Realizing Momentum and Synergy: Benchmarking Meaningful Ambulatory Care Nurse-Sensitive Indicators

EXECUTIVE SUMMARY

- Nurses have the potential to positively impact patient outcomes and make changes in care delivery models to improve care and decrease cost.
- Registered nurses are the ideal team members to expand the capacity in primary care; however, their true impact and utilization has been underutilized.
- To show the impact nurses can have, nurse leaders and researchers must leverage nursing-sensitive indicators (NSIs) and make comparisons with demographic and role information.
- To make these comparisons and provide the most cost-effective, efficient, and high-quality care to patients in the ambulatory care setting, nurse leaders and healthcare leaders need to gather data on the various NSIs for benchmarking.
- The more data that can be gathered, the better comparisons can be made and staffing models can be modified.

The chaotic and ever-changing nature of health care is reflective of a well-documented under-performance of quality along with a lack of efficiency throughout the continuum (Schneider, Sarnak, Squires, Shah, & Doty, 2017). Value, defined as quality divided by cost, now guides many emerging strategies that seek to create solutions for a vast, aging, complex, and chronically ill patient population (Porter, 2010). Nursing is a vital profession within society, respected for its ability to govern and guide contributions to the health and well-being of diverse populations (American Nurses Association [ANA], 2010) and is increasingly looked to for leadership in the transformation of health care as a whole (American Academy of Ambulatory Care Nursing [AAACN], 2017; Institute of Medicine [IOM], 2010, 2015; Josiah Macy Jr. Foundation, 2016; Start, Matlock, & Mastal, 2016).

Ambulatory care settings are experiencing a burgeoning volume of patients as the healthcare system transitions from a model of inpatient health care to a patient-centered system of care acknowledging the dominant role of outpatient and community-based care (AAACN, 2017; Roski & Gregory, 2001). Leveraging the role of the registered nurse (RN) in this setting is a strategy aimed at increasing value for patients across the continuum of care and requires a commitment on the part of nursing to lead and facilitate performance improvement initiatives that focus on quality and safety, enhance care delivery, and evaluate the effect on patient outcomes (AAACN, 2017; IOM, 2010; Start et al., 2016). “Creating a future that maximizes the role of RNs in an evolving healthcare environment will require sustained forward movement in nursing practice, education, research, and leadership” (AAACN, 2017, p. 1).

One area of emerging research and development in nursing that endeavors to meet this challenge is the creation of quality and performance measures that uniquely appraise the contribution of nurses in the ambulatory care environment. Past research that tests the impact of meaningful nurse performance measure benchmarking in the acute inpatient setting has been well documented (Aiken, Clarke, Silber, & Sloane, 2003; Buerhaus, Donelan, Ulrich, Norman, & Dittus, 2006; Needleman, Buerhaus, Stewart, Zelefinsky, & Matke, 2006). Benchmark performance measures in

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the inpatient setting allowed for the development of care models, revision of staffing models to support high-quality care, and promotion of a value argument for inpatient nurses to utilize in supporting their contribution back to society (Aiken et al., 2003).

The purpose of this article is to present the initial stages of a successful journey for nursing to achieve value in the ambulatory care setting as well as outline future phases for this work. We update the progress since this effort was first reported (Brown & Aronow, 2017; Martinez, Battaglia, Start, Mastal, & Matlock, 2015; Mastal, Matlock, & Start, 2016; Start et al., 2016), add new results of development and piloting of measures applicable to a broad selection of ambulatory care settings and patient populations, and detail the input of technical expert panels on the priority areas for new measure development.

**Nurse-Sensitive Indicators (NSI)**

NSIs are quality and performance measures that are responsive to the input of nursing care, reflecting the structure and organization of nursing care, processes and practices of care, and patient health outcomes both good and adverse (Heslop & Lu, 2014). The ANA and the Collaborative Alliance for Nursing Outcomes (CALNOC) define these NSIs as indicators that capture nursing care or outcomes most affected by that care (ANA, 1996; CALNOC, 2015). NSI development for benchmarking first gained momentum in the inpatient setting in the early 1990s under the leadership of the ANA. Two separate organizations emerged from these pilots as national NSI benchmarking databases or repositories, now known as CALNOC and National Database of Nursing Quality Indicators (Brown, Donaldson, Burns Bolton, & Aydin, 2010; Brown & Wolosin, 2013; Montalvo, 2007; Start et al., 2016). Throughout the evolution of inpatient NSIs, research has been important to generate evidence comparing quality with other important elements of the nursing profession and practice. Notable measures developed and available for measurement are staffing descriptors, demographics of the nursing workforce, as well as volume descriptors of patient populations (Brown et al., 2010; Brown & Wolosin, 2013; Montalvo, 2007; Start et al., 2016).

