

Findings from the 2021 Study

Organizational Value of Nursing Professional Development Practice

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ABSTRACT

A 2015 study exploring the correlations between NPD staffing and organizational outcomes was replicated in 2021. Findings reveal little change in NPD practitioners' certification preferences and responsibility foci. However, evidence suggests that higher numbers of NPD staffing are related to higher patient satisfaction, lower unplanned hospital visits, and improved nurse and newly licensed nurse retention. NPD practitioners are challenged to know their organization's metrics and articulate the impact of NPD initiatives on these outcomes.

INTRODUCTION

Nursing professional development (NPD) leaders often reach out to the Association for Nursing Professional Development (ANPD) to determine appropriate staffing levels for NPD departments. Data collected in 2015 provide the only evidence-based metrics correlating NPD staffing to organizational outcomes (Harper et al., 2016). Given the proliferation of hospital systems and other changes in healthcare over the past 7 years, new evidence is needed to guide decision making about NPD resources.

Background

In 2015, the Association for Nursing Professional Development (ANPD) commissioned a study to examine the relationships among numbers of nursing professional development (NPD) practitioners and organizational outcomes in acute care hospitals in the United States (US) (Harper et al., 2016). Findings from that study suggested that higher numbers of NPD practitioners, specifically according to bed size of the organization, were significantly correlated with higher patient satisfaction with nurses' communication and discharge instructions. The investigators concluded, "The current healthcare environment's focus on pay for performance requires that NPD practitioners demonstrate a measurable impact on outcomes to remain viable" (p. 247). Subsequently, in 2016, the NPD scope and standards predicted the importance of "promoting learning as an investment in human capital and cost avoidance" (Harper & Maloney, 2016, p. 27) and the need to demonstrate return on investment for NPD initiatives (Harper & Maloney, 2016). The clarion call had been sounded.

Increasingly, outcomes that demonstrate the organizational value of NPD practice are found in the literature. Many of these outcomes are related to staff metrics such as retention and staff satisfaction (Cartwright, 2021; Gallagher & Ricords, 2021; Hall et al., 2020; Hernandez et al., 2020). For example, Weiss et al. (2021) realized a 14% reduction in orientation time for inexperienced critical care nurses without deleterious effects on turnover or satisfaction when they implemented a phased orientation/tiered skills acquisition approach. This reduction resulted in a cost savings of \$936 per nurse. Scott et al. (2020) increased unlicensed

assistive personnel (UAP) retention by 14% over a 5-year period and optimized skill mix through the development of a UAP residency program. Although not expressed as cost avoidance, the organizational impact is evident. Owings and Gaskins (2020) compared turnover rates of newly graduated nurses who participated in a nurse residency program with those who declined participation. The total turnover rate of residency participants between 2012 and 2015 was 15.9% compared to 29.3% for non-participants, prompting nursing leadership to mandate the nurse residency program for new graduates. Rugs et al. (2020) conducted a review of literature related to nursing student externships published between 2009 and 2019. They defined externships as "undergraduate student programs...provided independent of nursing school and allow students to train in a hospital setting (generally during the summer months) before becoming an RN" (p. 328 – 329). Rug and colleagues concluded these programs reduce recruitment costs and orientation time. The financial benefits of these programs were further supported by Roush and Opsahl (2022), who developed a Patient Care Intern (PCI) program for student nurses to be employed, observe nursing care, and perform UAP tasks for 6 weeks prior to their senior year. The goals of the PCI program were to develop a pipeline of new nurses and promote nursing staff retention. Financial analysis of the program showed a 2-year cost savings of \$227,801 with a return on investment of 76%.

In addition to staffing metrics, NPD initiatives have also been shown to impact patient satisfaction. Kramer and Davies (2021) used Press-Ganey patient satisfaction metrics when they implemented a charge nurse orientation

program. Twelve months after implementation, patients who reported visits by nurse leaders increased from 82% to 90%, although statistical significance was not reported. Arcand and colleagues (2021) evaluated the impact of empathic communication education on patient experience as measured by Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) and Press Ganey Surveys. Evaluation of data for two quarters after the educational intervention demonstrated positive trends, although again, statistical significance was not reported. Patient satisfaction data are important determinants of patient choice and value-based incentive payments from the Centers for Medicare and Medicaid Services (CMS, 2021-a) and thereby affect financial performance of an organization.

Although many studies evaluate the impact of NPD initiatives on organizations, only the ANPD study (Harper et al., 2016) has measured correlations among the number of NPD practitioners and organizational outcomes.

PURPOSE

The purposes of this study were to:

1. Determine the average number of individual employees and registered nurses (RN) for whom an NPD practitioner is responsible.
2. Determine average numbers of NPD practitioners based on hospital size (beds).
3. Explore relationships among HCAHPS, Hospital Compare data, and National Database of Nursing Quality Indicators (NDNQI) scores and NPD staffing levels.
4. Compare NPD staffing levels in adult and pediatric acute care hospitals.

This report addresses the first three purposes. A comparison of NPD staffing levels in adult and pediatric acute care hospitals will follow in a separate report.

