	**78.9%**	**21.1%**	**4**	**1**	**19**
25.Applies ethical principles to complex issues related to individuals, populations and systems of care.	89.5%	10.5%	89.5%	10.5%	4	1	19
26. Demonstrate a commitment to ethical principles pertaining to the provision or withholding of care in compliance with relevant laws, policies and regulations.	**89.5%**	**10.5%**	**84.2%**	**15.8%**	**4**	**2**	**19**
27. Evaluate effective strategies for managing the ethical dilemmas inherent in patient care or the health care organization	94.7%	5.3%	100%		4	1	19

Note. Bolded items did not reach consensus.

Is there redundancy in the above competencies?
Yes 31.6%
No 68.4%

If redundancy, which competencies are redundant?
24 & 27 similar; 25 & 26 similar; 24 & 27; 24 & 25; 24 is a general statement that includes the remainder of the competencies so would delete it; 24 & 27 very similar; 24 & 27;

For any competencies in the above group that you believe are not clear or measurable please provide suggested changes; please include the number for the competency being referred to:
25 complex is relative and may be difficulty to measure; 24 too broad and redundant with 27; _25 complex needs to be defined then would be measurable; 26 is unclear; 24 evaluates whose decisions and decisions about what too vague; 26. Why apply only to provision or withholding care, shouldn't it apply to all aspects of nurse's professional practice or activities, ethical decisions re use of equipment and supplies, related to peer reviews, scholarly activities, advocacy efforts, relationship with other professionals and all patients, not sure what one is doing to demonstrate commitment; 27 want them to use effective strategies 26 how do you ensure clinical exposure

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
28. Use effective communication tools and techniques that include a nonjudgmental attitude, respect, and compassion when addressing sensitive issues to promote therapeutic relationships.	94.4%	5.6%	94.4%	5.6%	4	1	18
29. Coaches the patient and caregiver for positive behavioral change.	100%		100%		4	1	18
30. Communicates practice knowledge effectively both orally and in writing.	100%		100%		4	0	18

Is there redundancy in the above competencies?

Yes
No 100%

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
31. Conduct a comprehensive and systematic assessment of health and illness parameters in complex situations.	**78.9%**	**21.1%**	**89.5%**	**10.5%**	**4**	**2**	**19**
32. Uses advanced health assessment skills to differentiate between normal, variations of normal and abnormal findings.	100%		100%		4	1	19
33. Functions as a certified autonomous practitioner.	**78.9%**	**21.1%**	**68.4%**	**31.6%**	**4**	**3**	**19**
34. Employs screening and diagnostic strategies in the development of diagnoses.	100%		100%		4	1	19
35. Provides the full spectrum of health care services to include health promotion, disease prevention, health protection, anticipatory guidance, counseling, disease management, palliative, and end of life care.	100%		94.7%	5.3%	4	1	19
36. Prescribes medications within scope of practice.	100%		100%		4	1	19
37. Manage care across the health continuum including prescribing, ordering, and evaluating therapeutic interventions utilizing evidence-based guidelines within their population based scope of practice.	100%		100%		4	0	18
38. Provides patient-centered care recognizing cultural diversity and the patient or designee as a full partner in decision-making by negotiating a mutually acceptable evidence based plan of care.	94.7%	5.3%	94.7%	5.3%	4	1	19
39. Advocate for the role of the patient as a member of the healthcare team.	94.7%	5.3%	84.2%	15.8%	4	1	19
40. Creates a climate of patient-centered care to include confidentiality, privacy, comfort, emotional support, mutual trust, and respect.	94.7%	5.3%	89.5%	10.5%	4	1	19
41. Promote a climate of respect, dignity, inclusion, integrity, civility and trust to foster collaboration within the healthcare team.	94.7%	5.3%	84.2%	15.8%	4	1	19
42. Addresses cultural, spiritual, and ethnic influences that potentially create conflict among individuals, families, staff, and caregivers.	**94.7%**	**5.3**	**94.7%**	**5.3%**	**4**	**3**	**19**
43. Assume different roles (e.g. member, leader) as needed, within the interprofessional, healthcare team to improve the provision of patient-centered care.	**89.5%**	**10.5%**	**89.5%**	**10.5%**	**4**	**2**	**19**
44. Empower patients, families and communities to share in	**84.2%**	**15.8%**	**78.9%**	**21.1%**	**4**	**2**	**19**

healthcare decision making.

