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A Multisite Study on a New Graduate Registered Nurse Transition to Practice Program: Return on Investment

EXECUTIVE SUMMARY

- ▶ Many healthcare organizations have been reluctant to implement evidence-based transition to practice (TTP) programs due to concerns about costs.
- ▶ It is necessary to demonstrate to nursing practice leaders and healthcare executives the monetary value for providing a structured TTP program for new graduate registered nurses (NGRNs).
- ▶ The findings of this study show a positive return on investment and provide additional evidence to support the business case for implementing a TTP program in hospitals to decrease NGRN turnover.
- ▶ Additionally, the results suggest the immediate investment in a NGRN TTP program has a financial benefit that accrues relatively quickly due to higher nurse retention rates.

SUCCESSFULLY TRANSITIONING new graduate registered nurses (NGRNs) into practice is crucial. The demands on the new nurse are increasing as the patient population is presenting with complex health conditions and new healthcare technology continues to emerge. Despite national calls for new graduate nurse residencies (Benner, Sutphen, Leonard, & Day, 2010; Goode, Lynn, Krsek & Bednash, 2009; Hofler, 2008; Institute of Medicine, 2011; The Joint Commission, 2002), many healthcare organizations still have not implemented transition to practice (TTP) programs. Clearly costs associated with a TTP program may be contributing to the reluctance of organizations to implement these programs. Healthcare executives need information on the return on investment (ROI) to support a structured TTP program in hospitals.

The National Council of State Boards of Nursing (NCSBN) has done extensive research on new graduate nurse transition and, in collaboration with more than 35 nursing organizations and stakeholders, developed an evidence-based standardized TTP model (NCSBN, 2014). The goal of the model is to promote public safety by supporting NGRNs during their critical entry period and progression into practice. The model is dependent on a well-developed preceptor-nurse relationship using preceptors trained for the role.

From 2011 to 2013, NCSBN conducted a TTP study, based on its TTP model, following 1,464 NGRNs in three states (Illinois, North Carolina, and Ohio) using study and control groups. The methodology and results including additional outcomes such as NGRN competency, work stress, and job satisfaction from that study were reported previously

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(Spector et al., 2015). The ROI results from that study are reported here.

Literature Review

While there are many direct and indirect outcomes of TTP programs, retention/turnover of NGRNs is the most frequently used outcome. Most studies of TTP report turnover decreases when there is a supportive TTP program for NGRNs (Anderson, Hair, & Todero, 2012; Goode, Lynn, McElroy, Bednash, & Murray, 2013; Spector et al., 2015; Ulrich et al., 2010). A recent NCSBN NGRN TTP study found an overall 12-month turnover rate of 17% (Spector et al., 2015). Further, lower turnover rates have been reported in two national TTP programs, which have been in place for more than 10 years (Goode et al., 2013; Ulrich et al., 2010). Ulrich and colleagues (2010) reported an overall 12-month turnover rate of 7.1% (which dropped to 4.3% after the fifth cohort of NGRNs by which time the program was fully integrated into the organization), compared to a 27% 12-month turnover prior to implementation of the TTP program. Goode and co-authors (2013) found similar results with 12-month turnover decreasing from 12% in the early years of program implementation to 5.4% in later years.

Kovner, Brewer, Fatehi, and Jun (2014) reported data from a nationally representative sample of newly licensed registered nurses during the beginning years of their careers. The researchers found approximately 17.5% of newly licensed RNs leave their first nursing job within the first year and approximately 33.5% leave within 2 years.

Additionally, researchers found a relationship between turnover and patient safety outcomes (Bae, Mark, & Fried, 2010; Duffield, Roche, O'Brien-Pallas, & Catling-Paull, 2009; Spector et al., 2015). Duffield and associates (2009) evaluated staff consistency across

40 nursing units and used the term *churn* to describe the constant movement of staff, thus creating changes to skill mix and challenges in scheduling, performance management, and supervision. They stressed the impact of continuity of care, highlighting a unit in their study with a high churn rate that had a higher rate of adverse patient safety outcomes than other units in the study. The churning creates problems with continuity of care in addition to management and economic issues for the organization. Bae and colleagues (2010) studied the relationship between temporary nurses and patient safety outcomes and found there were greater numbers of patient falls when nurses worked on units with high levels of temporary nurses (15% or more).