Methods

DESIGN AND INSTRUMENT

A descriptive, cross-sectional design was used. Pursuant to being determined exempt by the University of Washington Human Subjects Division, a secure, web-based survey was administered using ANPD-hosted Research Electronic Data Capture (REDCap) software (Harris et al., 2009; Harris et al., 2019). The 2015 survey (Harper et al., 2016) was modified to align with the six responsibilities in the NPD scope and standards (Harper & Maloney, 2022), and four NDNQI data queries were added. The survey consisted of 89 items—93 items for NDNQI participating organizations—related to the organization’s descriptors, employee metrics, patient satisfaction and outcomes; NPD department size, structure, and span of responsibility; workload allocation; and NPD practitioner characteristics. Due to survey length, a pdf version of the survey was available for download to facilitate data collection.

SAMPLE AND DATA COLLECTION

The sampling frame consisted of the approximately 6090 acute care hospitals in the US. Email invitations to participate were sent to a convenience sample of 19,000 individuals on the ANPD mailing list, 217 Children’s Hospital Association member organizations, and 3256 Society of Pediatric Nurses members. Announcements were provided to leaders of ANPD affiliates and to other NPD practitioners through social media

and the ANPD newsletter. Snowball sampling was used to encourage invitation recipients to forward the invitation to NPD practitioners at other organizations. Data were collected for an 11-week period from July to September 2021 to encompass the timing of NPD Week and the 2021 ANPD virtual conference.

DATA ANALYSIS

Individual and hospital-level data were summarized using descriptive statistics, including means, medians, standard deviations, ranges, number of participants (Ns), and percentages. For the organizational outcome correlations, children’s hospitals were removed from analysis due to missing and incomplete data. Additionally, children’s hospitals consider several different quality metrics. To assess relationships among NPD predictors and organizational outcomes, the median for each outcome was determined. Rates for NPD FTE/Employee, NPD FTE/RN, and NPD FTE/Bed were compared above and below the median for each outcome variable using Mann-Whitney U tests for non-parametric data. Given the descriptive nature of the study design and data attrition, statistical significance was set at a one-tailed p -value ≤ 0.10 . All statistical tests were performed with SPSS 26.0 (IBM Corporation).

Results

SAMPLE DESCRIPTION

The electronic survey was initiated 746 times and resulted in 398 usable surveys that comprised the final sample. Many of these surveys lacked one or more responses. Organizations from 46 states and the District of Columbia participated. The sample included 32 children's hospitals. As shown in Figure 1, most organizations were non-profit, part of a healthcare system, in urban or suburban settings with up to 4000 beds. As shown in Table 1, over half reported community hospital affiliation. In addition, Magnet designation was held by 44% with another 15% on the journey; 8% were Pathway designated, with an additional 8% on the journey. Most (72%) reported one or more quality awards such as Malcolm Baldrige National Quality Award, US News Best Hospital, Leapfrog Group Top Hospital, or other similar recognition.

