Value of Nurse Residency Programs in Retaining New Graduate Nurses and Their Potential Effect on the Nursing Shortage

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abstract

Background: More than 1 million nurses are expected to retire in the next 10 to 15 years. Retaining new nurses is important to help decrease turnover, vacancies, and organizational cost. The objective of this review was to explore what the literature informs us regarding nurse residency programs implementation in acute care settings and their ability to retain nurses.

Method: Through a search of the Cumulative Index to Nursing and Allied Health Literature, Ovid Nursing Journals, and ProQuest Health and Medical Complete databases, 42 articles were selected for full review.

Results: Twenty-six articles met the inclusion criteria; most studies were descriptive. Established programs with at least a 12-month time frame were slightly more effective at retention. However, retention was not sustained at year two.

Conclusion: Future research should focus on the issues of sustaining retention in year two. If using proxy measurement tools, reliability and validity of those tools must be conducted. In addition, robust studies are needed to explore the effect of nurse residency programs on retention.

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Historically, the United States has seen a cyclical trend in nursing shortages, which is not predicted to change. Fifty-five percent of the nursing workforce is over the age of 50 years and more than 1 million RNs will reach retirement age in the next 10 to 15 years (Budden, Zhong, Moulton, & Cimiotti, 2013). Limited retention (ability to keep employees), especially of newly licensed nurses, increases vacancies and organizational costs, possibly affecting the nursing shortage. According to the National Healthcare Retention & RN Staffing Report (NSI Nursing Solutions, 2016), nurse vacancies increased to 8.5% in 2015, a 1.3% increase from the previous year. Some hospitals have greater than 10% nurse vacancies (NSI Nursing Solutions, 2016) The national average 1-year turnover rate (the rate that nurses leave an organization and are replaced) among all newly licensed RNs is 17.1% (NSI Nursing Solutions, 2016), and the 2-year turnover rate is 33.5% (Kovner, Brewer, Fatehi, & Jun, 2014).

The average cost of turnover for a bedside RN is estimated to be between $37,700 and $58,400 (NSI Nursing Solutions, 2016). These costs are incurred from overtime payment to existing staff, hiring temporary staff, closing beds, and new staff training and orientation. One strategy to address retention and turnover in new graduate nurses (NGNs) is the implementation of a nurse residency program (NRP).

Many NGNs are not prepared for the fast-paced, high-acuity health care environment (Twibell & Pierre, 2012). The complexity of the environment often leads to high stress levels for the new RN and as a result leads to higher turnover. As NGNs enter professional practice, they require additional resources to enable a smooth and successful transition from student to professional. One resource is an NRP, which focuses on providing not only additional skills and knowledge but

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TABLE 1

LITERATURE SEARCH STRATEGY AND RESULTS

Database Searched	Date of Search	Search Terms Used and Limits Applied	Number of Articles Found	Estimate of Relevant Articles
Cumulative Index to Nursing and Allied Health Literature (CINAHL)®	5/9/16	*Nurse residency programs AND nursing turnover;* within 10 years; U.S. academic journals	21	14
Ovid Nursing Journals®	5/9/16	*Nurse residency programs AND nursing turnover;* within 10 years; original articles	11	8
ProQuest Health and Medical Complete®	6/1/16	*Nurse residency programs AND nursing turnover;* within 10 years; peer-reviewed scholarly journals	16	11
CINAHL	6/29/16	*Nurse residency programs AND retention;* within 10 years; U.S. academic journals	70	22
Ovid Nursing Journals	7/20/16	*Nurse residency programs AND retention;* within 10 years; original articles	95	25
ProQuest Health and Medical Complete	9/12/16	*Nurse residency programs AND retention;* within 10 years; peer-reviewed scholarly journals	23	16

also the peer support and mentorship needed for the transition. Therefore, the purpose of this review was to explore what the literature informs us regarding the implementation of NRPs in acute care settings and their ability to retain nurses.

METHOD

A search was conducted using Cumulative Index to Nursing and Allied Health Literature (CINAHL)®, Ovid Nursing Journals®, and ProQuest Health and Medical Complete® databases. A combination of keywords was used, which included *nurse residency programs*, r*etention rates* (RR), and *nursing turnover*. Articles had to be primary research or reporting NRP outcomes and published in peer-reviewed academic journals within the past 10 years. Articles were included if they involved an NRP specifically for NGN in an acute care hospital setting in the United States. The research also had to address RR or turnover in the outcomes. Articles were excluded if programs were not in a hospital setting, included more than just new graduate RNs, or focused solely on a specialty area such as critical care. Grey literature (i.e., technical reports, government documents, and evaluations) were not included in this review. A literature search strategy was employed, limits applied, and results recorded (**Table 1**). The results were a mix of quantitative and qualitative research, along with reports on program outcomes. After the searches were completed with the limits applied, database results were referenced for repeat articles and abstracts reviewed for inclusion–exclusion criteria. This resulted in 42 articles retrieved for review.

The relevant articles were examined, and several were eliminated. Eliminated articles either addressed a mentorship program instead of formally described NRP or pro-

gram specific to a specialized area of nursing with program components not comparable to NRP. Following detailed article screening, 26 were found to fit the review criteria.

RESULTS

Table A (available in the online version of this article) summarizes the articles reviewed. Of the 26 articles, the majority used descriptive designs (*n* = 21; 80.8%), followed by mixed methods (*n* = 2; 7.7%), outcome (*n* = 2; 8%), and quasi-experimental (*n* = 1; 3.8%).

NRP

Internally developed programs were reported in nine (34.6%) of the studies. Of these internally developed programs, four (44%) were developed based on a theoretical framework. Theoretical frameworks used were Benner's novice to expert and Dreyfus's theory of skill acquisition (Altier & Krsek, 2006), Donabedian's constructs of structure, process, and outcome (Newhouse, Hoffman, Suflita, & Hairston, 2007), Benner's novice to expert, Bridges' transition management and Kolb's experiential learning cycle (Olson-Sitki, Wendler, & Forbes, 2012), and stages of transition theory (Varner & Leeds, 2012).

Seventeen (65%) studies reported using established programs, the majority of which (*n* = 10; 59%) used the University Healthsystem Consortium/American Association of Colleges of Nursing Program (UHC/AACN; Fiedler, Read, Lane, Hicks, & Jegier, 2014; Goode, Lynn, Krsek, & Bednash, 2009; Holland & Moddeman, 2012; Krugman et al., 2006; Maxwell, 2011; Pine & Tart, 2007; Rosenfeld & Glassman, 2016; Rosenfeld, Glassman, & Capobianco, 2015; Setter, Walker, Connelly, & Peterman,

TABLE 2

AVERAGE RETENTION RATES OF ESTABLISHED AND INTERNALLY DEVELOPED NRPs (THEORY AND NO THEORY)

NRP	Theory	No Theory	Overall Average
Established (N = 11)	92.12% (n = 10)	72.5% (n = 1)	90.32%
Internally developed (N = 7)	87.95% (n = 2)	87.4% (n = 5)	87.55%

Note. NRP = nurse residency program.