NGRN turnover has a negative financial impact on institutions (Jones, 2004; Jones, 2005; Jones, 2008; Trepanier, Early, Ulrich, & Cherry, 2012; Ulrich et al., 2010). The total cost of turnover is often difficult to calculate and varies by what costs are included. Some of the most detailed analyses of the costs of nursing turnover have been performed by Jones (2004, 2005, 2008). Based on retrospective, descriptive studies, Jones developed a Nursing Turnover Cost Calculation Methodology with all costs of turnover including vacancy costs incurred while the position is vacant, orientation and training costs, newly hired RN productivity costs (found to be higher with NGRNs than with experienced RNs), advertising and recruiting costs, pre-turnover productivity costs, and hiring and termination costs, with the first four categories accounting for more than 90% of the total cost (Jones, 2005). Jones notes these are not all costs associated with turnover, but they are the costs that could be quantified. Jones updated the methodology in 2007, using more detailed information that was available from data sources such as the Consumer Price Index and

other relevant indices and breaking out the vacancy-related costs of closed beds and patient deferrals (Jones, 2008). For July 2007, the range for turnover costs per RN was determined to be from \$82,000 (if the vacancy was filled by an experienced RN) to \$88,000 (if the vacancy was filled by a NGRN). This methodology has also been used outside of nursing to study turnover costs of emergency medical services personnel (Patterson et al., 2010). While these turnover costs have not been updated using Jones' detailed methodology, what is known is the annual mean wage for RNs in general and surgical hospitals rose from \$63,820 in 2007 to \$70,590 in 2013, an increase of 10.6% (U.S. Department of Labor, 2015).

The Robert Wood Johnson (RWJ) *Wisdom at Work* evaluation performed by The Lewin Group (2009) reported that, based on cost data collected from 14 RWJ grantees, the average replacement cost for a full-time equivalent RN was \$36,567 in 2007 dollars with a range from \$14,225 to \$60,102. This replacement cost did not include the cost of bed closures or patient deferrals, but did include costs for termination, unfilled positions, ads/recruiting, hiring, and orientation/training. The cost reported by The Lewin Group (2009) did not appear to differentiate between the replacement cost for an NGRN and an experienced RN.

Trepanier and associates (2012) conducted a cost-benefit analysis from 2007 to 2010 of a multisite NGRN residency program utilizing turnover rate and temporary nurse usage data from 15 community-based hospitals, which are part of a large for-profit healthcare corporation. They found a major reduction in 12-month turnover from 255 NGRNs pre-residency to 39 NGRNs post-residency with an estimated savings of \$15.2 million (average cost per NGRN turnover of \$70,500). There were additional costs associated with the residency of \$13,460 per NGRN due to the

cost of the structured residency and an additional 8 weeks of NGRN salary (\$28/hour) from 10 weeks in the traditional orientation to 18 weeks in the residency. In addition, there was a major cost savings in contract labor usage from pre-residency to post-residency, with an estimated savings of up to \$33.7 million.

The results of the current study can provide nurse leaders with additional evidence on demonstrating an ROI when implementing a TTP program. The ROI of the TTP program in this study was determined by comparing the cost of NGRN turnover at hospitals that did not have a structured program for their NGRN onboarding against the cost of NGRN turnover at hospitals with a TTP program.

Method

Design. This was a comparison study using a randomized, controlled, multisite design. Details on the methodology have been published previously (Spector et al., 2015).

Institutional review board (IRB) approval. IRB approval was obtained for all sites to protect the rights of participants. NCSBN staff submitted and maintained IRB applications for the sites that could use a central IRB (Western Institutional Review Board). The remaining sites submitted IRB applications to and obtained IRB approval from their local IRBs.