Figure 1

Participating Hospital Descriptives

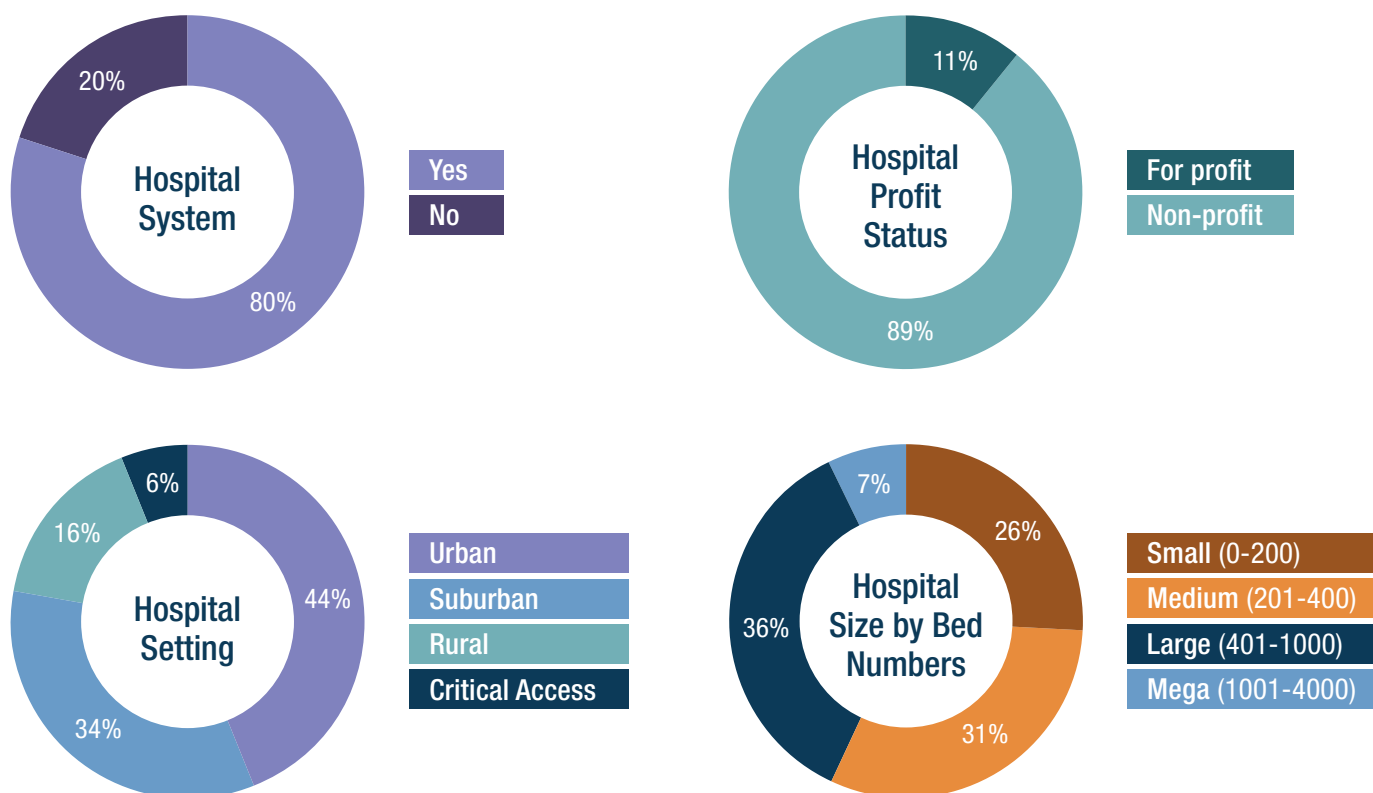


Table 1

Hospital Type

TYPE	N	PERCENT
Community	212	53%
Teaching	141	35%
Academic Medical Center	107	27%
Government	43	11%
Children's	32	8%

Note: Total is > 100% because hospitals could select more than one type; percentage is based on 398 participating organizations.

Participating organizations had a median of 4480 employees, making up 2976.8 full-time equivalents (FTE) as shown in Table 2. The median number of RNs was 1181, comprising 800 FTEs. In 2020, a median of 151 nurses was hired, with over 35% of those being newly licensed nurses. Additionally, data indicated 77% of nursing staff did not belong to a union. In 2020, 87.7% of 138 organizations who responded used contract (i.e., travel or agency) nurses, with a median of 60 individuals contracted. Most organizations (71.5%) classified pay for required training as non-productive time. The median budgeted education hours per RN was 16.

Table 2

Hospital Employees and New Hires in 2020

	MEDIAN	RANGE
Number of employees	4480	2-35,000
Number of FTEs	2976.8	1-24,388.6
Number. of RNs	1181	1-15,000
Number of RN FTEs	800	0.5-5,000
ANNUAL NEW HIRES		
Number of newly licensed nurses	53	0-1,000
Number of experienced RNs	98	0-2,000