**AAACN Industry Report**

In 2013, AAACN commissioned a taskforce to identify, develop, and benchmark NSIs that were specific to ambulatory care nursing (Start et al., 2016). Quality measurement in this setting was new for many disciplines. In 2004, National Quality Forum (NQF, 2004) formally endorsed inpatient NSIs and released 10 priority disease areas for broad measurement. In 2006, the NQF introduced physician-focused ambulatory care measures and the Physicians Quality Reporting System for the Centers for Medicare & Medicaid Services (CMS) (NQF, 2006; Swan, 2008). By 2008, the NQF released a broad set of ambulatory care measures, which focus primarily on provider performance (Swan, 2008). The journey to develop meaningful NSIs in ambulatory care followed closely and was supported by the Patient Protection and Affordable Care Act as well as the subsequent IOM Report on the Future of Nursing (Haas & Swan, 2011; IOM, 2010). This landmark work supported the expectation of greater value in health care as well as the movement of patients to settings where nurses could have greater input into care coordination and value throughout the lifespan (Haas & Swan, 2014; IOM, 2010).

The AAACN NSI Taskforce conducted thorough reviews of literature, best practices, industry trends, and member feedback. They made comparisons to published statements on the RN role in ambulatory care (AAACN, 2010, 2011) and care coordination and transition management (Haas & Swan, 2014). This work culminated in a report outlining the current state of the industry, existing measures for ambulatory care NSI benchmarking, and proposed areas for measure development (Start et al., 2016).

**AAACN/CALNOC Collaboration**

As previously reported in *Nursing Economics*, CALNOC and the taskforce partnered to create an NSI benchmarking database starting with ambulatory surgery and procedure units (Brown & Aronow, 2017). This partnership introduced an important framework for future measure development in additional ambulatory areas such as urgent care, primary care, specialty care, and birthing centers. In the fall of 2015, AAACN and CALNOC formalized the collaboration to begin development of the priorities proposed by the NSI Taskforce.

**Technical Expert Panels (TEP).** Engaging nurses nationally in the measure development process is a critical component to reach a tipping point for NSI ambulatory care quality measurement and benchmarking. Most ambulatory care organizations, unlike acute care, do not have dedicated performance improvement resources. Nurses may be unfamiliar with performance improvement methodologies, may not have access to administrative data for measurement, or may not have support to develop the infrastructure to compare quality across departments, sites or branches, or outside organizations. National nursing engagement helped prioritize where to start in this important journey, understand what measures added value, and how feasible it was to gather data. The Collaborative leveraged the networks of AAACN and CALNOC to enlist interested nurses to serve on virtual Technical Expert Panels (TEP). A TEP is a group of stakeholders and experts convened as part of the measure development process to provide input and direction to measure development teams (CMS, 2017). The TEP engaged more than 200 individual nurses – including leaders, clinical practice specialists, researchers, and staff nurses – representing large and small systems, specialty practice areas, hospital-based and freestanding organizations. These nurses advised the core development group (authors) in reviewing national endorsed measures, adapting
them appropriately to represent ambulatory care nursing practice, pilot testing them for feasibility and clarity, and charting the direction for further development.

Structure, Process, Outcome. The development of measures for benchmarking nursing performance and NSI followed a process that was well-defined during the decades of inpatient measure development. The Donabedian (1976) quality framework of structure, process, and outcome measure categories has been used to frame performance of discrete ambulatory care units across varied settings. The AAACN/CALNOC team developed measures in all three of these quality domains as described in this section and in Table 1.

Structural measures help organizations understand the organization and resources provided for their care delivery system. To benchmark, or compare practices across settings, standardizing how resources are measured is critical. The “dose” of nurses applied to a unit or department is measured by the number and mix of RNs, licensed practical/vocational nurses, and unlicensed assistive personnel (medical assistants, aides, care partners). Number of visits or encounters (a volume measure) is required to adjust worked hours of staff and a number of other measures to create “rates per volume” metrics that are standardized for direct comparisons. Other structural measures help stratify “like” organizations to group for benchmark comparison. An ambulatory care setting’s affiliation, whether it is hospital or freestanding, the primary age served of the population (pediatric, adult, or mixed ages), and/or the size of the ambulatory care practice (number of eligible providers) are some examples of stratification measures for benchmarking.