Procedure. NCSBN evaluated the ROI on a TTP program utilizing overall turnover rates from Phase I of NCSBN's TTP study (Spector et al., 2015). The TTP program in this study did not replace the hospital's current orientation program. Orientation, which is separate from TTP, includes the process of introducing staff to the philosophy, goals, policies, procedures, role expectations, and other factors needed to function in a specific work setting. Orientation takes place both for new employees and when changes

in nurses' roles, responsibilities, and practice settings occur. Each NGRN in the TTP group and the control group went through the hospital's existing orientation program. Upon enrollment into the study, each NGRN in the TTP group was partnered with a trained preceptor who worked within the same unit/department. Additionally, each NGRN and preceptor in the TTP group completed online training modules, which were designed based on the TTP model, and actively participated in a preceptorship within the TTP program for 6 months. The NGRNs were followed for 1 year after enrollment onto the study.

The researchers examined the onboarding methods used by the control hospitals and noted wide variation in these methods. There were 26 control sites that did not have a structured curriculum and had fewer than six elements the literature describes as essential to transition (patient-centered care, communication and teamwork, quality improvement, evidence-based practice, informatics, safety, clinical reasoning, feedback, reflection, preceptorship, and specialty knowledge in the area of practice). These were classified as limited programs. Other control sites had some structure in their curriculum, which meant they had six or more elements essential to transition, offered a preceptorship, and were not included in this analysis. For the purpose of this article, the researchers evaluated the ROI of the TTP group and the control group with the limited programs (hereafter referred to as Limited Control group), which together represented 1,032 NGRNs from 70 hospitals. The program costs for each of the Limited Control groups were not collected because the curriculum of each program was limited and varied across the Limited Control groups but any cost expended by the Limited Control groups would increase the ROI of the TTP group.

Data collection. Data were col-

lected from several sources, including surveys of NGRNs, nurse preceptors, and site coordinators, as well as publicly available data from the Bureau of Labor Statistics (U.S. Department of Labor, 2013a). The retention and turnover data of each NGRN who participated in the TTP study was recorded by the site coordinators at each of the participating study and control sites and were submitted via online surveys. The site coordinators noted the reasons for leaving which included the following voluntary and involuntary reasons:

Voluntary

- Moved to another geographic area
- Return to school to pursue additional nursing education
- Stressful nature of the work
- Took a different position in clinical/patient care nursing
- Took a different position in non-clinical/patient care nursing
- Took time out for family or other personal reasons
- Other, not specified

Involuntary

- Medical, injury, death
- Terminated, for cause

These data were reviewed for accuracy and completeness and verified with the site coordinators as necessary. Each NGRN was coded as retained at 1 year, left voluntarily, or left involuntarily.

Data were collected on the opportunity cost of participating in the program for both NGRNs and nurse preceptors. The opportunity cost was estimated by multiplying the amount of time spent in the TTP program by the national hourly wage for new nurses and nurse preceptors. The NGRN opportunity cost included time spent completing the training modules and time spent with the nurse preceptor (20 hours total). The nurse preceptor opportunity costs also included the time spent

completing training modules and time spent with the NGRNs (43 hours total). The time spent in the precepting relationship by the NGRNs and nurse preceptors was collected through surveys at 6 and 12 months.

Additionally, time spent organizing the training was collected by the site coordinator. The site coordinators were surveyed about the amount of time (182 hours) they spent enrolling NGRNs and preceptors in the program, checking the status of module completion for NGRNs and preceptors, and troubleshooting information technology issues. The time spent in the program by NGRNs was converted to costs by multiplying the average total hours in the program by the 25th percentile for nurse salaries nationally as of May 2013 (\$26.05) to reflect the lower salaries of NGRNs (U.S. Department of Labor, 2013a). Nurse preceptor time was converted to costs by multiplying the average total hours in the program by the 50th percentile for nurse salaries nationally in May 2013 (\$31.84). For site coordinators, the average time spent by the site coordinators was multiplied by an average of the 50th and 75th percentiles of nurse salaries nationally (\$35.20) (U.S. Department of Labor, 2013a). Fringe benefits were calculated at approximately 34.45% (U.S. Department of Labor, 2013b).