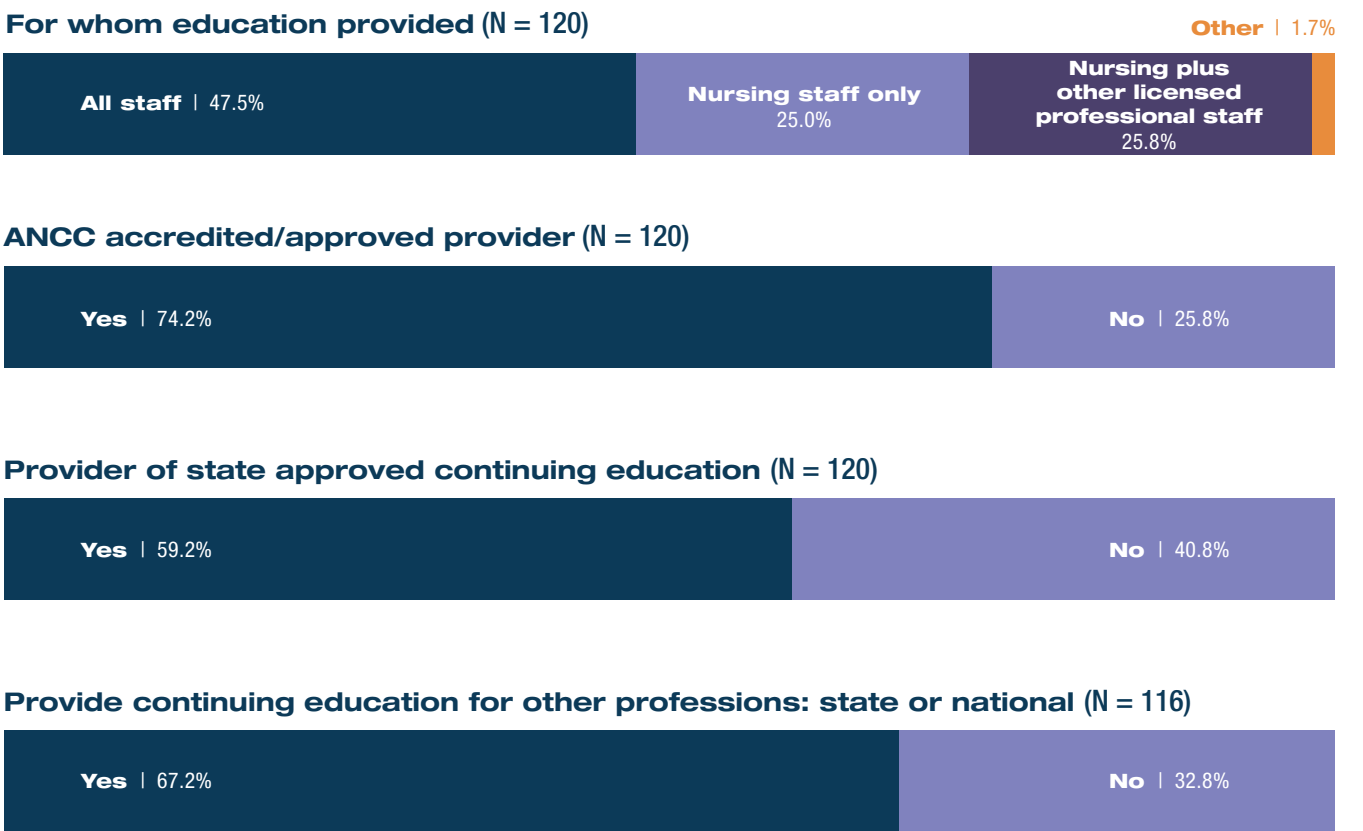
Note: FTE = full-time equivalent

NPD DEPARTMENTS

As shown in Table 3, response rates for queries related to NPD department structure and functions and NPD practitioner characteristics ranged from 28% to 30%. Of those reporting, almost half was responsible for all staff professional development, and 25% were responsible for nursing staff professional development only. The majority provided continuing nursing education as providers through the American Nurses Credentialing Center (74.2%) and/or through their state (59.2%). While 67.2% provided continuing education for professions other than nursing, 22% held Joint Accreditation for Continuing Interprofessional Education.

Department structures varied, with 41.7% centralized and 43.5% reporting a combination of centralized and decentralized structures (See Table 3). Over 40% reported to a system NPD/ education director/leader/vice president (VP) and 32.2% reported to a hospital nursing director/ leader/VP.

Table 3
NPD Department Characteristics



Note: ANCC = American Nurses Credentialing Center

Table 3 (continued)

NPD Department Characteristics

Hold Joint Accreditation for Interprofessional Continuing Education (N = 118)



Responsible for patient education (N = 118)



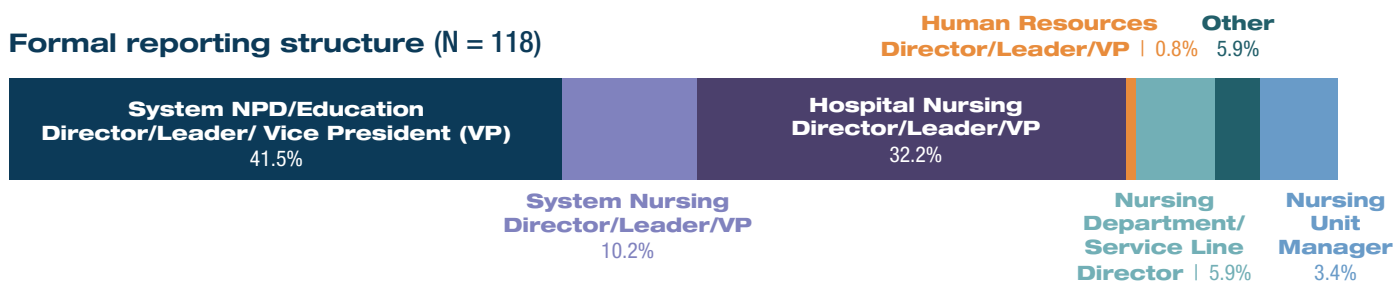
Responsible for population/community health outreach (N = 116)



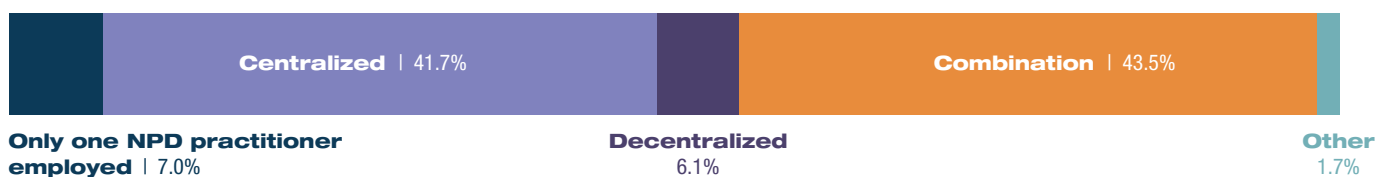
Revenue producing (N = 111)



Formal reporting structure (N = 118)



Organizational structure (N = 115)



Staffing of NPD departments was measured in terms of ratios: beds/NPD FTE, employees/NPD FTE, and RNs/NPD FTE. Table 4 presents the aggregate ratios for all participating organizations. However, these ratios vary based on organization size (see Table 5). Ratios increased with organization size except for beds/NPD FTE in large hospitals and employees/NPD FTE in mega hospitals (i.e., over 1000 beds).