2011; Williams, Goode, Krsek, Bednash, & Lynn, 2007). Other programs used were the Versant RN Residency Program (Baldwin, Black, Normand, Bonds, & Townley, 2016; Ulrich et al., 2010) and the Wisconsin NRP (Bratt, 2009; Bratt & Felzer, 2012). The UHC/AANC and Versant RN Residency Program are based on Benner's theory of novice to expert. The Wisconsin NRP is based on Benner's theory and Duchsher's transition theory. Both the UHC/AACN and Wisconsin NRP require an academic partner. One study reported using a formal NRP but did not provide what that was (Harrison & Ledbetter, 2014). Two studies reported using outside agencies to provide the NRP (Hillman & Foster, 2011; Trepanier, Early, Ulrich, & Cherry, 2012)

NRP RETENTION AND TURNOVER
Retention

Of those studies that reported retention rates, regardless of the NRP used (established versus internally developed), reported improved RR. Small differences were noted in RR between internally developed NRPs and established NRPs. Internally developed programs, regardless of whether the program was based on theory, average RR was less than NRPs using established programs by 2.77% (**Table 2**). Of the 18 (69%) studies providing information on RR, only one study used a control group (Newhouse et al., 2007). Significant differences were noted in RR when comparing the NRP group with the control group. The NRP group had greater RR (88.9%) compared with the control group (80%; p = .014). Five studies (19%) compared pre- and post-NRP RR (Anderson, Linden, Allen, & Gibbs, 2009; Baldwin et al., 2016; Dyess & Parker, 2012; Hillman & Foster, 2011; Maxwell, 2011). However, the differences between pre- and post-NRP RR were not statistically analyzed in any of those studies. The remaining studies simply provided NRP RR (Altier & Krsek, 2006; Bratt, 2009; Bratt & Felzer,

2012; Friday, Zoller, Hollerbach, Jones, & Knofczynski, 2015; Goode et al., 2009; Holland & Moddeman, 2012; Kowalski & Cross, 2010; Medas et al., 2015; Pine & Tart, 2007; Rosenfeld et al., 2015; Rosenfeld & Glassman, 2016; Setter et al., 2011). Although all these studies reported improved RR, the study that used a comparison (e.g., control) group provides a better understanding of NRP RR effectiveness.

Turnover

An important factor in evaluating the effectiveness of an NRP is turnover. Turnover rates were reported in nine (35%) of the studies (Fiedler et al., 2014; Harrison & Ledbetter, 2014; Krugman et al., 2006; Olson-Sitki et al., 2012; Pine & Tart, 2007; Trepanier et al., 2012; Ulrich et al., 2010; Varner & Leeds, 2012; Williams et al., 2007). Turnover was not defined in any of these studies. However, three studies provided explanation on how turnover was measured for that study. One study divided the number of nurse residents who left by total number of nurse residents who stayed (Fiedler et al., 2014). Trepanier et al. (2012) indicated turnover was the number of NGNs leaving before 12 months postresidency by total number of resident nurses who completed residency. The last study measured turnover by termination rate (Williams et al., 2007). Pre-NRP with post-NRP turnover rates were compared in four studies, reporting decreased turnover (Olson-Sitki et al., 2012; Pine & Tart, 2007; Trepanier et al., 2012; Ulrich et al., 2010). The rates of turnover after NRP implementation ranged from a low of 6.41% (Trepanier et al., 2012) to a high of 13% (Pine & Tart, 2007). Statistical significance in turnover pre- and post-NRP was not reported in any of these four studies. Harrison and Ledbetter (2014) compared post-NRP turnover rates in three sites, one with a formal NRP, one with a transitional program, and the third with a comprehensive 3- to 6-month orientation. No significant differences in turnover among the three sites were found, although turnover decreased at all three sites. Possibly having a program directly aimed at providing NGNs with additional skills and learning opportunities helps to decrease turnover. The remaining studies (15%; n = 4) reported only post-NRP turnover rates (Fiedler et al., 2014; Krugman et al., 2006; Varner & Leeds, 2012; Williams et al., 2007).

Two-Year Retention

Several studies documented RR at 2 years posthire (Anderson et al., 2009; Bratt, 2009; Fiedler et al., 2014; Friday et al., 2015; Ulrich et al., 2010; Varner & Leeds, 2012). Although positive outcomes were noted for first year RR, most traditional 12-month NRP have minimal effect on 2-year RR. Anderson et al. (2009) noted that a new NRP increased the 12-month RR; however, the

2-year RR did not improve, remaining at 70%. A possible reason that new nurses leave in year two may be that they are no longer benefiting from learning in a structured program or from a mentor. However, there were two studies that demonstrated improved 2-year RR (Bratt, 2009; Varner & Leeds, 2012). A 15-month-long program using the Wisconsin NRP (Bratt, 2009) demonstrated improved RR, with an average 83% 2-year RR. Prior to NRP implementation, some sites had rates as low as 50%. Varner and Leeds (2012) reported that an optional second-year program, referred to as the *exploration phase*, resulted in a 0% to 9% 2-year turnover rate. The exploration phase included quarterly meetings with debriefings, continuing education, and leadership development.

Return on Investment

Return on investment compares the cost of implementing and sustaining the program to the net benefits of the NRP. Several studies revealed a positive return on investment. Pine and Tart (2007) compared replacement costs prior to the NRP (50% turnover) to replacement costs post-NRP (13% turnover), estimating a replacement cost savings of $823,680. Using an estimated cost of $50,000 per nurse, Hillman and Foster (2011) compared preresidency turnover costs with costs over 4 years postresidency, revealing $4 million in savings over the 4 years. Preresidency implementation turnover costs were estimated to be $17,977,500 and postresidency turnover $2,749,500, at savings of $15,228,000 (Trepanier et al., 2012). There were additional costs of $13,460 per NGNs in the residency program (versus traditional orientation), equating to a total cost of $7,053,040 for the 524 NGNs in that study. Factoring in additional costs and savings in turnover and contract labor, the total cost benefit was between $8.1 million and $41.7 million (Trepanier et al., 2012).

Measurement Tools

To evaluate NRP effectiveness, a variety of measurement tools were utilized. Some tools utilized had established reliability and others were internally developed, with no reported reliability or validity testing. The three most commonly used tools were the Casey-Fink Graduate Nurse Experience Survey (CFGNES; α = .89; *n* = 10, 38%), the McCloskey-Mueller RN Job Satisfaction Scale (MMSS; α = .79. to .89; *n* = 7, 27%), and the Gerber Control Over Nursing Practice scale (CONP; α = .89 to .96; *n* = 3, 12%).

