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Quality Metrics

Position Statement
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The role of nurse practitioner (NP) has been well described during the nearly half-century the professional practice has existed (Archibald & Fraser, 2013; Honeyfield, 2009; Sackett, Spitzer, Gent, & Roberts, 1974; Vleet & Paradise, 2015). Studies have demonstrated the value of NPs when compared to physicians in providing safe and cost-effective patient and family care (Mundinger et al., 2000; Stanik-Hutt et al., 2013). In addition, NPs have positively affected healthcare outcomes for patients (Laurant et al., 2005; Oliver, Pennington, Revelle, & Rantz, 2014). Many state legislatures are following the Institute of Medicine's (IOM's) recommendation for autonomous NP practice (American Association of Nurse Practitioners, n.d.; Barton Associates, 2015; IOM, 2011) by repealing restrictive practice laws, thereby increasing healthcare access for millions of patients (National Governors Association, 2012). As a result, NPs have increasing authority and responsibility.

Historically, establishing provider outcome comparisons was critical to demonstrating both the safety and efficacy of NP care (Brown & Grimes, 1995; Spitzer et al., 1974; U.S. Congress, Office of Technology Assessment, 1986). In the current practice environment, outcome measures specific to the neonatal nurse practitioner (NNP) must now be incorporated into professional requirements (Albanese et al., 2010; Kapu & Klienpell, 2013). To guide the process of continuous practice evaluation, individual practice standards have been provided by The Joint Commission in the form of ongoing professional practice evaluation or as focused professional practice evaluation (The Joint Commission, 2015).

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To accomplish this goal, NNPs must participate, direct, and develop performance metrics to evaluate their individual (direct) and collaborative (aggregate) contributions to improving patient and family care and outcomes while demonstrating decreased healthcare expenditures (Foulkes, 2011; NANN, 2013). Developing these outcome evaluation tools and processes will assist in the benchmarking and validation of care provided by NNPs.

Nurse Practitioner Quality Metrics

Developing and choosing the appropriate outcome metrics for NNPs is challenging. The majority of neonatal patient care outcomes are the result of the collaborative efforts of multiple healthcare providers along with family members who provide care. As part of the healthcare team, the NNP needs to be well informed about the outcomes specific to their practice area. Specifically, targeted outcomes can be shared among selected clinical sites under the aegis of the same healthcare entity or measured against local, national, or international databases. However, because of the collaborative nature of neonatal care, metrics specific to the NNP are difficult to isolate.

Although the majority of patient outcome measures are aggregate or collaborative in nature, there are independent or direct measures of NNP care that can be benchmarked. These measures reflect the direct impact that an NP provider or an NP provider practice contributes to patient care. Examples include: NNP procedural outcomes (e.g., success rates, complication rates), direction of the delivery room team, and length of stay after the implementation of an NP-driven protocol.

All care provided exclusively by the NNP or NNP practice should be included in outcome evaluation; however, it is important to note that those metrics may differ among NNP practices. Choice of outcome to be measured can be conceptualized as being divided into categories: care related, patient related, and performance related (Kleinpell, 2013). Although not mutually exclusive, these categories, combined with the domains of NNP practice, assist in identifying the role-specific impact of NNP practice. NPs are ideally positioned to be drivers of quality improvement (QI) initiatives and evidence-based practice change independent of the practice setting. Collaborative measures may be practitioner-led activities, such as discharge planning, prenatal consults, parent education, admission activities, and patient satisfaction scores.

After independent and collaborative NNP measures are identified, the NP can facilitate QI initiatives that are specifically aimed at improving those outcomes. Well-developed QI metrics help drive improvement, inform consumers, and influence payments (National Quality Forum, n.d.). The measures need to be based on current evidence and must reflect care that is high quality, patient centered, timely, efficient, and equitable (IOM, 2001). QI should be included in the NNP role description and performance expectations with outcome measures that reflect established NNP competencies.