45. Educate and guide individuals and groups through complex health and situational transitions.	**89.5%**	**10.5%**	**94.7%**	**5.3%**	**4**	**2**	**19**
46. Assesses the patient's and caregiver's educational needs to provide effective, personalized health care.	100%		100%		4	1	19
47. Collaborates in planning for patient transitions across the continuum of care.	100%		94.7%	5.3%	4	1	19
48. Implement an investigatory, analytic approach to clinical situations.	**61.1%**	**38.9%**	**72.2%**	**27.8%**	**4**	**2**	**19**

Note. Bolded items did not reach consensus.

Is there redundancy in the above competencies?
Yes 61.1%
No 38.9%

If redundancy, which competencies are redundant?
33 is similar to 28 & 29; 45 & 47 similar; 45 & 46; 36 & 37; LOT of competencies around diversity, inclusion, respect, etc.- is there a way to condense or eliminate some that are basically addressing the same thing; long list and by end felt like I was reading different versions of the same thing; 35 & 37 are very similar; 33 is a summation of everything in this section and given the generalness will be hard to measure; 36 & 37; 38 & 40; 38 & 40; challenging to measure creating a climate; 36 & 37; 38, 39 & 40 combined; 38 & 42; 38 & 44; 38 & 46; 31 & 32 overlap; 48 is redundant; 33 & 31, 32, 34, 35, 36, 37, 38, 39 are all part of 33; 45 & 47 are essentially the same; 40 & 41; 38 & 41, 42; 45 & 46; 45 & 47; 48 & 4

For any competencies in the above group that you believe are not clear or measurable please provide suggested changes; please include the number for the competency being referred to: 31. & 45. complex is relative/subjective so maybe difficult to measure; 33. Autonomous I like but question if competency; 43. Seems to belong with the leadership competencies instead of here-this is a long section so pulling this out and putting it in a section that makes more sense would help clarify; 31 the term parameters is unclear; 33 change to independent instead of autonomous since more commonly used; 35 is challenging to measure because several concepts in one statement; 39 what does advocating for the role of the patient mean; 40 & 41 refer to creating or promoting a climate intent is important but difficult to measure; 33 no practitioner is autonomous; 42 is ambiguous and difficult to measure; 48 is ambiguous; _44 empower needs clarification; 48 is not clear what is meant by clinical situations- typical clinical health problems or more like adverse events; 48 does not fit here; 35. How is health protection different from health promotion and disease prevention, delete health protection; 36 if prescribing needs to be within scope of practice boundaries; 37 managing is within scope of practice boundaries then why isn't 35 within scope of practice boundaries; 47 collaborates only for care transitions aren't there other places to collaborate in care

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
49. Develop and/or monitor budgets for practice initiatives.	**89.5%**	**10.5%**	**100%**		**3**	**2**	**19**
50. Employ principles of business, finance, economics, and health policy to develop and implement effective plans for practice-level and/or system-wide practice initiatives that will improve the quality of care delivery.	**89.5%**	**12.5%**	**100%**		**3**	**2**	**19**
51. Analyze the cost-effectiveness of practice initiatives accounting for risk and improvement of health care outcomes.	**89.5%**	**10.5%**	**100%**		**4**	**2**	**19**
52. Demonstrate stewardship of financial and other resources for the delivery of quality care that is effective and affordable within the health care and patient centered team.	**84.2%**	**15.8%**	**89.5%**	**10.5%**	**4**	**2**	**19**
53. Effects health care change using broad based skills including negotiating, consensus- building, and partnering.	**89.5%**	**10.5%**	**94.7%**	**5.3%**	**3**	**2**	**19**
54. Collaborate to develop, implement, and evaluate healthcare strategies which reduce errors and optimize safe, effective systems of healthcare delivery.	94.7%	5.3%	100%		4	1	19
55. Advances practice through the development and implementation of innovations incorporating principles of change.	**89.5%**	**10.5%**	**89.5%**	**10.5%**	**4**	**2**	**19**
56. Facilitates the development of health care systems that address the needs of culturally diverse populations, providers, and other stakeholders.	**84.2%**	**15.8%**	**78.9%**	**21.1%**	**4**	**2**	**19**
57. Analyzes organizational structure, functions and resources to improve the delivery of care.	**94.7%**	**5.3%**	**94.7%**	**5.3%**	**4**	**2**	**19**
58. Evaluate care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and other clinical sciences	94.4%	5.6%	94.7%	5.3%	4	1	19
59. Evaluates the impact of health care delivery on patients, providers, other stakeholders, and the environment.	94.4%	5.6%	94.7%	5.3%	4	1	19
60. Minimizes risk to patients and providers at the individual and systems level.	94.7%	5.3%	84.2%	15.8%	4	1	19

Note. Bolded items did not reach consensus.