The CFGNES is a 24-item scale with five subscales and Likert-style responses (1 = *strongly disagree* to 4 = *strongly agree*). Nurse resident experiences are measured in five areas: (a) support, (b) patient safety, (c) stress, (d) communication and leadership, and (e) professional satisfaction (Kowalski & Cross, 2010). Five studies reported over-

all scale significance for that study (Friday et al., 2015; Goode et al., 2009; Harrison & Ledbetter, 2014; Olson-Sitki et al., 2012; Williams et al., 2007). In evaluating individual subscales regarding NGN experiences, subscales found to be significant were support, stress, communication and leadership, and professional satisfaction (Goode et al., 2009; Holland & Moddeman, 2012; Kowalski & Cross, 2010; Olson-Sitki et al., 2012; Williams et al., 2007). Stress was found to significantly decrease from entry to exit (Goode at al., 2009, *p* = .014; Williams et al., 2007; *p* ≤ .05). Other studies reported a decrease in stress throughout the program (time 1, time 2, time 3), but the decreases were not statistically significant (Krugman et al., 2006; Maxwell, 2011). Professional communication significantly increased from entry to exit (Holland & Moddeman, 2012, *p* ≤ .001; Kowalski & Cross, 2010, *p* = .022) and from the 6-month time point to exit (Olson-Sitki et al., 2012). However, professional satisfaction dipped significantly at the 6-month time point, with no significant change at exit (Goode et al., 2009, *p* = .000; Williams et al., 2007, *p* ≤ .05). Holland and Moddeman (2012) found that professional satisfaction had a downward trend, significantly decreasing from start to exit (*p* = .037). One possible explanation might be that the new nurses may not feel engaged or feel fully competent at this time point (6 months and 12 months), thus decreasing professional satisfaction.

A 31-item scale, the MMSS measures nurses' career satisfaction, with Likert-style responses (1 = *very dissatisfied* to 5 = *very satisfied*) in eight subscales: (a) extrinsic rewards, (b) scheduling satisfaction, (c) family and work balance, (d) coworkers, (e) opportunities for social contacts, (f) professional responsibilities, (g) praise recognition, and (h) control and responsibility. (Fiedler et al., 2014). Overall, scale significance was reported in two studies (Goode et al., 2009; Williams et al., 2007). Both studies used the MMSS at program start at 6 months and 12 months. At the 6-month evaluation time point, the mean scores was lower, indicating decreased overall satisfaction at midpoint, increasing at exit (Goode et al., 2009, *p* = 0.000; Williams et al., 2007, *p* = .05). Altier and Krsek (2006) found that opportunities for social contacts (*p* = .007) and praise recognition (*p* = .001) decreased from start to finish. To correlate job satisfaction and intent to leave, both Medas et al. (2015) and Setter et al. (2011) used the MMSS scale and correlated it with an investigator-developed scale. The analysis revealed satisfaction was statistically significant with intent to stay (*p* = .05; *p* = .000, respectively). The only statistically significant finding Fiedler et al. (2014) found among the three cohorts was in scheduling satisfaction, with one cohort more satisfied than the other two (*p* = .027).

CONP, used to measure freedom and power to make autonomous decisions in one's nursing practice, is a 21-item survey with Likert-scale responses ranging from 1 = *disagree* to 7 = *agree,* with three subscales: clinical leader, evaluation, and skillful team member (Krugman et al., 2006). Significant differences were found between time points, with scale scores lower at midpoint compared with entry and exit (Goode et al., 2009, p = .05; Williams et al. 2007, p = ≤ .05). Krugman et al. (2006) found similar results, with new nurse residents rating their autonomy high at the beginning and end of residency but rated it lowest 6 months into residency. Outside of a figure in their report, no specific significant values were provided.

DISCUSSION

In addressing the purpose of this review, we found that NRPs in acute care settings are successful in retaining NGNs, which decreases organizational costs. However, the success in keeping NGNs was only at the 1 year mark. Most organizations used formal, established programs, with a smaller percentage using internally developed programs. However, based on the average RR between established and internally developed programs, the differences were small. Well established evidenced-based NRP programs, such as the UHC/AACN and Versant, had slightly higher RRs, compared with internally developed programs without a defined theoretical basis (90.3% versus 87.5%, respectively). These results indicate that the effectiveness of the program may not be due to the use of an established program based on a theoretical framework, but rather to the content of the NRP. Some internally developed programs included a social aspect for the NGN that allowed them time to debrief and share experiences with other cohort members. This appears to be an important NRP component, as evidenced by significantly lower MMSS scores at a site that did not offer monthly support sessions and debriefings (Krugman et al., 2006).

Several programs based their program either on Benner's novice to expert theory or on two or more theories, with Benner's theory being one of them (n = 18, 69%). Benner's (1984) framework provides a model to structure the transition from student to professional nurse. The five proficiency stages are novice, advanced beginner, competent, proficient, and expert. An advanced beginner is a nurse with some prior experience who is efficient in parts of the practice area but does not have in-depth knowledge, requiring some supportive cues. This phase is appropriate for the first year of NGN employment. An advanced beginner needs to concentrate on learned rules, making it difficult to see the big picture, and nurses in this phase require support to prioritize and to think critically (Benner,

1984). Although many studies were based on this theory, the theoretical model may not be as relevant, given the drastic changes that have occurred in acute care nursing over the past 30 years. For example, health care delivery has changed, and hospitalized patients are more complex than they were 30 years ago. NRP outcomes used, based on this theoretical framework, may not be representative of NGNs working in acute care settings currently and in the future. To determine the representativeness of Benner's novice to expert theory in today's NGNs, empirical research may be needed.

All NRPs included in this review, regardless of the model, resulted in improved retention. Even one of the shortest programs (16 weeks; Hillman & Foster, 2011) had the lowest and greatest RR variation from the other studies, at 72.5%. One could speculate that the reason for the lower success of this program was the time frame, although Trepanier et al. (2012) reported on an 18-week program, with a turnover rate of 6.41% (below national average), which provided content that included didactic direct instruction, case studies, clinical immersion, competency validation, and looping to related departments. Whereas, the other program (Hillman & Foster, 2011) consisted of centralized and unit-specific courses, preceptor classes, and simulation. Both NRPs were internally developed, although only one was based on theory (Trepanier et al., 2012).

For organizations to see value in implementing an NRP, evidence of return on investment must be demonstrated. Although an NRP can be expensive, findings demonstrate savings in recruitment and replacement costs result in favorable investment returns. RN replacement costs are estimated to be between 75% and 125% of a nurse's salary, and it is estimated that health care organizations spend $300,000 annually for every 1% increase in nursing turnover (Jones, 2008). This is the most current source; however, cost estimates may be greater due to increases in average RN salary since the information was published.

Tools to measure NGNs' experiences should be selected based on the tool's ability to measure its intended purpose. Their use provides insight, in part, into the outcomes of the NRP. Many of the studies used the CFGNES, a tool specifically developed to measure NGNs' experiences entering the workplace and transition into the profession (Casey, Fink, Krugman, & Propst, 2004). However, the MMSS and CONP were not developed specifically to evaluate NGNs. The MMSS was developed to measure nurse satisfaction, but not specifically developed to measure new graduate nurse satisfaction (Tourangeau, McGillis Hall, Doran, & Petch, 2006). Job satisfaction in nurses new to the profession is most likely different than that of more experienced or seasoned nurses. In our search

for articles providing information regarding reliability and validity testing of this tool on NGNs, nothing was found. CONP is commonly used in research to evaluate control over nursing practice. It was developed by Gerber, Murdaugh, Verran, and Milton in 1990 to measure nurses' autonomy (Weston, 2009). However, it was not indicated that this tool was developed specifically for NGNs or if additional research was conducted to evaluate reliability when applied to NGNs. This tool was not used in any study evaluated for this report after 2007. A possible reason for this was that the tool may not align with NRPs.