Education for Nurse Practitioners in Quality Improvement

Despite the fact that NPs are perfectly positioned to drive QI, they often lack the education and preparation to do so. Few undergraduate nursing programs include QI content in their curricula (Murray, Dougley, Girdley, & Jarkemsky, 2010), and many nursing school faculty are unfamiliar with QI processes and are uncomfortable teaching QI content (Barnsteiner et al., 2013). In addition, advanced practice graduate nursing education is focused on preparing students to be proficient in the assessment, diagnosis, and treatment of individual patients (Cronenwett et al., 2009). Adding QI competencies into these very full curricula is challenging (Pohl et al., 2009). It is easy to make the assumption that nurses moving into graduate nursing programs will have QI process exposure in their workplaces. However, more students are matriculating directly into doctor of nursing practice (DNP) programs from bachelor of science in nursing preparation. The DNP curriculum is designed to address this deficiency in educational preparation, with the American Association of Colleges of Nursing (AACN) DNP Essentials (AACN, 2006) specifically addressing QI process and measurement of outcomes. If they have limited exposure to QI content when they enter graduate programs and those graduate programs have a paucity of QI content, advanced practice nurses will be sent into the practice arena inadequately prepared to lead and participate in QI initiatives.

QI is one of six competencies developed by the Quality and Safety Education for Nurses (QSEN) initiative, supported by the Robert Wood Johnson Foundation (Barton, Armstrong, Preheim, Gelman, & Andrus, 2009). The other five competencies are patient-centered care, teamwork and collaboration, evidence-based practice, safety, and informatics (Barton et al.). The knowledge, skills, and attitudes required to meet the six QSEN competencies align with the AACN's Essentials of Baccalaureate Education for Professional Nursing Practice and Essentials of Doctoral Education for Advanced Nursing Practice as well as the National Organization of Nurse Practitioner Faculties' (NONPF's) Population-Focused Nurse Practitioner Competencies (Manning & Frisby, 2011). The AACN's Essentials of Master's Education and the National Association of Neonatal Nurse Practitioners (NANNP) Competencies also align with the QSEN competencies. This accordance between the varied competencies has not been translated into consistent QI education content across all NP education programs. Basic QI education can be included in current and future nursing programs so graduating NNPs will be prepared for these new requirements.

Table 1 references the essentials or competencies that most specifically address NP QI.

Nurse Practitioner Metrics

Direct outcome metrics are fairly easy to define. A specific procedure, such as intubation or umbilical line insertion, is either successful or not and the policy is either current with evidence-based practice or needs to be updated. Each NP and NP team can determine which activities specifically fall under their practice umbrella and then determine measures, outcomes, and improvement plans.

Aggregate metrics, meaning those that are gathered through the collaborate efforts of other healthcare members, make it much more difficult to extrapolate specific measures directly under independent NP control. However, following general QI and measurable metrics guidelines, the NP can examine current practice, plan for improving care, and take ownership of selected patient outcomes within the scope of a multidisciplinary project.

When beginning to benchmark NP metrics, it may be appropriate to determine whether an approved quality process is already in place. Although many institutions use the material made available by the Institute for Healthcare Improvement (Institute for Healthcare Improvement, 2016) there are multiple resources for creating measurable metrics. (See **Addendum 1**.)

NANNP Recommendations

1. Every NNP should be aware of the outcomes of the patients for whom they provide care.

2. NNPs should define NP outcomes that are critical to the practice and organization (Kapu & Kleinpell, 2013).

3. Every NNP should be aware of and participate in multidisciplinary or interprofessional QI.

4. As an important part of professional and reflective practice, QI methodology should be included in the curriculums of NNP educational programs. QI should be included in regional and national educational opportunities and conferences.

5. In addition to shared, multidisciplinary quality projects, the NNP should track and evaluate outcomes relevant to their practice, such as transport, delivery room metrics, procedural outcomes, and primary care measures. Individual NNP metrics should align with established NNP competencies and reflect best evidence. Suggested metrics are presented in **Table 2**.

6. NNP quality metrics should evaluate outcomes, including neonatal health, cost effectiveness, and family satisfaction. When possible, these should be examined against available benchmarks.

7. QI participation should be built into evaluation processes.

8. Individual NNP outcomes as well as multidisciplinary outcomes should be transparent and made available for providers, organizations, and families to review.

9. When possible, the electronic health record should be used to collect and report individual and aggregate NNP outcomes.