Modules and a web platform were developed specifically for this TTP program. In a sensitivity analysis, the cost of this development was calculated as \$723 per NGRN. This is a one-time cost based on development of the modules and web platform for the 788 new nurses enrolled into the TTP group across all TTP group hospitals. A total of 734 NGRNs in the TTP group were included in the analysis, which represents the number of NGRNs who responded to surveys.

The ongoing website and module revision costs for the TTP program were estimated at \$100 per NGRN. Because celebration at

the completion of the TTP program was a critical element, \$35 was included for each preceptor-NGRN pair and \$2.57 for a TTP lapel pin. All costs were calculated per NGRN and summed to calculate the total program and participant cost per NGRN participant.

The effectiveness of the TTP program was measured by cost savings associated with the reduction in nurse turnover. The Robert Wood Johnson *Wisdom at Work* evaluation (The Lewin Group, 2009) reported the replacement cost for a full-time equivalent RN in an average-sized hospital as \$36,567 in 2007 dollars (or \$41,085 in 2013 dollars). The Lewin Group estimates are conservative compared to other researchers (Jones, 2008; Trepanier et al., 2012). Jones estimated the replacement cost of an NGRN as \$88,006 in 2007 dollars (adjusted for inflation, \$98,879 in 2013). To calculate the cost savings, the replacement cost was multiplied by the reduction in the turnover rate for the TTP group hospitals relative to the Limited Control group hospitals (turnover rate for TTP group hospitals – turnover rate for the Limited Control group hospitals).

Data analysis. Descriptive analysis was used to examine the data and provide characteristics of the NGRNs. An analysis of variance (ANOVA) was used to analyze the differences between the groups in the primary TTP study. Chi-square analysis was used to analyze the differences in turnover and turnover characteristics between the TTP group and the Limited Control group. In the ROI analysis, ongoing cost of the TTP program (excluding module and web development costs) was first compared with the cost savings from reduced turnover to calculate net cost (or cost savings) of the program. In a secondary analysis, program development costs were included in the costs to calculate net cost (or cost savings) of the program.

Results

Sample. Data were analyzed on 1,032 NGRNs from 70 hospitals. The demographic characteristics of the NGRNs and the hospitals in the TTP group and Limited Control group are provided in Table 1. The number of NGRNs hired varied greatly across these hospitals, which differed in size and type. The average number of NGRNs hired was 15 and the median was 11. Hospitals in the Limited Control group were generally smaller than TTP hospitals; however, one large hospital in the Limited Control group hired 85 NGRNs, which increased the mean. Overall, 81.2% of these NGRNs were still at the hospitals at the end of the first year (84.5% in the TTP group and 73.7% in the Limited Control group). The numbers of NGRNs and their reasons for leaving are categorized in Table 2. The number of NGRNs who left was statistically significant. Voluntary reasons for leaving accounted for 181 NGRNs (17.5%) no longer at the hospitals and 13 (1.3%) left involuntarily due to either termination or illness and injury. There were too few NGRNs who left involuntarily to analyze the data further. Additionally, due to the small numbers in each category, the reasons for leaving were not statistically significant.

The NGRNs who left were compared by their demographic characteristics and by the hospital characteristics (see Table 3). Age, education, location, hospital size, Magnet® status, and presence of a TTP program were all related to turnover. NGRNs were less likely to leave the hospital by the end of the first year if they were younger than age 30 ($p < 0.05$) and had a basic bachelor's education (not statistically significant). NGRNs were less likely to leave in hospitals that were in Illinois, between 100-199 beds in size, or that have achieved Magnet designation ($p < 0.05$).

TTP group vs. Limited Control group turnover. The 12-month

Table 1.
NGRN and Hospital Demographic Information for TTP and Limited Control Groups