LIMITATIONS

The levels of evidence available in this review were limited, and the methods used to evaluate the programs were weak. A majority of studies used a descriptive design. Although some studies had a comparison group, which provides information, they do not inform us on whether the NRPs' effect is significant. Only one study in this review conducted a quasi-experimental study with a control group (Newhouse et al., 2007). Although descriptive and comparison studies are informative and have provided information toward understanding the benefits of these programs, these types of studies do not evaluate the effect of an NRP on nurse retention.

Several studies that included retention and turnover rates pre-NRP with post-NRP initiation. However, not one study reported any statistics on the differences between the two time points. Even though the rates improved, it is not evident whether the differences were significant and of any importance outside of the rates provided.

Retention and turnover were not defined in any of the studies. Some used *retention* and *turnover* as interchangeable terms. However, these terms are not interchangeable; they mean different things and are measured differently. Although retention may not necessarily need defining, turnover does. Turnover is determined by the number of nurses who leave the field and are replaced (Kovner et al., 2014). Depending on how data were measured, reported turnover rates can reflect different things. Although the findings indicated nurse turnover rates improved, the effects of the NRP on turnover can only be surmised, especially with no comparison or baseline data. Therefore, turnover rates provided in this review should be viewed with caution.

Outside of the CFGNES, it is not evident from the information provided in the articles whether the tools used were developed to evaluate NGNs. If the tool selected was not developed for this population, then additional testing was needed prior to its use to ensure validity and reliability (Polit & Beck, 2014) and should have been identified. A majority of the authors reported Cronbach alphas with high values in the measurement tools they used, not always

from their study but values from prior studies. However, that does not equate to the tool's validity—is it measuring what it is supposed to measure (Polit & Beck, 2014).

Comparing two different time points, such as retention before initiation of an NRP with retention post-NRP initiation would have provided more support to make inferences about the difference NRPs made. However, that was not done in any of the studies providing pre- and postretention or turnover rates.

RECOMMENDATIONS

It is evident, based on RRs, that NRPs positively affect retention at 1 year. Given that retention was not maintained at year two, it does not seem that NRPs will have much, if any, effect on the nursing shortage. Why retention rates were not maintained may have little to do with the NRP, but much to do with the culture of the organization once a new nurse is no longer involved in a structured program. A recommendation would be to qualitatively explore with NGNs who intend to leave and those who have resigned which factors influenced their decision. The information gleaned from those interviews may help administrators focus on the problem areas affecting retention. These interviews can also help develop a valid and reliable survey tool that can be used as a form of organizational retention evaluation.

CONCLUSION

These studies do provide evidence of emerging trends that nurse residency programs that are beneficial to a new nurse. Organizational savings were also found at 1 year when retention was high; however, retention was not sustained. Therefore, the benefit to the organization at year one may be lost by year two. Maybe there are still savings (or break-even [balance between profit and loss]) even though retention is not there, but that analysis was missing.

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Table A

Nursing Residency Program Evaluation Articles

Study	Conceptual Framework	Design and Sample Size	Major Variables and Measurement Tool	NRP components	Relevant Findings	12-Month RR or TO

Altier & Krsek, 2006	Benner – novice to expert & Dreyfus theory of skill acquisition	Prospective longitudinal $N = 316$	- Retention rate
			- Job satisfaction: measured pre/post with MMSS -8 subscales (31 items; 5-point scale [*very dissatisfied* to *very satisfied*]):
			  1. extrinsic rewards
			  2. scheduling satisfaction
			  3. family/work balance
			  4. coworkers
			  5. opportunities for social contacts
			  6. professional responsibilities
			  7. praise/recognition, and
				- 12-month program
				- Internally developed
				- Joint venture between chief nursing officers & academic deans
				- Post-BSN program
				- Core curriculum
				- Preceptor guided clinical experiences
				- Access to resident facilitator
				- Specific course work applicable to site of practice
					- MMSS –
					  o Pre-test M = 113.5 (*SD* ±13.49; 68-148)
					  o Post-test M=110.5 (*SD* ± 14.44; 63-139)
					  o Total satisfaction p .055
					    ▪ 2 of 8 measures demonstrated significant decrease from initial to 12 months
					      • praise and recognition (p .001)
					      • professional opportunities (p .007)
						87%

				8. control and responsibility		
			- Reliability for this study .94			
Anderson et al., 2009	None identified	Mixed methods N = 90	- Retention rate: measured at 1 to 2 years post hire - Job satisfaction: pre/post Halfer-Graf Job/Work Environment Satisfaction Survey - Employee engagement: measured with unpublished tool; 14 items, 5-point Likert scale	- 12-month program - Internally developed - includes 2.5 days of interactive sessions followed by email with peers & faculty - Completion of professional portfolio - Monthly guided journal assignments - Paired with experienced preceptor - Simulation experiences	- Previous 5-year retention rate 86%, no impact on 2-year retention rate (remained at 70%) - Nurse satisfiers: patients, patient outcomes, teamwork - Dissatisfiers: ineffective teamwork, scheduling & staffing, physician disrespect - After NRP sessions & 1 year post hire nurse residents significantly perceived they were effective at performing job, identifying resources, understanding performance expectations, accomplishing work tasks, and managing job demands	90%
Baldwin et al., 2016	None identified	Quantitative descriptive N = 5 Study took place at a rural hospital	- Retention rates - remain employed at hospital (not necessarily on unit)	- 12-month program Standardized Versant NRP - 18-week immersion period (420 clinical hours) followed by 1 year of mentoring	Before Versant NRP, Start of Program, 29 new grad nurses hired (2007-2010) 37.5% retention After adding Versant NRP and before nurse ambassador, 24 new grad nurses hired - 10.3% retention	100%

| | | | | - Classes - lecture, group projects, case studies, skills lab, & computer based learning
- *Added to the Versant NRP was a retired nurse mentor* (volunteer nurse ambassador) | Since adding volunteer nurse ambassador to Versant NRP- 5 new grad nurses hired, 4 paired with volunteer nurse ambassador - 100% retention | |
| Bratt, 2009 | None identified | Descriptive
N = 1100 | - No measurement tools identified – retention rates & qualitative data reported | - 12-month program
- Wisconsin NRP
- Formal preceptor training, monthly daylong educational sessions & mentoring by clinical coaches
- Utilizes academic-service partnerships
- Aggregate data from multiple sites | - 83% 2-year retention rate
- Retention rates – across all sites 83% (79%-97%)
- Organizations report program is excellent recruitment tool & has led to decreased vacancy rates
- Qualitative data demonstrates decreased isolation, increased confidence, increased ability to manage workload, improved clinical skills & appreciation of continually learning
- Cost of NRP for 10 NGN approximately $62,000; Replacement cost for one nurse $62,140 (annual salary of one nurse) | 90% |