Table 1. NP QI Competencies and Essentials

Source	Element or Competency
AACN's The Essentials of Baccalaureate Education for Professional Nursing Practice	Essential II—Basic Organizational Systems Leadership for Quality Care and Patient Safety
	Essential VI—Interprofessional Communication and Collaboration for Improving Patient Health Outcomes
AACN's The Essentials of Master's Education in Nursing	Essential II—Organizational and Systems Leadership
	Essential III—Quality Improvement and Safety
	Essential VII—Interprofessional Collaboration for Improving Patient and Population Health
AACN's The Essentials of Doctoral Education for Advance Practice Nursing	Essential II—Organizational and Systems Leadership
	Essential VI—Interprofessional Collaboration for Improving Patient and Population Health Outcomes
	Essential VII—Clinical Prevention and Population Health for Improving the Nation's Health
National Organization of Nurse Practitioner Faculty's Population-Focused Nursing Practitioner Competencies	Leadership Competency #4—Advocate for Improvement, Access, Quality, and Cost-Effective Health Care
	Quality Competency #1—Uses best available evidence to continuously improve quality of clinical practice.
	Quality Competency #2—Evaluates the relationships among access, cost, quality, and safety and their influence on health care.
	Quality Competency #3—Evaluates how organizational structure, care processes, financing, marketing, and policy decisions impact the quality of health care.
	Quality Competency #4—Applies skills in peer review to promote a culture of excellence.
	Quality Competency #5—Anticipates variations in practice and is proactive in implementing interventions to ensure quality.
	Practice Inquiry Competency #2—Generates knowledge from clinical practice to improve practice and patient outcomes.
	Practice Inquiry Competency #3—Applies clinical investigative skills to improve health outcomes.
NANNP Competencies and Orientation Tool Kit for Neonatal Nurse Practitioners	Domain 2—Leadership
	Domain 3—Quality
	Domain 4—Practice Inquiry

Resources for Table
1.   American Association of Colleges of Nursing. AACN's The Essentials of Baccalaureate Education for Professional Nursing Practice, 2008
2.   American Association of Colleges of Nursing. AACN's The Essentials of Master's Education in Nursing, 2011
3.   American Association of Colleges of Nursing. AACN's The Essentials of Doctoral Education for Advanced Nursing Practice, 2006
4.   National Organization of Nurse Practitioner Faculty. Population-Focused Nurse Practitioner Competencies, 2013
5.   National Association of Neonatal Nurse Practitioners. NANNP Competencies and Orientation Tool Kit for Neonatal Nurse Practitioners, 2nd edition, 2014

Table 2. Examples of Possible NNP Metrics Depending on Practice Type and Location

	Examples of possible metrics	Competency domains addressed (NANNP Competencies and Orientation Toolkit, 2nd edition)	Suggested criteria for definition of metric (Please see NANNP Competencies and Orientation Toolkit, 2nd edition, for full description of competency)
Delivery room	Admission temperature	1,2,9	Within acceptable range according to guidelines for gestational age and current condition
	Congruence with Neonatal Resuscitation Program (NRP)	1,2,9	Resuscitation follows NRP guidelines
	Role of team leader	2	NNP leads predelivery huddle and post resuscitation debrief
	Congruence with local "golden hour" practices	1,2,9	First hour care follows local guidelines
Transport	Admission temperature	1,2,9	Within acceptable range according to recommendations for gestational age and current condition
	Glucose maintenance	1,2,9	Maintains glucose per local guidelines
	Participates in transport and documentation review	1,2,7,9	Active member of multidisciplinary team, extrapolates role of NNP
	Response times	2,3,7	Meets established criteria for response times
	Measures of referral unit satisfaction	2,7,9	Tracks satisfaction surveys
	Use of standardized patient care hand off	5,7	Key information is successfully exchanged
Primary care/health maintenance	Immunizations	1,4,9	Percent of infants receiving immunizations per current recommendations; immunization plan for follow-up care or completes