Table 4

Overall NPD Practitioner Staffing Ratios

METRIC	MEDIAN PER NPD FTE
Individual RNs	70
Individual Employees	250
Beds	25.8

Table 5

NPD Ratios by Hospital Size

HOSPITAL SIZE	PER NPD FTE			N
	Beds	Employees	RNs	
Small (up to 200 beds)	27.8	190.9	80.5	18
Medium (201 – 400 beds)	33	270.6	97.7	22
Large (401-1000 beds)	29.2	385.0	134.4	30
Mega (> 1000 beds)	53.4	362.4	146.8	8

Relationships Between NPD Staffing and Organizational Outcomes

NURSING STAFF OUTCOMES

Nursing staff-related outcomes collected included percentage of certified nursing staff, newly licensed nurse retention rate, and overall nurse turnover. As shown in Table 6, higher numbers of NPD practitioners per hospital bed were associated with statistically significant higher newly licensed nurse retention and lower overall nurse turnover rates.

Table 6

Relationships Between NPD Staffing and Nursing Staff Outcomes

OUTCOME	OUTCOME MEDIAN	GROUP	MEAN	SD	N	p VALUE
% Nursing Staff Certified any Specialty						
NPD/ Employee	30	>Median	0.021	0.102	37	0.353
		≤Median	0.016	0.051	37	
NPD/RN		>Median	0.037	0.134	38	0.185
		≤Median	0.027	0.053	38	
NPD/Bed		>Median	0.055	0.059	35	0.137
		≤Median	0.044	0.040	37	
Newly Licensed RN Retention Rate						
NPD/ Employee	86	>Median	0.005	0.003	35	0.440
		≤Median	0.030	0.114	35	
NPD/RN		>Median	0.014	0.011	35	0.297
		≤Median	0.048	0.145	35	
NPD/Bed		>Median	0.055	0.056	34	0.067*
		≤Median	0.042	0.037	35	

*Statistically significant at $p \leq 0.10$

Table 6 (continued)

Relationships Between NPD Staffing and Nursing Staff Outcomes

OUTCOME	OUTCOME MEDIAN	GROUP	MEAN	SD	N	p VALUE
Overall Nurse Turnover Rate						
NPD/ Employee	15.8	>Median	0.033	0.116	35	0.189
		≤Median	0.005	0.003	35	
NPD/RN		>Median	0.053	0.147	35	0.489
		≤Median	0.016	0.011	36	
NPD/Bed		>Median	0.057	0.062	34	0.093*
		≤Median	0.037	0.024	37	

*Statistically significant at $p \leq 0.10$

PATIENT SATISFACTION

Publicly reported HCAHPS data points affected by NPD initiatives were included in this study. Six metrics were analyzed, as shown in Table 7. Each of the six metrics had a statistically significant positive relationship with at least one NPD staffing ratio.

Table 7

Relationships Between NPD Staffing and Patient Satisfaction (HCAHPS)

OUTCOME	OUTCOME MEDIAN	GROUP	MEAN	SD	N	p VALUE
Nurses “always” communicated well						
NPD/ Employee	61	>Median	0.015	0.056	27	0.291
		≤Median	0.004	0.002	26	
NPD/RN		>Median	0.028	0.057	27	0.453
		≤Median	0.014	0.008	28	
NPD/Bed		>Median	0.059	0.067	27	0.0855*
		≤Median	0.038	0.025	35	

*Statistically significant at $p \leq 0.10$

HCAHPS = Hospital Consumer Assessment of Healthcare Providers and Systems

Table 7 (continued)

Relationships Between NPD Staffing and Patient Satisfaction (HCAHPS)

OUTCOME	OUTCOME MEDIAN	GROUP	MEAN	SD	N	p VALUE
Patients “always” received help as soon as they wanted						
NPD/ Employee	67	>Median	0.016	0.059	24	0.098*
		≤Median	0.005	0.003	29	
NPD/RN		>Median	0.025	0.058	24	0.048*
		≤Median	0.018	0.017	31	
NPD/Bed		>Median	0.051	0.065	24	0.578
		≤Median	0.044	0.036	38	
Staff “always” explained about medicines before giving it to the patient						
NPD/ Employee	65	>Median	0.017	0.060	23	0.145
		≤Median	0.004	0.002	29	
NPD/RN		>Median	0.025	0.059	24	0.080*
		≤Median	0.015	0.006	30	
NPD/Bed		>Median	0.052	0.069	27	0.16
		≤Median	0.043	0.024	34	
The area around the patient’s room was “always” quiet at night						
NPD/ Employee	60	>Median	0.018	0.061	22	0.021*
		≤Median	0.003	0.002	31	
NPD/RN		>Median	0.032	0.061	23	0.074*
		≤Median	0.013	0.007	32	
NPD/Bed		>Median	0.057	0.069	26	0.227
		≤Median	0.039	0.025	36	