| Bratt & Felzer, 2012 | Benner – novice to expert & Duchsher's transition theory | Longitudinal correlational *N* = 468 Data from 16 cohorts over 3 years (2005-2008) Multi-sites | Turnover Work Experience (2 scales):
 - Work environment: Nursing Job Satisfaction Scale; 5-point Likert scale (*strongly agree* to *strongly agree*) 23 items, 3 subscales (quality of care, enjoyment, time to provide care); reliability .90, subscales .77 to .90
 - Job Stress Scale; 4-point Likert scale (always to rarely), 4 subscales (competence, physical work environment, staffing, team respect); reliability .87, subscales .64 to .81
 Job competence (2 scales)
 - Clinical Decision Making in Nursing Scale; 40-items, 5-point Likert scale (*never* to | - 12- month program
 - Wisconsin NRP | - Organizational Commitment
 - T1
     o Job Characteristics and Work Experience subscale scores predictors $p \leqslant .001$ (hospital setting $p \leqslant .001$)
 - T2
     o Job Characteristics and Work Experience subscale scores predictors $p \leqslant .001$ (hospital setting p .01; enjoyment $p \leqslant .001$)
 - T3
     o Job Characteristics and Work Experience subscale scores predictors $p \leqslant .001$ (hospital setting p .01; enjoyment $p \leqslant .001$; physical environment [*job stress*] p .005) | 81%[a] |

always); reliability .82 to .83

- Modified 6-D scale of Nursing Performance; 61 items, 5-point Likert scale (*not applicable* to *very well*), 7 subscales (performance; interpersonal relations and communication, leadership, managing and outcomes, planning and evaluation, professional development, teaching/collaboration; reliability .95, subscales .71 to .90

Outcome variable:

· Organizational Commitment Questionnaire; 15 items, 7-point Likert scale (*strongly disagree* to *strongly agree*); reliability .90

			· Data collected NRP start (T1), 6 months (T2), 12 months (T3)		
Dyess & Parker, 2012	None identified	Mixed methods pre-post evaluation *N* 109	- Acquisition of clinical psychosocial & technical skills: measured using NECA; 52 item scale; 5 subscales; 4-point Likert scale (1 = *not very well* to 4 = *very well*); subscale reliability ranged from .77 to .89 - Leadership competencies measured using SLPI; 30 items - assesses 5 elements of leadership; 5-point Likert scale (1 = *rarely/seldom* – 5 = *very frequently or almost always*); scale reliability .94.	- 10-month program - Internally developed - Employer selected participants - RNs practicing 12 months or less - Education for mentors - Curriculum informed by American Organization of Nurse Executive competencies and Robert Wood Johnson Nurse Executive Fellow competencies - 160 hours of course work (university credit) focused on competencies such as management, communication & professionalism - Learning & discussion boards	- NECA significant improvement from pre/post in in 4 of 5 subscales 1. planning & evaluation (2.91-3.37; *p* .000) 2. patient care (3.16-3.32; *p* .027) 3. member of the discipline (3.21-3.61; *p* .000), and 4. leading care (3.05-3.55; *p* .000) 5. no significant improvement in communication (3.41-3.51, *p* .148) - SLPI (means provided are pre/post) 1. model the way (3.55-3.74, *p* .011 2. inspire a shared vision (3.27-3.59; *p* .002) 3. challenge the process (3.27-3.57; *p* .001) 4. encourage the heart (3.56-3.75; *p* .032)	80%[a]

				allowing networking with peers	5. no significant difference in enable others to act (3.97-4.05; $p = .227$)	
Fiedler et al., 2014	Benner's novice to expert	Descriptive $N = 51$	- Turnover rate during NRP in three cohorts (2010, 2011, 2012) - Post NRP turnover rate - MMSS; analyzed differences between cohorts; Cronbach's $\alpha = .89$	- 12-month program - UHC/AACN NRP program	- 5.6% turnover during NRP - 13.7% post NRP turnover for all cohorts (16-39 months since hire) - MMSS – one subscale statistically significant -scheduling satisfaction (overall significance $p = .027$; 2010 $M = 3.83$; 2011 $M = 3.75$; 2012 $M = 3.25$).	5.6% TO

Friday et al., 2015	None identified	Longitudinal quantitative $N = 60$	- Determine the value of having both pre-licensure extern program and NRP
			- Compare those who completed pre-licensure extern program and NRP compared to NRP alone
			- Retention rates
			- CFGNES; 24 item five subscale Likert style responses 1-4 [1 = *strongly disagree* to 4 = *strongly agree*]; 2 subscales negatively
				- 12-month program
				- Internally developed
				- Required
				- Completed general orientation followed by a weeklong didactic instruction & simulation period
				- Residents returned for 4 hours per month for professional development classes
				- Unit orientation was completed over 10-16 weeks
					- 85% retention at 2 years Pre-licensure Extern/NRP group ($n = 11$)
					  o 92% 1-year retention
					  o 77% 2-year retention
					Non-Extern group (NRP only; $n = 35$)
					  o 96% 1-year retention
					  o 91% 2-year retention
					- Providing externship in addition to NRP not cost effective
					- 68% 30-month overall retention rate
					- CFGNES - no statistically significant difference in any of the 5 sections between those that
						95% overall

			worded (stress and organize/prioritize – lower scores are more positive) - Measurement time points - beginning, 3, 6 & 12 months - Reliability .89		participated in nurse extern + NRP & those that only completed NRP	

Goode et al., 2009	None identified	Report
		N = 655
			- Turnover
			- Outcomes measured at three time points with (start, 6 and 12 months):
			- CFGNES; Cronbach's α = .89
			- CONP; Likert scale 1 disagree to 7 agree; Cronbach's α = .96
			- MMSS; Cronbach's α = .82
			- Program Evaluation Scale – research team developed (no validity/reliability reported and no results of the survey were provided)
				- 12-month program
				- UHC/AACN program
					- Turnover rate continued to decline as curriculum was adjusted to meet needs – 1st group had turnover of 12% & declined to 9%
					- Scale results from 3 time points (means reported = start, 6 and 12 months):
					- CFGNES (stress not included) *p* .000 (*M* = 3.06, 3.15, 3.27)
					  o CFGNES stress (range 0-7) *p* .014 (*M* = 1.34, 1.18, 1.05)
					  o All subscales increased from start to completion except for professional satisfaction which dipped at 6 months (*M* = 3.56, 3.39, 3.41; *p* .000)
					- CONP *p* .000 (*M* = 5.56, 5.35, 5.44)
						88%

					- MMSS p .000 (M = 3.72, 3.47, 3.53) -	

Harrison & Ledbetter, 2014	None identified	Cross-sectional, descriptive
		
		Three sites:
		Site A: n = 30,
		Site B: n = 25,
		Site C: n = 147
			- 1st year retention/ turnover rate
			- Intent to stay
			- CFGNES; Cronbach's α = .89
				- 12-month program
				- Site A - formal NRP (name not identified)
				  o Attend regular RN orientation
				  o provided classes specific to needs of NGN
				  o leadership, patient safety
				  o professional role development
				  o mentor assigned for full year - differs from clinical preceptor
				  o simulation
				- Site B - 1 year transition program
				  o provides classes focused on communication, safe patient
					- Site A (n = 30)- had lowest first year turnover at 2%; however, no significant differences between the three sites
					  o Site B (n = 25) turnover = 5%
					  o Site C (n = 147) turnover = 4%
					- No statistically significant differences in CFGNES scores between 3 sites; Intent to stay in current position was significantly higher at Site A compared to Site C (p .0044), however no significance between 3 sites in intent to stay in current institution
						2% TO (site A)
						