	TTP Group <i>n</i>	TTP Group %	Limited Control Group <i>n</i>	Limited Control Group %	Total <i>n</i> *
NGRN Characteristics					
Total NGRNs	734		298		1,032*
<i>Age</i>					
Younger than 30	426	72.3%	128	68.8%	554
30-40	105	17.8%	42	22.6%	147
Older than 40	58	9.9%	16	8.6%	74
<i>Education</i>					
Associate's degree	290	49.2%	79	42.7%	369
Bachelor's degree	246	41.8%	97	52.4%	343
Accelerated BS/Master's degree	53	9.0%	9	4.9%	62
Hospital Characteristics					
Total Hospitals	44		26		70
<i>State</i>					
Illinois	101	13.8%	56	18.8%	157
North Carolina	190	25.9%	102	34.2%	292
Ohio	443	60.4%	140	47.0%	583
<i>Hospital Location</i>					
Rural	86	11.7%	36	12.1%	122
Suburban	249	33.9%	114	38.3%	363
Urban	399	54.4%	148	49.7%	547
<i>Hospital Size</i>					
25-99 beds	39	5.4%	24	8.1%	63
100-199 beds	126	17.5%	21	7.1%	147
200-299 beds	167	23.2%	85	28.7%	252
300-399 beds	83	11.5%	81	27.4%	164
400+ beds	305	42.4%	85	28.7%	390
<i>Type of Organization</i>					
Government not federal	23	3.1%	9	3.0%	32
Not for profit	695	94.7%	282	94.6%	977
For profit	16	2.2%	7	2.3%	23
<i>Magnet</i>					
No	421	57.5%	271	90.9%	692
Yes	311	42.5%	27	9.1%	338
<i>University Affiliated</i>					
No	673	91.7%	265	88.9%	938
Yes	61	8.3%	33	11.1%	94

* Some respondents did not provide a response to all survey questions.

BS = bachelor of science, NGRN = new graduate registered nurse, TTP = transition to practice

Table 2.
NGRN Reasons for Leaving

	TTP Group	Limited Control Group	p-Values
Number Hired	734	298	
Number (%) left	113 (16%)	80 (27%)	<i>Statistically significant p<0.00</i>
Reasons for Leaving			<i>Not significant</i>
<i>Voluntary</i>			
Moved to another geographic area	20 (17.7%)	21 (26.2%)	
Return to school to pursue additional nursing education	1 (0.08%)	1 (1.2%)	
Stressful nature of the work	4 (3.5%)	1 (1.2%)	
Took a different position in clinical/patient care nursing	56 (50%)	34 (42.5%)	
Took a different position in non-clinical/patient care nursing	2 (1.8%)	0	
Took time out for family or other personal reasons	3 (2.6%)	1 (1.2%)	
Other, not specified	21 (18.6%)	16 (20%)	
<i>Involuntary</i>			
Medical, injury, death	2 (1.8%)	3 (3.8%)	
Terminated, for cause	5 (4.4%)	3 (3.8%)	

NGRN = new graduate registered nurse, TTP = transition to practice

total turnover rate of the TTP group was compared to the Limited Control group. The TTP group had a turnover rate of 15.5%, while the Limited Control group had a 26.8% turnover rate ($p<0.00$).

TTP group cost and savings. The total ongoing maintenance cost per NGRN in the TTP group was \$3,185 in the hospital setting, which includes new nurse and preceptor opportunity costs (time spent to complete TTP modules and face-to-face time between NGRN and preceptor within active preceptorship), site coordinator time to organize and maintain the program, celebration costs for TTP program completion, and

ongoing web maintenance and module revisions. The addition of the one-time cost to develop module content and the web platform added \$723 per NGRN. The calculations for the total development and ongoing cost of the TTP program per NGRN are provided in Table 4.

Using the replacement cost reported by The Lewin Group (2009), the net replacement cost savings for an NGRN in the hospital setting for the TTP group versus the Limited Control group was \$4,643 (see Table 5). Comparing net replacement cost savings with total cost per NGRN to maintain the TTP program (\$3,185), there was a net cost savings of \$1,458

per NGRN retained. After accounting for initial program development cost (\$723 per NGRN), the net cost saving was \$735 per NGRN retained. Using the replacement cost reported by Jones (2008), net replacement cost savings for an NGRN in the hospital setting for the TTP group versus the Limited Control group was \$11,173 (turnover cost for one NGRN in the TTP group minus the turnover cost for one NGRN in the Limited Control group). Comparing the net replacement cost savings with total cost per NGRN to maintain the TTP program (\$3,185), there was a net cost savings of \$7,988 per NGRN retained. After accounting for the initial program development cost (\$723 per NGRN), the net cost savings was \$7,265 per NGRN retained.