*Statistically significant at $p \leq 0.10$

HCAHPS = Hospital Consumer Assessment of Healthcare Providers and Systems

Table 7 (continued)

Relationships Between NPD Staffing and Patient Satisfaction (HCAHPS)

OUTCOME	OUTCOME MEDIAN	GROUP	MEAN	SD	N	p VALUE
Patients were given information about what to do during their recovery at home						
NPD/ Employee	89	>Median	0.023	0.072	16	0.108
		≤Median	0.004	0.002	37	
NPD/RN		>Median	0.040	0.072	16	0.077*
		≤Median	0.013	0.007	39	
NPD/Bed		>Median	0.059	0.074	17	0.17
		≤Median	0.042	0.035	45	
Patients understood their care when they left the hospital						
NPD/ Employee	56	>Median	0.017	0.059	24	0.216
		≤Median	0.004	0.002	29	
NPD/RN		>Median	0.030	0.059	25	0.374
		≤Median	0.014	0.006	30	
NPD/Bed		>Median	0.058	0.066	28	0.054*
		≤Median	0.037	0.025	34	

*Statistically significant at $p \leq 0.10$

HCAHPS = Hospital Consumer Assessment of Healthcare Providers and Systems

UNPLANNED HOSPITAL VISITS

Publicly reported unplanned hospital visits for chronic obstructive pulmonary disease, myocardial infarction, heart failure, pneumonia, coronary artery bypass graft (CABG), and hip/knee replacement were obtained from the Hospital Compare website (see Table 8). Higher numbers of NPD practitioners per hospital bed were associated with statistically significant lower unplanned visits for heart failure, pneumonia, and CABG.

Table 8

Relationships Between NPD Staffing and Unplanned Hospital Visits (Hospital Compare Data)

OUTCOME	OUTCOME MEDIAN	GROUP	MEAN	SD	N	p VALUE
Chronic obstructive pulmonary disease						
NPD/ Employee	19.4	<Median	0.015	0.057	26	0.448
		≥Median	0.004	0.003	25	
NPD/RN		<Median	0.024	0.054	27	0.444
		≥Median	0.014	0.007	26	
NPD/Bed		<Median	0.041	0.025	29	0.415
		≥Median	0.045	0.039	31	
Heart attack (myocardial infarction)						
NPD/ Employee	15.3	<Median	0.014	0.055	28	0.318
		≥Median	0.004	0.003	23	
NPD/RN		<Median	0.024	0.053	28	0.451
		≥Median	0.014	0.007	25	
NPD/Bed		<Median	0.043	0.024	29	0.236
		≥Median	0.043	0.039	31	
Heart failure						
NPD/ Employee	21.1	<Median	0.014	0.054	29	0.175
		≥Median	0.004	0.003	21	
NPD/RN		<Median	0.023	0.052	29	0.212
		≥Median	0.013	0.007	23	
NPD/Bed		<Median	0.044	0.024	30	0.073*
		≥Median	0.041	0.040	29	

*Statistically significant at $p \leq 0.10$

Table 8 (continued)

Relationships Between NPD Staffing and Unplanned Hospital Visits (Hospital Compare Data)

OUTCOME	OUTCOME MEDIAN	GROUP	MEAN	SD	N	p VALUE
Pneumonia						
NPD/ Employee	16.3	<Median	0.014	0.054	29	0.339
		≥Median	0.004	0.003	23	
NPD/RN		<Median	0.023	0.052	29	0.497
		≥Median	0.014	0.007	25	
NPD/Bed		<Median	0.043	0.023	30	0.097*
		≥Median	0.042	0.040	31	
Coronary artery bypass graft (CABG) surgery						
NPD/ Employee	11.6	<Median	0.018	0.063	21	0.298
		≥Median	0.004	0.002	15	
NPD/RN		<Median	0.027	0.061	21	0.346
		≥Median	0.013	0.007	17	
NPD/Bed		<Median	0.047	0.026	22	0.0245*
		≥Median	0.032	0.022	21	
Hip/Knee replacement						
NPD/ Employee	3.9	<Median	0.015	0.058	25	0.360
		≥Median	0.004	0.003	24	
NPD/RN		<Median	0.024	0.055	26	0.360
		≥Median	0.014	0.007	25	
NPD/Bed		<Median	0.043	0.024	27	0.309
		≥Median	0.043	0.040	31	

*Statistically significant at $p \leq 0.10$

TIMELY AND EFFECTIVE CARE

Timely and effective care metrics, as reported on the Hospital Compare website, were obtained for sepsis, chest pain, and stroke symptoms. As shown in Table 9, no statistically significant associations were found between NPD practitioner staffing and timely and effective care for severe sepsis/septic shock. Too few participants provided data to allow an analysis of relationships of NPD staffing with chest pain/possible heart attack pain (N = 23), and brain scans for patients with stroke symptoms (N = 33).

