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First Year Outcomes

Program Evaluation of a Statewide Nurse Residency Program

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In New Jersey, a statewide nurse residency program was implemented using an apprenticeship model. The pandemic created disruption to registered nurse residency programs. This included rapid restructuring of program delivery to online methods and a need to adapt curricula to reflect changing practice and guidelines. As a result of the pandemic, new graduates had educational gaps and nurse leaders experienced staffing shortages. First year program outcomes demonstrated a 90% retention of new graduates and financial benefits for organizations participating in the statewide nurse residency program.

Workforce stability is a critical priority for nurse leaders and is a problem exacerbated by nursing supply and demand issues attributable to the pandemic. During this time, many registered nurses (RNs) reassessed their employment options, with some older nurses opting for retirement and experienced nurses moving into agency/travel positions or reducing hours. Paying traveling nurse rates and experiencing higher levels of turnover are both costly to organizations and impact workforce stability and outcomes. In addition, the pandemic created challenges for new graduate nursing residency programs (NRPs) to backfill positions because of remote learning models and social distancing mandates.[1,2] During the pandemic, these new graduate nurses (NGNs) were not afforded the same clinical opportunities that they would have had before the pandemic, further widening the practice gap upon graduation.[1] Simulation modalities were often substituted for hands-on clinical learning experiences because on-site learning was unattainable or complicated to achieve. The lack of clinical exposure in the last year of undergraduate nursing programs in 2020 and 2021 created stress for NGNs who felt underprepared and for organizations who needed practice-ready nurses.

Escalating Financial Pressures

Simultaneously, organizational financial constraints were magnified during the pandemic given decreased elective patient volumes and increased staffing and supply cost. These shifts escalated the pressure on chief nursing officers (CNOs) to justify the expense of NGN residency programs without data to demonstrate the return on investment.[3,4] A report by NSI Nursing Solutions shows that hospital vacancy rates continue to rise while retirement continues to accelerate, partially owing to the impact of the pandemic and the aging nursing workforce. The national vacancy rate for RNs was reported to be 18.7% in 2021,[5] with some specialties such as critical care and emergency departments (EDs) experiencing higher vacancy rates.[6] The average staff nurse turnover rate in the northeastern region of the United States is 13.2%,[5] whereas the national rate of new nurse turnover in the 1st year of practice is 23.9%, accounting for a quarter of all RN separations. In 2021, the RN turnover rate in acute care hospitals in New Jersey (NJ) was 13.4%.[7] Reported costs to replace 1 nurse range between $40,038[5] and $88,000.[8] Furthermore, it is estimated that a 1% increase in turnover in organizations equates to $300,000 annually.[8] These projections have escalated as salaries have become more competitive during and after the pandemic. Retirements of baby boomers will also continue to rise through 2030[9]; therefore, retaining NGNs and other bedside providers must be a priority for nurse leaders and their organizations.

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Literature Review

The efficacy of NRPs and best practice recommendations for their implementation are well substantiated.[10-14] There continues to be a challenge, however, with implementing NRPs in acute care.[15,16] In 2010, the *Future of Nursing* report advocated for making residency programs available to all NGNs transitioning into practice.[13] A follow-up assessment in 2015 determined that it is essential to measure the outcomes of these programs to validate their effectiveness.[14] Support for NRPs exists in recommendations put forth by organizations including the Joint Commission,[17] The Carnegie Foundation,[18] the National Council of State Boards of Nursing,[19] and the American Academy of Nursing.[20]

As the pandemic evolved throughout 2020 and 2021, complexities in implementing NRPs in traditional models ensued. Before graduation, students had to learn using simulation more frequently in lieu of having on-site learning opportunities. Nursing residency programs were facilitated remotely, and COVID-19 practices frequently changed. These changes added to stress experienced by NGNs. To assess the impacts on NGNs during this time, a qualitative study to explore the perceptions and experiences of 15 nurse residents at various stages of a yearlong residency was conducted.[21] Themes emerging from this research included: 1) being new is overwhelming, even more so during COVID-19; 2) the need for flexibility; 3) pandemic knowledge and practice disconnect; 4) communication barriers worsened with masks; 5) being a "COVID nurse"; 6) no time for self-care; and 7) gratitude; still glad to be a nurse.[21] The authors of this study demonstrated the importance of NRPs for facilitating learning, maintaining social connections with peers undergoing similar stress, and fostering resiliency in NGNs, especially during a pandemic.[21] Throughout this time, organizations needed to adapt workflows to transition nurses into practice with limited time for preparation as leaders were managing competing priorities.[2]