Is there redundancy in the above competencies?
Yes 38.9%
No 61.1%

If redundancy, which competencies are redundant?
49-52 quite similar; 54-59 seem like they could be combined; 58, 59 and 60; not clear what is meant by 53 or how it adds to this area; many of these are getting at the same principles- feels like some are reworded with hot button verbiage but do not really add detail; 57, 58 ,59 have similar intent; 50 & 51; 51 & 52; 54 & 58; 49 & 50; 57 & 58; 49 & 50; 51 & 58; 53 ,54 ,55

For any competencies in the above group that you believe are not clear or measurable please provide suggested changes; please include the number for the competency being referred to:
49. Take out or they should be able to do both; 60 minimizing risk is important but how would you measure; 50 too much to measure; 55 ambiguous; 56 ambiguous

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
61. Ongoing assessment of one's own knowledge and skills so can actively seek best available opportunities for continuous improvement of one's evidence based practice.	**52.6%**	**47.4%**	**73.7%**	**26.3%**	**4**	**2**	**19**
62. Analyzes clinical guidelines for individualized application into practice.	100%		100%		4	1	18
63.Utilizes peer review to promote a culture of excellence.	**94.4%**	**5.6%**	**94.1%**	**5.9%**	**4**	**2**	**18**
64. Practice flexibility in adjusting to rapidly changing professional environments	**77.8%**	**22.2%**	**72.2%**	**27.8%**	**4**	**2**	**18**
65. Guide, mentor, and support other nurses to achieve excellence in nursing practice.	100%		100%		4	1	18
66. Participates in professional organizations and activities that influence advanced practice nursing and/or health outcomes.	**100%**		**100%**		**4**	**2**	**18**
67. Demonstrate consistency, trustworthiness, integrity and respect to inspire the confidence of patients and colleagues.	94.4%	5.6%	88.9%	11.1%	4	1	18
68. Function as a practice specialist/consultant in collaborative knowledge- generating research.	**88.9%**	**11.1%**	**88.2%**	**11.8%**	**3**	**2**	**18**

	Clear		Measurable				
	Yes	No	Yes	No	Median	Critical Interquartile Range	N
69. Disseminate findings from evidence-based practice and research to improve healthcare outcomes.	100%		100%		4	1	18
70. Leads scholarship activities which focus on the translation and dissemination of contemporary evidence into practice.	94.4%	5.6%	100%		4	1	18
71. Demonstrate sensitivity to diverse organizational cultures and populations, including patients and providers.	100%		94.1%	5.9%	4	1	17
72. Develops strategies to prevent one's own personal biases from interfering with delivery of quality care.	**94.4%**	**5.6%**	**76.5%**	**23.5%**	**4**	**2**	**18**
73. Demonstrate compassion and accountability to patients, society, and the profession.	**94.4%**	**5.6%**	**76.5%**	**23.5%**	**4**	**1**	**18**
74. Utilizes and evaluates professional standards and evidence-based care.	**88.2%**	**11.8%**	**88.9%**	**11.1%**	**4**	**2**	**18**

Note. Bolded items did not reach consensus.

Is there redundancy in the above competencies?
Yes 18.8%
No 81.3%

If redundancy, which competencies are redundant?
69 & 70 similar; 71, 72 similar; 71 is more of the cultural sensitivity that was mentioned previously in other section; 62 may overlap with a previous one regarding use of evidence based guidelines; 42 & 71; 62 & 74; 61 & 72;

For any competencies in the above group that you believe are not clear or measurable please provide suggested changes; please include the number for the competency being referred to:
64. How can practice flexibility be measured?; 73. How can demonstrate compassion be measured; 70 is contemporary evidence referring to current evidence; 73 how would you evaluate compassion toward society or profession; 61 is difficult to read; 72 & 73 difficult to assess; 61 is missing the word one's; 67 how does one demonstrate consistency delete from competency; 68 not sure a brand new grad is going to be a specialist or consultant in advanced practice, they barely know how to be a generalist NP delete competency; 72 have them use strategies rather than develop strategies; 74 two verbs choose one

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
75. Demonstrate advanced levels of clinical judgment, systems thinking, and accountability in designing, delivering, and evaluating evidence-based care to improve patient outcomes.	**78.9%**	**21.1%**	**89.5%**	**10.5%**	**4**	**1**	**19**
76. Ensure accountability for quality of health care and	**78.9%**	**21.1%**	**73.7%**	**26.3%**	**4**	**2**	**19**

patient safety for populations with whom they work.