Process measures describe the nursing process, nursing-sensitive practices that are performed by nurses or where nurses have oversight for holistic care by the team. These process measures are captured because they can impact the outcomes of care. Data gathering for screening and assessment of patients to ensure the setting of patient-centered goals and care plans are examples of process measures. Examples of developed ambulatory care process measures include patient assessment and follow-up planning for pain management; and screening for risk with appropriate follow up for hypertension, community falls, obesity, and depression.

Table 1.
Summary of Current Measures Available for Ambulatory Care Settings in CALNOC Benchmark Registry

<table>
<thead>
<tr>
<th>Measures</th>
<th>Ambulatory Care Setting</th>
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<tbody>
<tr>
<td></td>
<td>Primary Care</td>
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<tr>
<td>Structure of Care</td>
<td></td>
</tr>
<tr>
<td>Hours Direct Care</td>
<td>X</td>
</tr>
<tr>
<td>Nursing Staff Skill Mix</td>
<td>X</td>
</tr>
<tr>
<td>Nurse Turnover</td>
<td>X</td>
</tr>
<tr>
<td>RN Education/Certification</td>
<td>X</td>
</tr>
<tr>
<td>Process of Care</td>
<td>X</td>
</tr>
<tr>
<td>Pain Assessment and Follow-up</td>
<td>X</td>
</tr>
<tr>
<td>Screening and Follow-up: Hypertension, Community Falls, Body Mass Index, Depression</td>
<td>X</td>
</tr>
<tr>
<td>No Shows/Cancellations</td>
<td>X</td>
</tr>
<tr>
<td>Median Encounter Time</td>
<td>X</td>
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<tr>
<td>Emergency Department Encounters Admitted to Hospital</td>
<td>X</td>
</tr>
<tr>
<td>Patients Who Left Without Being Seen; Before Treatment Complete; Against Medical Advice</td>
<td>X</td>
</tr>
<tr>
<td>Number of Boarded Patients</td>
<td>X</td>
</tr>
<tr>
<td>Outcomes of Care</td>
<td>X</td>
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<tr>
<td>Unplanned Transfers to Hospital</td>
<td>X</td>
</tr>
<tr>
<td>Falls and Falls with Injury</td>
<td>X</td>
</tr>
<tr>
<td>Number Visits with Any Wrongs (site, side, implant, etc.)</td>
<td></td>
</tr>
<tr>
<td>Number Visits with Burns</td>
<td>X</td>
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</table>
Outcome measures track results from organizational structures of care and patient care processes that have been delivered. Outcomes may reflect therapeutic outcomes or adverse events. Therapeutic outcomes can be complex and influenced by many factors beyond nursing practice and can include management of conditions within normal or therapeutic ranges such as hypertension or body mass index. Adverse outcomes are commonly measured events, such as falls in the community or ambulatory care setting, unplanned transfers from the ambulatory care setting to emergency departments (ED) or acute care, or “wrong events” during ambulatory care procedures (wrong patient, procedure, side, site, implant).

Developing standard measures across the industry in individual organizations is the first step in understanding the impact of the RN in the ambulatory care setting. However, understanding performance in comparison to other organizations more broadly influences how organizations improve healthcare delivery. Measurements over time help nurses understand whether structure and process outcomes are trending toward improvement or not. However, without reference to the performance of other organizations, it is impossible to know whether performance is a best practice in the industry, failing practice, or somewhere in between. Benchmarking performance to compare across organizations is the next critical step in the NSI quality improvement journey.

**Importance of Benchmarking.** The first step on the benchmarking journey is to develop “like” practices for comparison. For example, in the hospital setting, comparisons are made between like units such as age groups (adult or pediatrics), types of units (critical care, step-down, medical-surgical, trauma ED, newborn, post-partum), and size of the organization (number ED encounters or procedures or deliveries, or average daily census). The same stratifications must be developed for ambulatory care settings. As an example, in the CALNOC benchmarking database, ambulatory care programs classify individual care units by setting type (surgery/procedure unit, specialty care, primary care, urgent care, etc.), unit type (cardiac, oncology, medical home, etc.), plus other structural features (practice size, hospital affiliation), allowing comparison to similar unit types. When enough units are submitting measures to mask identity, organizations can monitor trends on and compare performance to other similar participating units (the benchmark).