Statewide Approach

Nationally, some states and regions have attempted to standardize NRPs[22] because of variability in approaches used for implementation. A 2017-2018 study on nurse residencies in NJ explored the perspectives of CNOs, educators, and nurse residents to determine practices used in acute care facilities throughout the state.[4] Based on the authors' findings, the New Jersey Collaborating Center for Nursing (NJCCN), a nursing workforce center, developed structures, processes, and evaluation methods for a statewide collaborative approach to NRPs using an apprenticeship model.[23] In March 2020, the NJCCN launched a statewide NRP for newly licensed RNs, with 19 acute care facilities joining the collaborative. Funding from the NJ Department of Labor and Workforce Development (NJDOLWD) Office of Apprenticeship was secured for hospitals willing to meet the requirements of the proposed apprenticeship model. Facilities wishing to receive funding under this initiative had to provide residents with 144 hours of didactic learning and 2,000 hours of 1:1 precepted/mentored time over a 12- to 15-month period. All hospitals participating in the collaborative were required to use the Vizient/American Association of Colleges of Nursing (AACN) NRP. In year 1, 15 of the 19 hospitals participating in the collaborative received financial support. During year 2, 18 hospitals participated, of which 11 received funding. Some organizations chose not to receive funding based on the tracking requirements from the NJDOLWD.

The onset of the pandemic coincided with the launch of the statewide NRP collaborative. Education for practice partners on using the Vizient curriculum and adhering to requirements for registered apprenticeship had to be transitioned to a remote learning platform. The project leaders quickly met with coordinators at each participating facility to ensure that they would be prepared to deliver content in remote or restricted classroom settings and implement the program as intended. After 2 years, data outcomes on NGN perceptions on transition to practice and turnover were analyzed and are presented below.

Methods

A descriptive, cross-sectional design was used to evaluate NJCCN collaborative outcomes using the Casey-Fink Graduate Nurse Experience Survey (CFGNES)[24] to assess NGN experiences during transition to practice. As this is a program evaluation, it is not subject to institutional review board (IRB) approval. The University of North Carolina Chapel Hill IRB previously reviewed the tools and evaluation structure for the Vizient/AACN NRP and deemed it as "not human subjects research."[25] The sample included 756 newly licensed RNs from 15 hospitals that were funded using the apprenticeship model for residency between August 2020 and December 2021. The data reported here were obtained through the Vizient nurse residency platform and reflect deidentified survey responses collected upon hire and at 6 and 12 months.

Measures and Data Analysis

Questions from the 2nd part of the CFGNES were used for the analyses. This section of the instrument contains 24 questions in which residents respond using a 4-point balanced format (1 = "strongly disagree" and 4 ="strongly agree"). Respondents who acknowledge experiencing stress in their personal lives answer an additional question to identify sources of stress. Five subscales (ie, *support*, *patient safety*, *stress*, *communication/leadership*, and *professional*

satisfaction) were identified by the authors.[26] Reliability of the instrument is summed at $\alpha = 0.89$. Content validity was established by the tool's authors through reviews by expert review by nurses and educators in both academic and practice settings.[26] The instrument has recently undergone additional psychometric evaluation and a revised instrument is being tested by the authors.[27]

Data collected from nurse residents enrolled in the apprenticeship model were extracted from the total NJCCN collaborative database and compared with the Vizient national benchmarks from the same time periods. Descriptive statistics including means, percentages, and differences in means between the NJCCN collaborative and Vizient national samples were analyzed. Only completed surveys were used in the analyses. Turnover of residents was calculated, and cost avoidance measured.