Competency	Clear Yes	Clear No	Measurable Yes	Measurable No	Median	Critical Interquartile Range	N
77. Utilize a system to monitor individual or group's practice quality of care against national benchmarks to determine variances in practice outcomes and population trends.	**89.5%**	**10.5%**	**100%**		**4**	**2**	**19**
78. Apply relevant findings to develop internal protocols and improve practice and the practice environment.	94.4%	5.6%	88.9%	11.1%	4	1	18
79.Collaborates with both professional and other caregivers to achieve optimal care outcomes.	100%		94.7%	5.3%	4	1	19
80.Generates practice-based knowledge to improve practice and patient outcomes.	**83.3%**	**16.7%**	**88.9%**	**11.1%**	**4**	**2**	**18**
81. Applies clinical investigative skills to improve health outcomes.	**100%**		**100%**		**4**	**2**	**18**
82. Anticipates variations in practice and is proactive in implementing interventions to ensure quality.	**88.9%**	**11.1%**	**77.8%**	**22.2%**	**4**	**2**	**18**

Note. Bolded items did not reach consensus.

Is there redundancy in the above competencies?
Yes 33.3%
No   66.7%

If redundancy, which competencies are redundant?
77 is similar to 61 & 63; 77, 78, 82 similar; 75 &77; 75 & 78; 75 & 80; 81 is redundant to 4 and another can't find; 79 is similar to previous statement; 78 overlaps with previous statement on leading change to improve care; 75 & 78; 79 & 80; 80 & 77; 81, 4, 17, 22, 44; 79, 2, 54

For any competencies in the above group that you believe are not clear or measurable please provide suggested changes; please include the number for the competency being referred to:
How can demonstrate advanced levels be measured; 80. Not sure what it means to generate practice based knowledge to improve practice and outcomes; 75 too much in one competency statement; 76 not sure how to measure accountability; 77 delete utilize a system; 75 how do you demonstrate advanced levels of; 76 does ensure mean that you make sure someone is accountable assume accountability;

Competency	Clear		Measurable			Critical	
	Yes	No	Yes	No	Median	Interquartile Range	N
83. Integrate nursing science with knowledge from ethics, the biophysical, psychosocial, analytical, and implementation	**84.2%**	**15.8%**	**84.2%**	**15.8%**	**4**	**2**	**19**

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sciences as the basis for the highest level of nursing practice.							
84. Use conceptual and analytical skills in evaluating the links among practice, organizational, population, fiscal, and policy issues.	**84.2%**	**15.8%**	**84.2%**	**15.8%**	**3**	**2**	**19**
85. Integrates knowledge from the humanities and sciences within the context of nursing science.	**89.5%**	**10.5%**	**89.5%**	**10.5%**	**4**	**2**	**19**
86. Evaluate new clinical practice approaches based on the integration of research, theory, and practice knowledge	**100%**		**100%**		**4**	**2**	**18**
87. Use analytic methods to critically appraise existing literature and other evidence to determine and implement the best evidence for practice.	100%		100%		4	1	18
88. Analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and population health.	94.4%	5.6%	100%		4	1	18

Note. Bolded items did not reach consensus.

Is there redundancy in the above competencies?
Yes 22.2%
No 77.8%

If redundancy, which competencies are redundant?
83, 85, 86 similar; 86 & 87; 83 & 85 overlap; 83 overlaps with 88; 83 subsumed in 85; 81, 87, 86, 22, 16

For any competencies in the above group that you believe are not clear or measurable please provide suggested changes; please include the number for the competency being referred to:
83, 84 85 too ambiguous;

Please note if you feel any concepts are missing from the core competencies for NPs:
Been faced with cheating scandals in academic recently as well as similar behaviors in the practice world (taking money in exchange for signing off on clinical hours that weren't complete, selling samples and prescriptions for narcotics etc.) I think there needs to be a competency about holding oneself to the highest of ethical standards; it would be helpful if the 3rd round is needed to name the sections to understand what concepts are being captured; must be some competency addressing social justice/social determinants of health that go beyond what is here the one here is limited to advocacy which is important but there must be a competency in identifying how social determinants of health affect outcomes and how the role of the DNP prepared nurse can be leveraged to create social change/improved social outcomes; describe how NP role differs from that of RN MD PA CRNA CNS CNM; in what ways are nursing foundations/characteristics incorporated into NP practice