Currently, the CALNOC ambulatory care program enrolls practices (units) in six different care settings: surgical/procedure, specialty care, primary care, birthing center, emergency departments, and urgent care centers. Upon registration, the following demographic data are collected for each practice: hospital-based or freestanding, predominant age group served (adult, pediatric, mixed), and practice size. An ambulatory care taxonomy is shown in Figure 1. The full set of ambulatory care measures currently available in the CALNOC registry is shown in Table 1. This table represents the comprehensive work of more than 150 participant organizations from across the country in technical expertise panels under the leadership of the AAACN/CALNOC Collaborative Initiative. As more organizations and unit types participate in the use of these measures, performance improvement conclusions related to resultant meaningful benchmarks will

<table>
<thead>
<tr>
<th>Surgical/Procedure</th>
<th>Specialty Care</th>
<th>Primary Care</th>
<th>Birthing Center</th>
<th>Urgent Care</th>
<th>Emergency Department</th>
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<tr>
<td>Cardiovascular intervention</td>
<td>Cardiovascular</td>
<td>Family medicine</td>
<td>No sub-group</td>
<td>No sub-group</td>
<td>No sub-group</td>
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<tr>
<td>Dermatology</td>
<td>Dermatology</td>
<td>Internal medicine</td>
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<tr>
<td>Gastroenterology</td>
<td>Endocrinology</td>
<td>Pediatrics</td>
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<td>General surgery</td>
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<td>Genitourinary</td>
<td>Hospice</td>
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<td>Infusion center</td>
<td>Multi-specialty</td>
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<td>Interventional radiology</td>
<td>Neurology</td>
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<td>Multi-specialty</td>
<td>OB/GYN</td>
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<td>Oncology</td>
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<td>Ophthalmology</td>
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<td>Orthopedic</td>
<td>Orthopedic</td>
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<td>Pain management</td>
<td>Otolaryngology</td>
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<td>Plastic surgery</td>
<td>Psychiatry</td>
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<tr>
<td>Urology</td>
<td>Radiology</td>
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<tr>
<td>Wound care</td>
<td>Urology</td>
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begin to drive value description in the ambulatory care setting.

**Future Development Work**

The initial sets of ambulatory care NSI measures were adapted from nationally endorsed measures and prioritization from the AAACN Taskforce. Future measure set development work was guided by additional surveying of the TEP participants, leaders across the country in ambulatory care, as well as AAACN members. Consensus for prioritization of next measures for development was reached through this process. The next phase of the NSI journey will focus on measures that reflect care coordination, transitional care, and chronic disease management while incorporating Patient-Centered Medical Homes and telehealth (virtual care) delivery models. TEP involvement will be critical to the success of this development process, just as national benchmarking through registry participation is critical to the production of valid benchmark measures by which nursing leaders can improve and demonstrate the roles and value of nurses in ambulatory care.

**Discussion and Conclusion**

Nurses have the potential to positively impact patient outcomes and make changes in care delivery models to improve care and decrease cost. To show the impact nurses can have, we must leverage NSIs and make comparisons with demographic and role information. To make these comparisons and provide the most cost-effective, efficient, and high-quality care to patients in the ambulatory care setting, nurse and healthcare leaders need to gather data on the various NSIs for benchmarking. The more data that can be gathered, the better comparisons can be made and staffing models can be modified.

This early work with the development of NSIs is only the tip of the iceberg and continued research into the development of NSIs is needed. Strengthening ambulatory care service delivery is key to achieving the Triple Aim (Berwick, Nolan, & Whittington, 2008). RNs are the ideal team members to expand the capacity in primary care; however, their true impact and utilization to positively impact this to date has been underutilized (Josiah Macy Jr. Foundation, 2016).

A growing body of literature documents physician burnout as an urgent problem, largely in part due to the increased need to care coordinate, ensure continuity of care, and manage the whole patient (Shanafelt, Dyrbye, & West, 2017). The nursing profession knows these activities to be linked closely to elements uniquely found in its discipline (ANA, 2010). Nurses understand care coordination, understand the whole patient and family, and are uniquely positioned to bridge gaps in the healthcare system (AAACN, 2017; ANA, 2010; IOM, 2010). Access to data, the ability to evaluate and improve performance, and the creation of a strong description of value for this emerging nursing role in the ambulatory care setting, will promote the creation of best practice care delivery models that leverage the RN to participate as an equal partner in the interprofessional team and, as a result, improve overall health and efficiency of care (IOM, 2010).

**REFERENCES**