Results

Between August 2020 and December 2021, the NJCCN collaborative enrolled 756 nurse residents, 716 of which were in the process of 1 year data collection during this time. Thus far, 148 NGNs have completed their residency. Reported results were obtained from demographic data collected upon enrollment in the apprenticeship model (Table 1) and CFGNES data obtained at the initial (n = 716), 6-month (n = 345), and 12-month (n = 148) time points. Participants in the NJCCN collaborative were primarily female (85.7%) and White (68.7%), and had a bachelor of science in nursing (BSN) degree or higher (75.8%). Many participants (43.5%) worked in highly intense settings such as EDs, intensive care units (ICU), labor and delivery (L&D), or operating rooms (ORs). Analyses of NJCCN collaborative and Vizient benchmark CFGNES data at the initial, 6-month, and 12-month time points were performed using SPSS version 27 (Armonk, New York) and are reported in Tables 2 and 3.

Casey-Fink Graduate Nurse Experience Survey
The overall mean CFGNES score for residents participating in the NJCCN collaborative was statistically significantly lower than the Vizient national benchmark at 6 months (P = 0.001). On the initial measure, subscales for *stress* (P = 0.001) and *communication/leadership* (P < 0.001) were statistically significantly lower, whereas the subscale for *professional satisfaction* (P = 0.03) was statistically significantly higher. At 6 months, the *support* (P = 0.002), *patient safety* (P < 0.001), and *professional satisfaction* (P = 0.03) subscales were statistically significantly lower. On the 12-month survey, however, no statistically significant differences between residents in the NJCCN collaborative and the Vizient national benchmark were observed (Table 2).

Table 1. Characteristics of Residents[a]

	n	%
Age		
20-24	365	31.8
25-29	210	42.6
30-34	85	13.3
35-39	44	6.9
≥40	33	5.4
Gender		
Female	648	85.7
Male	87	14.2
Nonbinary	1	0.1
Ethnicity		
Caucasian/White	507	68.7
African American	80	10.8
Hispanic or Latino	72	9.8
Asian	53	7.2
Pacific Islander or Native Hawaiian	2	0.3
American Indian or Native Alaskan	1	0.1
≥2 races	19	2.6
Unknown/other	4	0.5
Nursing degree		
MSN (CNL)	2	0.3
BSN	419	55.4
Accelerated BSN	152	20.1
Associate degree	131	17.3
Diploma	44	5.8
ND	8	1.0
Unit type[b]		
Medical/surgical inpatient	335	44.3
ED	90	11.9
Medical/surgical intermediate unit	66	8.7
Telemetry	61	8.1
Oncology inpatient unit	30	4.0
Medical/surgical ICU	24	3.2
Cardiovascular ICU	16	2.1
Neurology/neurosurgical ICU	16	2.1
Obstetrics/L&D	13	1.7
Perioperative/OR	13	1.7
Other	92	12.2

Abbreviations: CNL, clinical nurse leader; ND, no degree specified.
[a] N = 756.
[b] Top 10 reported units specified; remaining units classified as "other."

Sources of Stress
The *stress* subscale is further assessed by category of stress for respondents answering "agree" or "strongly agree" to CFGNES item 23, "I am experiencing stress in my personal life," with respondents in Table 3 reflecting only those residents who reported experiencing stress. On the initial and 6-month measures, NJCCN residents experienced higher and statistically significant stress attributed to *student loans* (P < 0.001). By the 12-month time point, there were no statistically significant differences in sources of stress between residents participating in the NJCCN collaborative and the Vizient national benchmark.

Turnover
Of the 756 NGNs who participated in the NJCCN collaborative apprenticeship model, 79 resigned, accounting

Table 2. Between-Group Comparisons of CFGNES Mean Scores[a]