Table 4

Round 3 Results

Domain 1: Patient Care
Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health

Competency	Agreement with Competency			Correct Domain	
	Median	Interquartile Range	N	Yes	No
1. Utilize advanced health assessment skills to differentiate between normal, variations of normal and abnormal findings.	4	0	17	100%	
2. Employ screening and diagnostic strategies in the development of diagnoses.	4	0	17	100%	
3. Provide health care services within scope of practice boundaries, which include health promotion, disease prevention, anticipatory guidance, counseling, disease management, palliative, and end of life care.	4	0	17	100%	
4. Prescribe medications within scope of practice.	4	0	17	100%	
5. Evaluate therapeutic interventions ordered utilizing evidence-based guidelines	4	0	17	100%	
6. Assess educational needs of patients and caregivers to provide effective, personalized health care.	4	0	17	100%	
7. Provide patient-centered care recognizing cultural diversity and the patient or designee as a full partner in decision-making by negotiating a mutually acceptable evidence based plan of care.	4	0	17	100%	

Please note any comments or concerns regarding the above competencies:
very succinct; awesome categories and appropriate; #5 unfortunately there are not EBP guidelines for every intervention, should the language state "utilizing the highest appraised evidence available"?; #2 is an important core competency for all NPS, rec edit to better reflect the significance of this competency, recommend use effective diagnostic reasoning skills to make or ascertain a correct diagnosis; 5 lacks clarity; 4. would include prescribe pharmacologic and non-pharmacologic interventions within the scope of practice 6. Not just assess, but provide education 7. Wording is difficult to understand. Perhaps, "Provide culturally sensitive, patient-centered care, involving patient/designee as full partner in designing a mutually acceptable evidence-based plan of care"; Recommend rewriting some of the competencies to be more clear and effective in measuring ie: #1 Utilize advanced health assessment skills to identify normal and abnormal clinical findings. #2 Utilize appropriate diagnostic and screening tools to analyze the correct diagnosis. #3 Safely prescribe medications within the NP scope of practice. etc....all of them I feel need some clarification and strength. Thanks; competency should be included in competency 3;

Domain 2 Knowledge for Practice

Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care

Competency	Agreement with Competency			Correct Domain	
	Median	Interquartile Range	N	Yes	No
1. Explain how to contribute to the development of health policy.	**4**	**2**	**17**	**58.8%**	**41.2%**
2. Critically analyze data and evidence for improving advanced nursing practice.	4	0	17	100%	
3. Analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and population health.	4	1	17	100%	
4. Identify how social determinants of health affect patient and health outcomes.	4	0	17	100%	
5. Evaluate new clinical practice approaches based on the integration of research, theory, and practice knowledge.	4	0	17	100%	
6. Organize scholarship activities that focus on the translation and dissemination of current evidence into practice to improve healthcare outcomes.	4	0	17	93.8%	6.2%
7. Evaluate consumer health information sources for accuracy, timeliness, and appropriateness.	4	0	17	100%	
8. Explain technical and scientific health information appropriate for various users' needs.					

Note. Bolded item did not reach consensus.

If you noted any competencies as not being in the correct domain please indicate which domain you feel it belongs in:
Health policy may fit better in domain #6; I think the first one listed here belongs in domain 5; #1 belongs in the "system" domain and also rather than explaining the statement should be action oriented contribute to policy formation; #1 belongs in domain 5; 6 belongs in domain 3; 1 belongs somewhere along health policy and it not a valid competency "explain"; competency 1 should be placed in domain 6;

Please note any comments or concerns regarding the above competencies:
Excellent; #1 I think the term "explain" is congruent with a low cognitive level, consider "evaluate opportunities…" #2 is it only to improve adv nurse practice or to also improve care and outcomes?; comp #6 what does organize scholarship activities mean? Suggest editing to something like disseminate new practice knowledge; 8 is somewhat vague, further clarification should be considered; 3. how is aggregate different from population health? 4. Identify is a low level competency....would think the BSN-DNP should be able to not only identify but employ strategies to address social determinants of health to improve health outcomes 6. Not sure what "organize scholarship activities" means... and it is more than just translation and dissemination....would suggest "Design, implement, evaluate and disseminate evidence-based quality improvement strategies to improve health outcomes. 8. Not sure what this means....explain is not correct verb and why limit this to technical and scientific health information?; 1 seems weak not doctoral level; How does this relate to knowledge practice? What does explain mean as a competency? If we want students to affect health policy, using knowledge, that might be different; competency 5 and 6 could be combined;