						4% TO (site B)
						
						5% TO (site C)

			handling, & system reviews o simulation o NGN support groups - Site C - 3 to 6-month orientation. Includes: o simulation o employee support groups.		
Hillman & Foster, 2011	None identified	Descriptive *N* = 251	- Retention - Turnover costs - Data evaluated 2005-2009	- 16-week program - Contracted with a company who provided an evidence-based NRP - Modified the NRP to hospital and patient population - Centralized & unit specific courses - Preceptor classes - Unit mentors - Formal start date 3 x per year for new grad nurses - License required prior to start	- 251 new RNs completed NRP 182 still employed - 1-year retention rates varied from 75%-100% post residency (pre-residency varied 50% to 75%) - Pre-NRP turnover cost versus turnover cost 4 years post-NRP = savings of $4 million ($50,000 per nurse)	72.5%[a]

| Holland & Moddeman, 2012 | None identified | Descriptive $N = 26$ | - Retention rate: % of newly licensed RNs that remain at program end
 - CFGNES: Confidence & competence: surveyed at three time points: start, 6 months, & 12 months.
 - No scale reliability reported for this study | - Simulation
 - 12-month program
 - UHC/AACN NRP | - Total CFGNES scale significance not reported
 - Mean scores of CFGNES at 3 time points:
   1. 73.167 (start)
   2. 73.292 (6 months)
   3. 75.333 (12 months)
 - Two subscales of CFGNES increased over time and found to be significant:
   1. Organize/prioritize ($p \leqslant .001$; time point means (2.833, 3.067, 3.280)
   2. Communication/leadership ($p \leqslant .001$; time point means (2.764, 3.027, 3.174)
 - Two subscales decreased over time:
   1. Support was highest at beginning of program & decreased over time ($p = .050$; time point means (3.486, 3.287, 3.300)
   2. Professional satisfaction demonstrated reduction over | 92.8% |

					time (p = .037; time point means (3.653, 3.403, 3.389)	

Kowalski & Cross, 2010	None identified	Descriptive N = 55	- Retention rate
			- Clinical competency and critical thinking as measured by the Preceptor Evaluation of Resident Form (internally developed) – 31 item survey, 6 subscales; Likert-style 1-4 (*needs improvement* to *exceeds expectations*)
			  o Administered 6 times (3, 6, 8 weeks and 3, 6, 8 months)
			  o Validity determined by panel of expert nurse clinicians (no content validity index reported)
			  o No report of factor analysis being done
			- Pagana's Clinical Stress Questionnaire; 20-item survey using two subscales – threat and
				- 12-month program
				- Internally developed
				- Voluntary participation
				- 2 phases - Phase 1 is 2 weeks of orientation (hospital & nursing unit) & 12 weeks of working side by side with designated preceptor
				- Phase 2 is preceptor changes to sponsor (mentor)
				- RN attends monthly Resident Development Days 8 hours in length with a peer support session, educational module, skill presentation & practice & critical thinking application session with case studies
					- 96% retention rate for 2nd year cohort (ongoing)
					- Clinical competence and critical thinking increased from 3 weeks to 8 months across all time points ($p \leqslant$.001)
					- critical thinking - significant improvement over time in 5 out of 9 items
					  1. knowing one's limits (p .008)
					  2. setting priorities (p .008)
					  3. differentiating urgency (p .008)
					  4. anticipating & implementing appropriate nursing interventions (p .004)
					  5. evaluating patient outcomes with adaptation of plan of care (p .004)
					- Resident stress level in threat decreased over time (p = .004), however, challenge score did not show significant change
					- Neither state or trait anxiety showed a significant decrease (p
						78%[a]

			challenge; Likert style responses 0-4 (0 = *not at all*, 4 = *a great deal*); administered 3rd and 12th month; reliability .89 - Spielberger's State-Trait Anxiety for Adults; Likert style responses1-4 (*almost never* to *almost always*); Reliability not reported - CFGNES; reliability not reported for this study.		0.141 state anxiety; *P* = 0.188 trait anxiety) - CFGNES – significance in total scale between time points not provided - One subscale- significant increase found for communication/ leadership (*p* .022).	

Krugman et al., 2006	Benner - novice to expert	Descriptive, comparative No specific number of participants identified. 6 pilot sites	- CONP; 21 item scale, 7-point Likert-style (1 = *agree* to 7 = *disagree*) Cronbach's α = .96
			- MMSS; Cronbach's α = .82
			- CFGNES; Cronbach's α = .89
			- Residency/hospital data (including turnover): UHC Demographic Database
				- 12-month program
				- UHC/AACN NRP curriculum:
				- Admission requirements include BSN graduate in last 6 months, licensed, & willing to commit to program, work full time.
				- Phase 1: 1st 6 months - includes hospital orientation, required
					- Authors indicated:
					  o CONP showed high rating in beginning, dipping at 6 months then rising again at 12 months. *No specific statistics provided.*
					  o MMSS – satisfaction with interactions were positive. No specific statistics provided
					  o CFGNES demonstrated stress high at baseline, but diminished over time. *No specific statistics provided.*
						8% TO

			- Program evaluation: Investigator Developed Residency Evaluation Form	specialty training targeting clinical service, monthly resident seminars which include interactive case studies - Phase 2 - 2nd 6 months, resident continues monthly seminars, key components of program are cohort groups & clinical narratives which encourage reflective inquiry	o Significant differences were noted ($p = .03$) in views of the NRP;	

Maxwell, 2011	Benner's novice to expert	Reporting program outcomes
		$N = 18$
			- Retention rate
			- CFGNES
			  o Completed at hire, 6 and 12 months
			  o Cronbach's $\alpha = .89$
			- Graduate Nurse Residency Program Evaluation (GNRPE).
			  o Completed end of program
				- 12-month program
				- UHC/AACN curriculum
					- Previous turnover rates were as high as 50%
					- CFGNES – at end of program results indicated an increase in experience from beginning of program to completion; *no statistics of scale provided*
						100%

			o No reliability reported			

Medas et al., 2015	None identified	Longitudinal N = 79	- MMSS; Cronbach's α = .89
			- CFGNES; Cronbach's α = .89
			- Retention (human resources data)
			- Intent to Leave survey (investigator developed), 3 item, 5-point Likert-style questions (1 = *never think about it* to 5 = *think about it every day*); questions asked how often the participant thought about leaving the:
			  o Unit
			  o Organization
			  o Profession
			- All surveys administered at entry, 6 months, 12 months & 18 months after hire
				- Length of NRP not identified by authors
				- Internally developed
				- Required participation
				- 1st phase: interviewing for position & shadow experience to ensure proper fit
				- 2nd phase: core - global orientation to policy & procedures, patient safety goals, competency of high volume skills, also includes simulation to practice skills, assessment, & critical thinking
				- 3rd phase: clinical phase, focuses on orientation & integration into specific unit
					- MMSS - Satisfaction was highest at baseline (M = 3.789) for all items. Decrease in satisfaction noted at 6 months; no statistics provided
					  o 12 months – most negative
					    ▪ lack of feedback from managers (M = 1.55)
					    ▪ unrealistic expectations of job (M = 2.16)
					    ▪ comfort in making suggested change to care plan (M = 2.19)
					- Intent to leave unit, organization or profession (3 item survey):
					  o 6 months (M = 2.27, 2.75, 2.71)
					  o 12 months (M = 1.76, 2.06, 1.88)
					  o 18 months (M = 1.31, 1.37, 1.25)
					- Factors contributing to satisfaction (MMSS) and intent to leave at 12 months ($p \leq .05$):
						90% to 94%