Table 9

Relationships Between NPD Staffing and Timely and Effective Care (Hospital Compare Data)

OUTCOME	OUTCOME MEDIAN	GROUP	MEAN	SD	N	p VALUE
Percentage of patients who received appropriate care for severe sepsis and septic shock						
NPD/ Employee	57	>Median	0.017	0.062	22	0.440
		≤Median	0.004	0.002	29	
NPD/RN		>Median	0.026	0.059	23	0.422
		≤Median	0.014	0.007	30	
NPD/Bed		>Median	0.052	0.062	26	0.341
		≤Median	0.039	0.022	34	

*Statistically significant at $p \leq 0.10$ one-tailed test

HOSPITAL ACQUIRED INFECTIONS

Central line-associated bloodstream infections (CLABSI), catheter-associated urinary tract infection (CAUTI), and Clostridium difficile (C. diff.) intestinal infections measures from the Hospital Compare website were reported. No statistically significant association was found between CLABSI and NPD staffing ratios (see Table 10). CAUTI infections were statistically significantly higher with higher numbers of NPD practitioners per RN and C. diff. intestinal infections were statistically significantly higher with higher numbers of NPD practitioners per bed.

Table 10

Relationships between NPD Staffing and Hospital Acquired Infections

OUTCOME	OUTCOME MEDIAN	GROUP	MEAN	SD	N	p VALUE
Central line-associated blood stream infections (CLABSI) in ICUs and select wards						
NPD/ Employee	0.638	<Median	0.004	0.002	23	0.500
		≥Median	0.016	0.057	26	
NPD/RN		<Median	0.014	0.006	24	0.396
		≥Median	0.025	0.055	27	
NPD/Bed		<Median	0.043	0.025	26	0.2505
		≥Median	0.051	0.064	31	
Catheter-associated urinary tract infection (CAUTI) in ICUs and select wards						
NPD/ Employee	0.6295	<Median	0.005	0.002	23	0.120
		≥Median	0.015	0.056	27	
NPD/RN		<Median	0.016	0.007	24	0.042*
		≥Median	0.023	0.054	28	
NPD/Bed		<Median	0.042	0.039	29	0.131
		≥Median	0.053	0.058	30	
Clostridium difficile (C. diff.) intestinal infections						
NPD/ Employee	0.557	<Median	0.004	0.002	22	0.324
		≥Median	0.014	0.054	29	
NPD/RN		<Median	0.014	0.006	24	0.443
		≥Median	0.025	0.053	29	
NPD/Bed		<Median	0.036	0.022	29	0.089*
		≥Median	0.053	0.056	31	

*Statistically significant at $p \leq 0.10$ one-tailed test

NDNQI

NDNQI data were requested from organizations that participate in NDNQI for the following metrics: total patient falls per 1000 patient days, injury falls per 1000 patient days, percent of surveyed patients with hospital acquired pressure injuries, and percent of patients with physical restraints (limb and/or vest). Data received did not align with the data requested and were unable to be analyzed.

Discussion

IMPLICATIONS FOR NPD PRACTICE

System NPD Practice and Leadership. This study replicates a similar study conducted in 2015 (Harper et al., 2016). Of note, demographic data indicate a proliferation of hospital systems from 39% in 2015 to 80% in this study. This finding is consistent with reports of increased hospital mergers and acquisitions driven by the need for expanded capabilities, including new service lines, new markets, and intellectual capital (Singh, 2022). NPD practitioners within hospital systems face unique challenges associated with centralization and standardization of functions while meeting the needs of individual entities (Harper & Maloney, 2022-b). Additionally, this growth of healthcare systems enhances opportunities for NPD leadership at the system level, as evidenced by this study's finding that over 40% of participants report to a system NPD leader. NPD practitioners who fulfill these system-level leadership positions require additional competencies in executive leadership, business acumen, organizational alignment, communication, and relationship building. Focus on NPD leadership development and succession planning is warranted.

NPD Certification and Workload. NPD practitioner characteristics have changed little since the prior study—they remain primarily educated at the BSN or MSN level and tend to be certified in a clinical specialty or administration rather than NPD. Furthermore, their workload remains focused on onboarding/orientation, competency management, and education. The need within nursing—and within the NPD specialty itself—to recognize NPD as a nursing

practice specialty that meets all specialty requirements delineated by the American Nurses Association remains imperative (Harper & Maloney, 2022-a). Certification demonstrates specialty knowledge and promotes specialty recognition. In addition, NPD practitioners must explore efficient, effective methods to accomplish routine activities to allow more time for inquiry, collaborative partnerships, and role development in alignment with their organization's mission, vision, and strategic goals.

In general, this study found that the the number of beds, employees, and RNs per NPD practitioner increased as hospital size increased. This difference might be attributable to economies of scale in which some functions, such as orientation, transition to practice programs, preceptor development, and leadership development, are centralized.