Domain 3 Practice-Based Learning and Improvement
Demonstrate the ability to investigate and evaluate one's care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning

Competency	Agreement with Competency			Correct Domain	
	Median	Interquartile Range	N	Yes	No
1. Use technology systems that capture data on variables for the evaluation and improvement of nursing care.	4	0	17	100%	
2. Analyze clinical guidelines for individualized application into practice.	4	0	17	100%	
3. Apply relevant findings to develop internal protocols and improve practice and the practice environment.	4	0	17	100%	
4. Generate practice-based knowledge to improve practice and patient outcomes.	4	0	17	94.1%	5.9%
5. Examine individual or group's practice quality of care against national benchmarks to determine variances in practice outcomes and population trends.	4	0	17	100%	
6. Judge risk to minimize it for patients and providers at the individual and systems level.	4	1	17	94.1%	5.9%

If you noted any competencies as not being in the correct domain please indicate which domain you feel it belongs in:
4 should be in practice knowledge domain above;

Please note any comments or concerns regarding the above competencies:
Wording for #6 is not clear Judge risk to minimize risks to the patient, provider and community health care systems; #6 is confusing statement; 5 would suggest organization instead of group practice; 6 not sure what judge risk means?; 6 wording seems awkward; 6 could be worded differently; not sure what 6 is trying to say, clarify; do not know how to measure #6;

Domain 4 Interpersonal and Communication Skills
Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

Competency	Agreement with Competency			Correct Domain	
	Median	Interquartile Range	N	Yes	No
1. Use effective communication tools and techniques that include a nonjudgmental attitude, respect, and compassion when addressing sensitive issues to promote therapeutic relationships.	4	0	17	100%	
2. Coach the patient and caregiver for positive behavioral change.	4	0	17	100%	
3. Communicate practice knowledge effectively both orally and in writing.	4	0	17	100%	
4. Effect health care change using broad based skills including negotiating, consensus-building, and partnering.	4	0	17	100%	

Please note any comments or concerns regarding the above competencies:
LOVE this domain and these competencies; wonder if curriculum recommendations should include the use of profiling tools for self-awareness; 2. "positive" behavioral change may be subjective. Would suggest "Coach patient and caregiver regarding healthy behavior choices" as the change may reflect negative change (ie not eating fast food); #3, What is "Communicate" practice knowledge, and how does that exactly translate orally and in writing. The original competency I think served oral presentation and clinical note writing skills, so we need to clarify this.

Domain 5 Professionalism
Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

Competency	Agreement with Competency			Correct Domain	
	Median	Interquartile Range	N	Yes	No
1. Advocate for the nursing profession within the policy and healthcare communities for quality care and healthy practice environments.	4	0	17	100%	
2. Advocate for social justice, equity, and ethical policies within all healthcare arenas.	4	0	17	94.1%	5.9%
3. Apply ethical principles to issues related to individuals, populations and systems of care.	4	0	17	94.1%	5.9%
4. Evaluate effective strategies for managing the ethical dilemmas inherent in patient care or the health care organization.	4	0	17	94.1%	5.9%
5. Exemplify the highest level of ethical standards.	4	0	17	100%	
6. Articulate the difference between the role of the NP and that of RN, MD, PA, and other APRNs.	4	0	17	100%	

If you noted any competencies as not being in the correct domain please indicate which domain you feel it belongs in:
#3, How are ethical principles applied equally? reword, restate. Then it might belong in this domain, if we connect it to then nursing code of ethics somehow. #4 Again not sure if this is clear enough to be in the professional domain, how does one evaluate effective strategies and fulfill a competency- what should be done after? I feel like #5 defines the role boundaries when looking at professionalism, and might be enough.