It is often helpful to look at “What if” scenarios. In this study, 44 hospitals with the TTP program experienced a 12-month turnover of 15.5% (114 NGRNs) compared to a 26.8% turnover (80 NGRNs) in 26 Limited Control hospitals. If hospitals with the TTP program experienced the same higher turnover percentage as the Limited Control hospitals (26.8%), they would have lost 197 NGRNs, an increased turnover of 83 NGRNs. Replacement costs to the TTP hospitals for those additional 83 NGRNs could have ranged from a conservative estimate of \$3.1 million (based on the replacement costs reported by The Lewin Group less the \$3,912 cost per NGRN for the TTP program) to \$7.9 million (based on the replacement costs reported by Jones less the \$3,912 cost per NGRN for the TTP program).

Discussion

The ROI for the TTP program was analyzed by comparing the turnover rates of the TTP group with the Limited Control group. There was a significant difference in the turnover rate of the TTP group (15.5%) and the turnover rate of the Limited Control group

Table 3.
Differences in Turnover by Characteristics
(N = 1,032*)

	NGRN Turnover	Chi-Square Values	p-Values
Age			
Younger than 30	13.7%	8.174	<i>p</i> = 0.017
30-40	23.1%		
Older than 40	18.9%		
Education			
Associate's Degree	18.7%	5.575	<i>p</i> = 0.062
Bachelor's Degree	12.5%		
Accelerated BS/Master's Degree	19.4%		
State			
Illinois	9.6%	24.195	<i>p</i> < 0.001
North Carolina	27.4%		
Ohio	17.0%		
Hospital Location			
Rural	19.7%	3.185	<i>p</i> = 0.203
Suburban	21.5%		
Urban	16.8%		
Hospital Size			
25-99 beds	19.0%	11.563	<i>p</i> = 0.021
100-199 beds	12.9%		
200-299 beds	25.0%		
300-399 beds	20.1%		
400+ beds	16.9%		
Type of Organization			
Government not federal	15.6%	2.270	<i>p</i> = 0.321
Not for profit	18.6%		
For profit	30.4%		
Magnet			
No	24.1%	38.479	<i>p</i> < 0.001
Yes	8.0%		
University Affiliated			
No	19.2%	1.033	<i>p</i> = 0.191
Yes	14.9%		
TTP			
Sites with TTP	15.5%	17.775	<i>p</i> < 0.001
Limited-control group hospitals without TTP	26.8%		

* Some respondents did not provide a response to all survey questions.

BS = bachelor of science, NGRN = new graduate registered nurse, TTP = transition to practice

(26.8%). These data support that a structured, evidence-based TTP program results in decreased turnover. A limitation of this study is that it occurred over only a 1-year period. Other longitudinal studies of NGRN TTP programs found NGRN turnover rate declines over time as the TTP program becomes fully integrated into the organization. For example, Ulrich and colleagues (2010) found turnover for their first cohort was 7.1%, though this improved to 4.3% by the fifth cohort.

Using the replacement costs reported by The Lewin Group (2009), the cost analysis shows a positive ROI when using a structured TTP program compared to a limited program, with a cost savings of \$735 per NGRN (considering initial development costs). There is an even larger cost savings of \$1,458 per NGRN once the program is implemented and in place. These savings are conservative compared to those of other researchers, who have reported higher estimates for replacement costs (Jones, 2008). Using the replacement costs identified by Jones (2008), net development cost savings is \$7,265 per NGRN and net ongoing maintenance cost savings is \$7,988 per NGRN. Jones (2008) estimates represent the cost to hire a new nurse to fill an open hospital position and include the direct costs of bed closures and patient deferrals.