Outcomes of NPD Practice. The relationship between NPD staffing ratios with organizational outcomes builds on the seminal work of Harper et al. (2016). In the initial study, only two outcomes—nurses' communication and receiving information about recovery at home—demonstrated a statistically significant relationship with higher NPD staffing per hospital bed. This study expands to positive associations to all HCAHPS metrics analyzed (see Table 7) with potential financial benefit for organizations. HCAHPS scores, which reflect patient satisfaction, can drive hospital choice. They also contribute to the organization's Centers for Medicare and Medicaid Services (CMS) rebate (CMS, 2021-a). Additionally, higher numbers of NPD practitioners were also

statistically significantly correlated with lower unplanned visits for pneumonia, heart failure, and CABG surgery, which can potentially reduce reimbursement through the CMS Hospital Readmission Reduction Plan (CMS, 2021-b). These outcomes demonstrate the financial value of NPD practice to healthcare organizations by contributing to hospital utilization and CMS rebates, as well as cost avoidance by reducing readmissions. NPD practitioners must demonstrate and articulate their value by improving organizational outcomes that enhance patient satisfaction and outcomes and impact the organization's financial health (Harper & Maloney, 2022-a).

No significant associations were found between NPD staffing ratios and CLABSI rates. The increased rates of CAUTI and C. diff. among organizations with higher NPD staffing were unanticipated. CAUTI and C. diff. are both preventable by interventions routinely delegated to unlicensed assistive personnel (UAPs), such as catheter care and personal hygiene. On the other hand, central lines are managed by licensed personnel only. This differentiation suggests that NPD initiatives focused on education and competency management of UAPs are warranted.

Potential causes for these unexpectedly higher rates of CAUTI and C. diff. were solicited from attendees at the 2022 ANPD annual convention using an online comment platform. Ninety-five comments were garnered with 499 total votes signifying agreement with an individual comment. Most comments were COVID-19 pandemic related. One participant wrote: "The pandemic was the single most significant factor for the raised levels of CAUTI infections." The most frequently cited cause of higher CAUTI and C. diff. rates was staffing and included items such as increased use of agency or travel nurses, increased workload—more patients with higher acuity—and redeployment of staff,

especially unlicensed assistive personnel, who were unfamiliar with standards of care. Patient causes identified were increased length of stay and isolation precautions, which might have been a barrier to routine care. Equipment shortages were also noted, with product substitutions creating confusion. A participant wrote, "During the pandemic, when data was (sic) collected, there were such massive supply chain issues that staff were reusing, misusing, creating ways to provide care." Lack of sufficient experienced preceptors was another potential cause, with preceptor burnout and novice preceptor use cited. In the words of one participant, "Many of the preceptors are young nurses when they start precepting. Do they have support to get help? Many times they don't because the advanced preceptors have all left to travel." Finally, NPD pandemic-related issues, such as the volume of orientees and NPD practitioner redeployment to patient care areas precluded an educational focus on infection control. One participant stated NPD practitioners "were so busy on boarding (sic) that they weren't out there rounding with purpose to support Cauti (sic) and cdiff (sic) prevention." Convention participants suggested ongoing preceptor development and the use of student nurses in innovative ways to ensure routine care is provided.

Missing data in the surveys submitted for this study might reflect a lack of knowledge among NPD practitioners and department leaders of organizational metrics—where to obtain the data, how data are measured, and how NPD practice impacts key measures. NPD practitioners, especially department leaders, must know how to access organizational metrics—such as those explored in this study—to demonstrate the organizational impact of NPD practice.

IMPLICATIONS FOR RESEARCH

NPD practice extends to various settings, such as ambulatory care and long-term care. As patient care increasingly moves to the community setting, structures and processes to guide NPD practice in ambulatory settings are needed. Research to examine the impact of NPD practice in these settings, using meaningful metrics, should be conducted. Additionally, research is needed to identify the most effective and efficient NPD departmental structure, particularly in hospital systems. Finally, this study should be replicated at regular intervals to provide ongoing evidence of the organizational value of NPD practice.

LIMITATIONS

This study was conducted during the COVID-19 pandemic when hospitals were overwhelmed, and NPD practitioners were inundated with related responsibilities. This timing might have impacted participants' ability to participate or acquire the requested data. NDNQI data were not evaluated due to variations in data submitted. Upon replication of this study, a screenshot of an NDNQI report with requested data highlighted could enhance receipt of the desired data. Finally, survey fatigue and attrition resulting from the length of the survey likely resulted in a large volume of missing data.

Conclusion

Findings from this study reflect staffing ratios of NPD practitioners in relation to the number of employees, RNs, and hospital size. The ongoing need is evident for NPD practitioners to self-identify with NPD as a nursing practice specialty. In addition, the findings suggest opportunities for NPD leadership in multisite healthcare systems. Positive relationships were found between NPD staffing and patient satisfaction, quality of care, and nurse retention—all of which have financial implications for healthcare organizations. NPD practitioners must know their individual organization's data and be able to articulate the specific impact of NPD initiatives upon these metrics.

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