Please note any comments or concerns regarding the above competencies:
Great; #6 articulating the difference in roles is basic, effective collaboration depends on understanding of roles, I am not sure if this basic expectation belongs on the list of core competencies rather clarify the use of knowledge in the interprofessional competency statements; #6 replace MD with physician; 6. not just differences, but also the similarities... perhaps change working to Articulate the role of the doctorally prepared NP to patients, other professions and the public; 1 seems weak not at doctoral level all nurses should do this; #2 - please rephrase or delete the term "social justice" This specific term does not belong in the competencies; 6 comprehend vs articulate;

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Domain 6 Systems-Based Practice
Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care

Competency	Agreement with Competency			Correct Domain	
	Median	Interquartile Range	N	Yes	No
1. Demonstrate leadership abilities by initiating or guiding change within nursing practice (healthcare) individually or in partnership with others.	4	0	17	94.1	5.9%
2. Analyze ethical, legal, and social factors influencing health policy development and healthcare implications from the perspective of consumer and nursing.	4	0	17	100%	
3. Evaluate health care information systems and patient care technologies to assure promote safe, quality, ethical and cost effective care.	4	0	17	94.1%	5.9%
4. Develop and monitor budgets for practice initiatives.	4	1	17	100%	
5. Demonstrate stewardship of financial and other resources for the delivery of quality care that is effective and affordable within the health care and patient centered team.	4	0	17	100%	
6. Evaluate the relationship among practice, organizational, population, fiscal, and policy issues.	4	1	17	100%	
7. Evaluate the impact of health care delivery on current and future needs of patients, providers, other stakeholders, and the environment.	4	0	17	100%	
8. Facilitate social change to improve healthcare outcomes.	4	0	17	88.2%	11.8%

If you noted any competencies as not being in the correct domain please indicate which domain you feel it belongs in:
#8 don't think it fits anywhere, delete it; #3 could also fit into domains 3 or 4; #2 seems redundant with a previous statement; #7 seems redundant with previous statements; 8 belongs in domain 3; 1 belongs in domain 7;

Please note any comments or concerns regarding the above competencies:
#1 I wonder if the language should say "individually AND in partnership with others?"; consider changing the domain to be more broadly encompassing of items included; #3 "Recognize" the relationship between health care information systems and patient care technologies to promote safe, effective, outcome oriented, quality based care in a cost effective and ethical way. 4 could be combined into 5;

Domain 7 Interprofessional Collaboration
Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care

Competency	Agreement with Competency			Correct Domain	
	Median	Interquartile Range	N	Yes	No
1. Promote respect, dignity, inclusion, integrity, civility and trust to foster collaboration within the healthcare team.	4	0	17	100%	
2. Assume different roles (e.g. member, leader) as needed, within the interprofessional, healthcare team to improve the provision of patient-centered care.	4	0	17	100%	
3. Collaborate in planning for patient transitions across the continuum of care.	4	0	17	100%	
4. Collaborate to develop, implement, and evaluate healthcare strategies that address cultural diversity, reduce errors and optimize safe, effective systems of healthcare delivery.	4	0	17	100%	
5. Demonstrate sensitivity to diverse organizational cultures and populations, including patients and providers.	4	0	17	100%	

If you noted any competencies as not being in the correct domain please indicate which domain you feel it belongs in:
#5- is not a collaboration domain competency, maybe goes in Professionalism or Practice domains.

Please note any comments or concerns regarding the above competencies:
1,2 & 5 seems weak here too, not doctoral level;

Domain 8: Personal and Professional Development
Demonstrate the qualities required to sustain lifelong personal and professional growth

Competency	Agreement with Competency			Correct Domain	
	Median	Interquartile Range	N	Yes	No
1. Guide, mentor, and support other nurses to achieve excellence in nursing practice.	4	0	17	94.1%	5.9%
2. Participate in professional organizations and activities that influence advanced practice nursing and/or health outcomes.	4	0	17	100%	
3. Assume accountability for quality of health care and patient safety for populations cared for.	4	0	17	100%	
4. Demonstrate consistency, trustworthiness, integrity and respect to inspire the confidence of patients and colleagues.	4	0	17	94.1%	5.9%
5. Utilize peer review to promote a culture of excellence.	4	0	17	100%	

If you noted any competencies as not being in the correct domain please indicate which domain you feel it belongs in:
1 and 4 could be in domain 5;

Please note any comments or concerns regarding the above competencies:
Great work;

Please note any other concepts that you feel are missing from these competencies and any other comments or concerns:
I think that this is excellent work; I think the above competencies are comprehensive and capable of finding activities and assignments to support the

demonstration of the objectives; One of my broad comments is that many of these seem like they could be applicable to the entry level as well. That may have

been the case with the old competencies too, but how do we ramp them up a bit?