CFGNES	Group Mean (SD)		P[b]
	NJCCN	Vizient Benchmark	
Initial	(n = 716)	(n = 51,920)	
Overall	3.10 (0.34)	3.12 (0.33)	0.107
Support	3.35 (0.41)	3.37 (0.41)	0.195
Patient safety	2.84 (0.46)	2.84 (0.45)	>0.999
Stress	2.38 (0.77)	2.48 (0.80)	0.001
Communication/leadership	2.73 (0.45)	2.82 (0.43)	<0.001
Professional satisfaction	3.48 (0.47)	3.44 (0.49)	0.030
6 months	(n = 345)	(n = 30,882)	
Overall	3.11 (0.36)	3.18 (0.35)	<0.001
Support	3.24 (0.42)	3.31 (0.42)	0.002
Patient safety	2.91 (0.47)	3.00 (0.46)	<0.001
Stress	2.61 (0.78)	2.56 (0.82)	0.260
Communication/leadership	3.06 (0.39)	3.09 (0.40)	0.166
Professional satisfaction	3.23 (0.51)	3.29 (0.51)	0.030
12 months	(n = 148)	(n = 17,270)	
Overall	3.21 (0.37)	3.25 (0.36)	0.178
Support	3.30 (0.43)	3.33 (0.42)	0.387
Patient safety	3.02 (0.55)	3.10 (0.51)	0.058
Stress	2.57 (0.75)	2.54 (0.82)	0.657
Communication/leadership	3.25 (0.38)	3.25 (0.41)	>0.999
Professional satisfaction	3.26 (0.47)	3.31 (0.51)	0.235

[a] Independent-sample t tests computed from summary data.

[b] Level of statistical significance set at $\alpha = 0.05$.

for a 10.4% turnover rate as compared with the national turnover rate for NGNs of 23.9%.[5] This lower rate resulted in a savings of $9,064,000 for participating NJ hospitals during this time. It also provides organizations in the state a benchmark for their individual hospitals to compare in the state.

Discussion

This is an innovative approach for NRPs in NJ that provided a common curriculum to NGNs across acute care hospitals. Although differences between NJCCN residents' CFGNES scores and the Vizient national benchmark were observed at the initial and 6-month time points, our residents' 12-month overall score and observed results for each subscale were consistent with the Vizient national benchmark. This further supports the need for 12-month residencies[28,29] as it is typical for resident competence and confidence to be lower at the 6-month mark and this is where leaders can provide the most support.

Organizations in NJ continue to enroll large numbers of NGNs across specialties, placing an added burden on finding preceptors and mentors. As reported in Table 1, many NGNs were hired in high-acuity areas including EDs, ICUs, ORs, and L&D units. Additional support is needed for NGNs working in these areas because the orientations are typically longer and the list of competencies is greater. A strategy that proved

successful for 1 participating facility was to provide a resource nurse to round on NGNs during night shifts. Asking a nurse who is considering retirement to fulfill this role may help retain highly experienced nurses in acute care settings. Nursing considering retirement could be used as preceptors or mentors for these NGNs. Leaders will need to examine their data by area of specialty to understand the resources needed for NGNs working within their respective facilities.

Implications for Nurse Leaders

Engagement of leaders at all levels is critical to the successful transition of NGNs. The CNO is responsible to ensure that NGNs have an evidence-based NRP that provides curriculum, resources, and defined support for the NGNs such as a clinical coordinator, facilitators, preceptors, and mentors. It is imperative that CNOs create a compelling business case for NRPs. Funding these programs should be seen as an opportunity for retention of NGNs. Data obtained from the CFGNES can be used to improve the work environment, and financial benefits were demonstrated as our data evidenced reduced turnover and significant cost savings within the state. Validated outcome measures can provide direction for the nursing strategic plan and identify changes needed at an organizational level. For example, in this study stress regarding student loans was high initially and at 6 months. This might warrant a change in benefits offered to NGNs at an organizational