			record of discussion with family and refusal documentation signed
	American Academy of Pediatrics (AAP)-recommended healthcare screenings, such as car seat, congenital heart disease, hearing, and metabolic; additional screens as required by individual state statute	1,4,9	Percent completed and documentation of completion/results; includes communication plan with outpatient community health care when required
	Follows local and national guidelines for prevention of complications (may include, but not limited to, vitamin K prophylaxis, vitamin D supplementation, respiratory syncytial virus prophylaxis, etc.)	1,4,9	Completes documentation of healthcare prophylaxis occurring in timely fashion; completes record of discussion with family and refusal documentation signed
	Arranges for appropriate follow-up	1,7,9	Communicates with outpatient follow-up healthcare provider as needed; discharge documentation is complete; appropriate referral plan in place
	Provides family with anticipatory guidance	1,9	Provides anticipatory guidance per American Academy of Pediatrics guidelines and documents (safe sleep, immunizations, nutritional information, importance of follow-up, etc.)
Practice review	Documentation which may include but is not limited to • completeness of history and physical • completeness of discharge summaries • timeliness and completeness of consults	5,7	Adheres to local guidelines; works as part of a team to optimize documentation and communication
	Physical exam	1,9	Completeness and documentation
	Customer satisfaction	1,2,7,9	Per local tools in use

	Efficiencies	4,9	Monitor patient ratios and patient population for tracking
	Role of clinical expert, preceptor, mentor, and educator	1,2,5	Track NNP activities according to role; may provide outreach education, assist with student education, provide clinical updates, participate in community activities, etc.
Procedural (as appropriate to practice site)	Successful intubation Intubation attempts	3,9	Record in procedure metrics Definitions of success should be specific; for example: any time the laryngoscope is advanced into the mouth counts as an attempt.
	Complications		Track complications that arise as a consequence of the procedure (not those that are the cause for the procedure) NNP metrics may include pain assessment, family support, long term complications (such as central line blood stream infections).

Additional procedures (including but not limited to) ● thoracentesis/chest tubes ● lumbar puncture ● umbilical lines ● peripherally inserted central lines ● arterial puncture ● suprapubic bladder tap ● ventricular reservoir tap ● additional procedures according to privileges	3,9	Record in procedure metrics
Complications		Track complications that arise as a consequence of the procedure (not those that are the cause for the procedure)

Addendum 1. Quality Metrics Resources

Books
Kleinpell, R. M. (Ed.). (2013). *Outcome assessment in advanced practice nursing* (3rd ed.). New York: Springer Publishing Company.

Provost, L. P., Murphy, S. K. (2011). *The health care date guide: Learning from data for improvement.* Hoboken, NJ: Wiley & Sons.

Journals
American Journal of Medical Quality, American College of Medical Quality

International Journal for Health Care Quality, International Society for Quality in Health Care

Journal for Healthcare Quality, National Association for Healthcare Quality

Journal of Nursing Care Quality, Wolters Kluwer

The Joint Commission Journal on Quality and Patient Safety, The Joint Commission

Worldviews on Evidence-Based Nursing, Sigma Theta Tau International

Organizations and Websites
American Academy of Pediatrics: www.aap.org/en-us/professional-resources/quality-improvement/Pages/default.aspx

American Academy of Pediatrics (transport metrics): http://www.aap-sotm.org/Home.html

American Association of Colleges of Nurses (AACN):
www.aacn.nche.edu/faculty/qsen/competencies.pdf
www.aacn.nche.edu/qsen/module-series (click on AACN-Non Member or Practice Stakeholder)

American Association of Nurse Practitioners: www.aanp.org/practice/clinical-quality
www.aanp.org/images/documents/practice/NP_Patient_Outcomes_Toolkit.pdf

Agency for Healthcare Research and Quality (AHRQ):
www.qualitymeasures.ahrq.gov/tutorial/

Centers for Medicare and Medicaid Services: www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityImprovementOrgs/ResourcesforQualityImprovement.html

Institute for Healthcare Improvement: www.ihi.org/ihi

Institute of Medicine: www.iom.nationalacademies.org

The International Society for Quality in Health Care: www.isqua.org

Leapfrog Group: www.leapfroggroup.org

National Association for Healthcare Quality: www.nahq.org/education/Q-Essentials/q-essentials.html

National Database of Nursing Quality Indicators: www.nursingquality.org

National Quality Forum (NQF): www.qualityforum.org/Measuring_Performance/ABCs_of_Measurement.aspx

Physician Consortium for Performance Indicators: www.ama-assn.org/ama/pub/physician-resources/physician-consortium-performance-improvement.page

Quality and Safety Education for Nurses (QSEN): www.qsen.org

The Robert Wood Johnson Foundation: www.rwjf.org

Vermont Oxford Network: www.vtoxford.org

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