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Table 5

Final List of Competencies

Domain	Competency
Domain 1: Patient Care Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health	1. Utilize advanced health assessment skills to differentiate between normal, variations of normal and abnormal findings. 2. Employ screening and diagnostic strategies in the development of diagnoses. 3. Provide health care services within scope of practice boundaries, which include health promotion, disease prevention, anticipatory guidance, counseling, disease management, palliative, and end of life care. 4. Prescribe medications within scope of practice. 5. Evaluate therapeutic interventions ordered utilizing evidence-based guidelines 6. Assess educational needs of patients and caregivers to provide effective, personalized health care. 7. Provide patient-centered care recognizing cultural diversity and the patient or designee as a full partner in decision-making by negotiating a mutually acceptable evidence based plan of care.
Domain 2: Knowledge for Practice Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care	1. Critically analyze data and evidence for improving advanced nursing practice. 2. Analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and population health. 3. Identify how social determinants of health affect patient and health outcomes. 4. Evaluate new clinical practice approaches based on the integration of research, theory, and practice knowledge. 5. Organize scholarship activities that focus on the translation and dissemination of current evidence into practice to improve healthcare outcomes. 6. Evaluate consumer health information sources for accuracy, timeliness, and appropriateness. 7. Explain technical and scientific health information appropriate for various users' needs.
Domain 3: Practice-Based Learning and Improvement Demonstrate the ability to investigate and evaluate one's care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning	1. Use technology systems that capture data on variables for the evaluation and improvement of nursing care. 2. Analyze clinical guidelines for individualized application into practice. 3. Generate practice-based knowledge to improve practice and patient outcomes. 4. Apply relevant findings to develop internal protocols and improve practice and the practice environment. 5. Examine individual or group's practice quality of care against national benchmarks to determine variances in practice outcomes and population trends.

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6. Judge risk to minimize it for patients and providers at the individual and systems level.

Domain 4: Interpersonal and Communication Skills
Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

1. Use effective communication tools and techniques that include a nonjudgmental attitude, respect, and compassion when addressing sensitive issues to promote therapeutic relationships.
2. Coach the patient and caregiver for positive behavioral change.
3. Communicate practice knowledge effectively both orally and in writing.
4. Effect health care change using broad based skills including negotiating, consensus- building, and partnering.

Domain 5: Professionalism
Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles

1. Advocate for the nursing profession within the policy and healthcare communities for quality care and healthy practice environments.
2. Exemplify the highest level of ethical standards.
3. Advocate for social justice, equity, and ethical policies within all healthcare arenas.
4. Apply ethical principles to issues related to individuals, populations and systems of care.
5. Evaluate effective strategies for managing the ethical dilemmas inherent in patient care or the health care organization.
6. Articulate the difference between the role of the NP and that of RN, MD, PA, and other APRNs.

Domain 6: Systems-Based Practice
Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care

1. Demonstrate leadership abilities by initiating or guiding change within nursing practice (healthcare) individually or in partnership with others.
2. Analyze ethical, legal, and social factors influencing health policy development and healthcare implications from the perspective of consumer and nursing.
3. Evaluate health care information systems and patient care technologies to assure promote safe, quality, ethical and cost effective care.
4. Develop and monitor budgets for practice initiatives.
5. Demonstrate stewardship of financial and other resources for the delivery of quality care that is effective and affordable within the health care and patient centered team.
6. Evaluate the relationship among practice, organizational, population, fiscal, and policy issues.
7. Evaluate the impact of health care delivery on current and future needs of patients, providers, other stakeholders, and the environment.
8. Facilitate social change to improve healthcare outcomes.
9. Evaluate opportunities to contribute to the development of health policy.

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Domain 7: Interprofessional Collaboration Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care	1. Promote respect, dignity, inclusion, integrity, civility and trust to foster collaboration within the healthcare team. 2. Collaborate in planning for patient transitions across the continuum of care. 3. Assume different roles (e.g. member, leader) as needed, within the interprofessional, healthcare team to improve the provision of patient-centered care. 4. Collaborate to develop, implement, and evaluate healthcare strategies that address cultural diversity, reduce errors and optimize safe, effective systems of healthcare delivery. 5. Demonstrate sensitivity to diverse organizational cultures and populations, including patients and providers.
Domain 8: Personal and Professional Development Demonstrate the qualities required to sustain lifelong personal and professional growth	1. Guide, mentor, and support other nurses to achieve excellence in nursing practice. 2. Utilize peer review to promote a culture of excellence. 3. Participate in professional organizations and activities that influence advanced practice nursing and/or health outcomes. 4. Assume accountability for quality of health care and patient safety for populations cared for. 5. Demonstrate consistency, trustworthiness, integrity and respect to inspire the confidence of patients and colleagues.