				- 4th phase: professional development, supported by a mentor & actively engages NGN in clinical nurse role simulation experiences	- Confidence and role transition (CFGNES) and intent to leave (items individually reported) o Manager provides encouragement/feedback ($p = .002$) o Positive role models ($p = .005$) o Work exciting and challenging ($p = .007$) o Realistic job expectations ($p = .012$) o Comfort with delegation ($p = .05$) o Preceptor helps with confidence ($p = .033$)	
Newhouse et al., 2007	Donabedian's constructs of structure, process, & outcome	Quasi-experimental posttest only control group. Data collected baseline, 6 months, 12 months SPRING:	- Retention - OCQ (organizational commitment); reliability .82 to .93; 15-item 7-point Likert-scale (*strongly agree* to *strongly disagree*) - Modified Hagerty-Patusky Sense of Belonging Instrument – 32 item, 2 domains (psychological	- 12-month program - Internally developed (SPRING) - Provided socialization & educational experiences - Included education, group exercises, mentoring by educators & preceptors, individualized	- Retention was significantly higher for the SPRING group than the non-SPRING group at 12 months ($p = .014$; SPRING group 88.9%, non-SPRING 80%) Significant findings: o Anticipated turnover ($p = .022$) o Antecedents ($p = .036$) - Both groups were similar in organization commitment and sense of belonging	88.9%

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		6 months - *N* = 237; 12 months - *N* = 212 Non-SPRING Baseline - *N* = 73	experience [SOBI-P] and antecedents [SOBI-A]), 4-point scale (*strongly agree* to *strongly disagree*); reliability SOBI-P 0.91-0.93, SOBI-A 0.63-076 - Anticipated turnover Scale - Possibility of voluntary termination scale, 12 items 7-point Likert-scale (*agree strongly* to *disagree strongly*); Reliability .84	personal development plans	- Non-SPRING nurses more likely to leave position than 6 or 12-month SPRING nurses,	
Olson-Sitki et al., 2012	Benner - novice to expert, Bridge's transition management & Kolb's experiential learning cycle	Descriptive non experi-mental repeated measures *N* = 31	- Retention rate - Employee satisfaction: investigator developed tool to measure effectiveness & outcomes of program; face validity established by doctoral prepared nurse researcher - CFGNES; Cronbach's α = .89	- 12-month program - Internally developed - 3 phases: includes new employee onboarding & central nurse orientation, unit based orientation, & NRP - extends traditional orientation & includes nurse residency development days - 4	- Nurse turnover for 2 years following implementation 7% and 11% (prior 2 years to program retention 15% and 12%) - CFGNES – significant differences between two time periods *p* ≤.001; nurses were more confident in skills and abilities at 12 months - Significant differences at 12 months in comparison to 6 months, more positive outcomes in support, organization, &	7% and 11% TO

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				hours, twice monthly meetings	communication with physicians & patients/families ($p \leqslant .05$)	
					- Qualitative data demonstrated that positive comments far outweighed negative comments, nurses reported a high level of satisfaction with all aspects of the program, highly valued monthly interaction with peers	
Pine & Tart, 2007	Benner's novice to expert & Dreyfus Skills Acquisition Model	Description No specific number of participants identified.	- ROI measures cost of program compared to net benefits (net programs benefits/costs)	- 12-month program - UHC/AACN curriculum - Methodist Hospital UHC Baccalaureate NRP - Offered a year 2 program to enhance networking opportunities & leadership development	- Turnover prior to implementation - 50% - ROI: Cost per resident = $2,023.91, Net program benefit (replacement costs at 50% turnover – replacement costs at 13% turnover) = $823,680, ROI = 884.7%	13% TO
Rosenfeld et al., 2015	None identified	Retro-spective longitudinal $N = 533$	- Retention in and post NRP - Compare those who have stayed with those who have left	- 12-month program - UHC/AACN NRP curriculum; - 5 components: seminars focused on clinical specialty,	- From 2005 to 2012 - 987 new grads completed NRP through 8 cohorts; overall retention rate 63.5% - Of those who have left - stayed an average of 2.18 years	95.6% (2012)

| | | | - Survey developed with 4 domains (demographics, employment characteristics; educational and professional accomplishment since completing NRP; and current assessment of the components and activities of the NRP)
- Intent to stay scale | evidence-based projects, clinical education through shadowing experienced RNs, senior staff support & opportunities to interact with other NRs in the cohort | - Of those who remain - average length of time is 4.86 years
- Primary reason for leaving - moving to other geographic regions,
- Leavers are more likely to be NP/midwife ($p < .001$)
- Stayers are more likely to hold management/admin position ($p \leqslant .001$),
- No difference in evaluation of NRP program between stayers & leavers - perceived value of program is sustained over time regardless of leaving or staying | |
| Rosenfeld & Glassman, 2016 | Benner's – Novice to expert | Descriptive $N = 425$ | - Retention in the NRP (1st year)
- Retention at hospital beyond residency
- Demographic survey
- Intent to stay scale | - 12-month program UHC/AACN NRP
- includes seminars, evidence-based practice projects, clinical education experience, support by unit senior staff, interactions with other NRs | - Beyond residency - 65.5% still employed for cohorts from 2006, 2007, 2010-2012 at least 50% remain on unit they were hired into
- Overall intent to stay 3.82 (5-point scale) equals strong satisfaction, low intent to leave
- 73% of respondents would tell NGN to choose position in NRP over another position for more money/benefits | 90.6% |

| Setter et al., 2011 | None identified | Cross-sectional, descriptive *N* = 100 | - Retention rate (human resources)
- Commitment Scale – 9 items, 4-point scale; reliability .904
- Reasons for Staying Scale (investigator developed), 18 items, 6-point scale (0 = *possible reason for leaving* to 5 = *highly important*); reliability .839; included qualitative component
- MMSS; reliability .922, subscales .376 to .871
- Nurse Residency Satisfaction Scale; used one subscale (overall program goals) 6 items, reliability .93 | - 12-month program
- UHC/AACN NRP | - Overall retention for all 4 years of NRP 76%
- Reason for Staying, ranked - top 5 reasons - teamwork on unit, ability to give quality care, liking or enjoying my job, relationships with co-workers, & benefits
- MMSS average score of scale 112.4 (*SD* 15.51) (scale 31 to 155); job satisfaction significantly related to reasons for staying (*p* .000).
- NRP top 5 possible reasons for leaving – relationship with nurse manager, unit atmosphere, liking and enjoying job, salary, and autonomy.
- Evaluation of NRP not significantly related to job satisfaction, but significantly related to reasons for staying (*p* .003).
- Qualitative responses - reasons for staying were majority respect as nurse & liking coworkers. | 94% |