Table 3. *Sources of Stress for Residents With Self-reported Stress[a]*

	Percentage of Respondents With Stress by Category		
Sources of Stress	NJCCN	Vizient Benchmark	P[b]
Initial	(n = 299)	(n = 25,207)	
Care of family	19.06	16.68	0.277
Finances	44.48	44.78	0.912
Job performance	37.79	34.50	0.234
Living situation	27.76	23.35	0.077
Personal relationships	40.47	41.22	0.799
Student loans	56.19	45.15	<0.001
Other	17.73	22.58	0.045
6 months	(n = 189)	(n = 16,349)	
Care of family	21.81	16.41	0.051
Finances	36.70	41.03	0.212
Job performance	38.83	29.87	0.009
Living situation	25	21.37	0.248
Personal relationships	40.96	42.31	0.666
Student loans	54.79	42.16	<0.001
Other	19.15	23.85	0.120
12 months	(n = 78)	(n = 8,951)	
Care of family	27.5	20.67	0.177
Finances	40	43.78	0.472
Job performance	31.25	22.10	0.066
Living situation	25	20.79	0.441
Personal relationships	51.25	40.53	0.053
Student loans	48.75	41.31	0.185
Other	16.25	22.06	0.249

[a] Pearson χ^2 analyses computed from summary data.
[b] Bonferroni-adjusted level of statistical significance set at $\alpha = 0.007$.

level or education on how to manage student loans in 1 of the facilitated sessions.

Nurse leaders should meet with the nurse resident regularly to identify any issues they may be having during their transition. A connection with the nurse leader helps the NGN feel more comfortable expressing the concerns they may be having on the unit. The importance of early connection between the NGN and the nurse leader was evidenced in our CFGNES data where communication/leadership scores were initially lower than the Vizient benchmark. Nurse leaders should develop an ongoing plan for retention past the 12-month mark as many new graduates are more confident in their clinical skills and explore new opportunities at that time. Exit interviews should be conducted to support further understanding. Questions should be aligned with the reasons for leaving a job as identified in the Vizient list.

Preceptors play a key role in a smooth transition. Preparation, support, and recognition are important for the leader to acknowledge. In this program, organizations were given preceptor modules to begin the education if they did not have a developed preceptor program. The number of preceptors also influences the transition for NGN. Having numerous preceptors can slow the NGN transition to practice. During the pandemic, this became increasingly difficult owing to the high rates of turnover in these settings. Preceptors were experiencing exhaustion during this time, and working directly to support NGNs added to their workload. Less experienced preceptors also needed to transition the NGN to meet the 1:1 preceptor requirement.

The statewide residency model is a new structure for participating organizations and will therefore require ongoing review and revision. The NJCCN team continues to work with clinical coordinators at each facility to create their 12-month plans for residency objectives, content, and methods of application, which are reviewed on an annual basis and shared with each organization's advisory committee. Partnering with NJCCN helped provide additional resources to the coordinators and the CNOs such as monthly support meetings, individualized NRP support, and access to educational modules.

Limitations

Although the sample size of residents who had completed the NRP was limited by the period for our data review, the results reported here provide support for the use of statewide models for nurse residency using an apprenticeship model and remote learning opportunities to ensure retention of NGNs. Each facility participating in the NJCCN collaborative had a unique work

environment and experienced a variety of challenges with implementing the NRP during the pandemic which may have influenced the outcomes observed for NGNs in our state. Clinical coordinators at each participating facility have different educational backgrounds, which may have influenced their comfort level in using case studies, gaming, and simulation when implementing the NRPs. The CNOs also had varying levels of engagement, which may have impacted the outcomes. Differences in NGN experiences during residency may have impacted the observed results.

Conclusions

Advisory committee meetings composed of academic partners, organization leaders, nurse residents, and preceptors should be held quarterly by the clinical coordinator and CNO to determine how barriers to NRPs may be overcome and to celebrate program successes. These meetings are beneficial as they provide a mechanism for academic partners to consider curriculum and practicum revisions based on practice partner feedback. Dashboards on key indicators from the CFGNES, along with data on NGN turnover, can

help the advisory committee identify areas for improvement for the organization over time.

As the nursing workforce changes and patient acuity increases, it is imperative that CNOs ensure a smooth transition into practice for new graduates. As experienced nurses retire, a lesser experienced nursing workforce is expected for the future; therefore, different models for supporting NGNs and lesser experienced preceptors and mentors need to be evaluated. Chief nursing officers should address the gaps in their NRP program and provide the support and resources needed to retain NGNs in their organizations. The state-wide collaborative provide a platform for hospitals to share best practices, leading to a stronger state-wide nursing workforce and a benefit to others who can learn from their experience.

Acknowledgments

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