Trepanier et al., 2012	Adaptation of Beecroft and Benner novice to expert	Descriptive $N = 524$ Data collected from 15 hospitals	- NGN turnover 12 months' pre-residency - NGN turnover 12 to 24 months' post-residency: - Contract labor dollars per hospital & per department (contract labor - paying overtime rates to current employees)	- 18-week program - Contracted with an outside agency to provide NRP (agency not identified) - NRP includes didactic direct instruction, case studies, clinical immersion and competency validation, looping (gaining experience outside of unit), structured mentoring & debriefing	- Pre-NRP turnover = 36.8% - Post-NRP – 6.41% - Annual contract labor dollars per average daily census went from a mean of $19,099 pre = $5,490 post residency - Turnover costs Pre-NRP estimated at $17,977,500 & post-NRP turnover costs $2,749,500 (savings = $15,228,000) - Additional cost of $13,460 per NGN for NRP (versus traditional orientation; $7,053,040 for the 524 NGN) - Total cost benefit of NRP is between $8.1million & $41.7million - Contract labor – Pre-NRP $45,629,684; Post-NRP $11,948,933 (savings - $33,680,750)	6.41% TO
Ulrich et al., 2010	Benner's Novice to Expert	Outcome report - descriptive $N \geqslant 6,000$ 10 years of data	- Turnover - Nursing Competencies Rating Scale - Nurse Job Satisfaction Scale; 1-5 response; Cronbach's $\alpha = .90$	- 12-week program - Versant NRP - 18-week immersion period (420 clinical hours) - Mentoring for 1 year	- Turnover:7.1% at 12 months, 19.6% at 24 months, 28.6% at 36 months, 34.2% at 48 months, 39.8% at 60 months (average pre-NRP turnover at 12 months was 27%; 24 months 49%)	7.1% TO

- Organizational Job
  Satisfaction Scale; 1-5
  response; Cronbach's α
  = .87, completed at end
  of NRP & at months 12,
  24, & 60 (work only)
- Self-Confidence Survey,
  completed at week 2, 16
  & last week of NRP &
  at months 12, 24, & 60
- Leader Empowering
  Behavior scale; 1-7
  response; reliability .97
- Conditions for Work
  Effectiveness
  Questionnaire;
  reliability .81
- Group Cohesion scale
  reliability .81
- Organizational
  Commitment scale
  reliability .89
- Turnover intent –
  analyzed by asking "Do
  you plan to leave this
  facility in the next year?
  (no, maybe, yes)"

- Classes with case
  studies, structured
  clinical immersion
  experiences, team
  precepting, structured
  experience in areas
  outside home unit,
  mentoring, &
  debriefing/self-care

- Turnover intent – those in NRP
  less likely to say yes to leaving
  than those in comparison group

Correlations with turnover intent &
turnover:
  o Organizational commitment –
    nurse satisfaction – work
    satisfaction ($p < .0001$)
  o Conditions of work
    effectiveness – group cohesion
    – work satisfaction ($p < .0001$)
  o Conditions of work
    effectiveness – nurse
    satisfaction ($p < .0001$)
  o Work satisfaction (pay; $p < .0001$)
  o Nurse satisfaction (total scale; p
    .002)

| Varner & Leeds, 2012 | Stages of transition theory | Descriptive No specific number of participants identified. | - Two medical centers
- Retention: full or part time employment at either facility for length of 2-year contract | - 12-month program
- Internally developed
- Mandatory
- 3 phases – orientation, transition, transformation
- Orientation: general orientation followed by unit specific orientation, online learning & specialty specific classes
- Transition: monthly class sessions with didactic content & debriefing – also have protected status & these nurses cannot "float" to other units
- Transformation: monthly classes with debriefing, role development, & leadership-oriented content
- Voluntary 2nd year exploration phase: | Turnover during 2-year contract:
- 1st year turnover 5%
- 2nd year turnover varied from 0% to 9%
- Post 2-year completion, turnover rate = 24%
- Each year a graduate nurse departed 4-9 months into program (crisis window) | 5% TO |

quarterly meetings (debriefing & free continuing education classes), participation in facility events & specialty specific organizations

| Williams et al., 2007 | Benner - novice to expert | Longitudinal
$N = 679$
Alpha group $n = 486$
Beta group $n = 193$ | - Retention
- Data collected at entry, midpoint, exit
- CFGNES; Cronbach's α = .89
- CONP; Cronbach's α = .89 to .91
- MMSS; Cronbach's α = .89 | - 12-month program
- UHC/AACN NRP
- 2 sites identified as Alpha residents and Beta residents | - turnover = 12% (overall turnover rate = 16.5% which included those who failed NCLEX, became seriously ill & those who died)
- CFGNES – (total scale) significant differences between time points (entry/midpoint/exit)
  o Alpha $p \leqslant .05$
  o Beta $p \leqslant .05$
  o Stress subscale indicated significant reduction in stress from entry to exist ($p \leqslant .05$)
  o Professional satisfaction subscale decreased at midpoint for both Alpha and Beta groups from entry ($p \leqslant .05$) and increased slightly from midpoint to exit (non-significant) | 12% |

- CONP – Factor analysis of scale resulting in 3 subscales: clinical leader (4 items, α .89); evaluation of policies and outcomes (3 items, α .81); and skillful nurse/team member (7 items, α .91)
- significant differences between time points (entry/midpoint/exit)
  - Alpha $p \leqq .05$
  - Beta $p \leqq .05$
  - Scale scores were lower at midpoint compared to entry and exist for both groups.
  - Two subscales indicated a decrease from entry to midpoint in (1) Evaluation and (2) Skillful team member from entry to midpoint in both groups– $p \leqq 05$; increased slightly at exit (non-significant)
- MMSS significant differences between time points (entry/midpoint/exit); satisfaction decreased at midpoint increasing at exist:
  - Alpha $p \leqq .05$

o Beta $p \leqq 05$

o Two subscales (Professional
  opportunity and Control
  responsibility) indicated a
  decrease from entry to
  midpoint, with recovery at exit
  $- p \leqq .05$

Note. BSN = Bachelor of Science in Nursing; CFGNES = Casey-Fink Graduate Nurse Experience Survey; CONP = Gerber Control Over Nursing Practice;

MMSS = McCloskey-Mueller RN Job Satisfaction Scale; NGN = New Graduate Nurse; NRP = Nurse Residency Program; NECA = Nursing Evaluation

Competency Assessment; RR = Retention rate; ROI = Return on investment; SPRING = Social and Professional Reality Integration for Nurse Graduates; SOBI

= Sense of Belonging Instrument; SLPI = Student Leadership Practices Inventory; TO = Turnover; UHC/AACN = University Health System

Consortium/American Association of Colleges of Nursing Program.

[a] Note. Below national average of 82.5%.