This study provides nursing practice leaders with evidence of cost savings considering investment associated with implementing a TTP program. Even when considering the costs of developing and maintaining online training modules, releasing the new nurse and preceptor to complete their training modules, and opportunity cost of the preceptor working closely with new nurses, there was a cost savings for each new nurse hired. This is important for nursing practice leaders, since even small organizations that hire

Table 4.
Calculation of Total Development and Ongoing Cost of TTP Program per NGRN

Description	Cost per NGRN
TTP Program Development (includes module content development and website development) Initial TTP Program Development Cost ÷ Number of NGRNs that Utilized the TTP Program = \$570,000 ÷ 788 =	\$723
Ongoing Costs per NGRN	
Program Maintenance (includes website maintenance and module revisions)	\$100
<i>New Nurse Opportunity Cost</i> Release time to complete TTP modules and meet with preceptor X NGRN hourly rate X (1 + fringe benefit rate) = 20 hours X \$26.05 X (1 + (7.5 ÷ 21.77)) =	\$700.44
<i>Preceptor Opportunity Cost</i> Release time to complete TTP modules and meet with NGRN X preceptor hourly rate X (1 + fringe benefit rate) = 43 hours X \$31.84 X (1 + (7.5 ÷ 21.77)) =	\$1,840.80
<i>Site Coordinator Cost to Organize TTP Program for One NGRN</i> [Time spent organizing TTP program X site coordinator hourly rate X (1 + fringe benefit rate)] ÷ average number of NGRNs per TTP site = [182 hours X \$35.20 X (1 + (7.5 ÷ 21.77))] ÷ 17 =	\$506.67
<i>Celebration Cost</i> Celebratory lunch for NGRN and preceptor pair TTP lapel pin awarded to NGRN	\$35 \$2.57
Total Ongoing Costs per NGRN	\$3,185

NGRN = new graduate registered nurse, TTP = transition to practice

Table 5.
Turnover Cost Savings Calculations

	Formula	The Lewin Group (2009)	Jones (2008)
Turnover Costs and Rates			
Turnover cost to replace one NGRN (in 2013 USD)	a	\$41,085	\$98,879
Limited Control group	b	26.8%	26.8%
TTP Group	c	15.5%	15.5%
Net Replacement Cost Savings for One NGRN in TTP Group vs. Limited Control Group (in 2013 USD)			
Limited Control group	d = a x b	\$11,011	\$26,499
TTP Group	e = a x c	\$6,368	\$15,326
<i>Turnover savings for one nurse NGRN with TTP</i>	f = d - e	\$4,643	\$11,173
Cost of TTP			
Ongoing cost of TTP Program	g	\$3,185	\$3,185
<i>Net cost of TTP Program with ongoing costs (\$ savings)</i>	h = f - g	\$1,458	\$7,988
Development Cost of TTP Program	i	\$723	\$723
Development and Ongoing Costs of TTP Program	j = i + g	\$3,908	\$3,908
<i>Net Cost of TTP Program with Development and Ongoing Costs (\$ savings)</i>	k = f - j	\$735	\$7,265

NGRN = new graduate registered nurse, TTP = transition to practice

only a few new nurses can expect a cost savings when implementing and maintaining a TTP program. Additionally, one option to decrease costs for smaller organizations even further might be to nurture partnerships with schools of nursing or other organizations to facilitate the initial implementation of a TTP program. Nursing practice leaders can use this evidence in efforts to convince administration to implement TTP programs. The cost analysis demonstrated the information technology costs associated with a transition program are small, due to the economies of scale gained through multiple organizations using the same technology, with most costs associated with nurse time. The direct and indirect costs associated with turnover are significant, and may impact smaller organizations disproportionately. Future research could include a study of ROI in which TTP programs are evaluated for at least 2 years or in which multiple cohorts of NGRNs are evaluated to determine whether there are additional savings.

Implications

Many healthcare organizations have been reluctant to implement evidence-based TTP programs due to concern about costs. It is necessary to demonstrate to nursing practice leaders and healthcare executives the monetary value for providing a structured TTP program for NGRNs. The findings of this study show a positive return on investment and provide additional evidence to support the business case for implementing a TTP program in hospitals to decrease NGRN

turnover. Additionally, results suggest the immediate investment in a NGRN TTP program has a financial benefit that accrues relatively quickly due to higher nurse retention rates. \$

REFERENCES

- Anderson, B., Hair, C., & Toder, C. (2012). Nurse residency programs: An evidence-based review of theory, process, and outcomes. *Journal of Professional Nursing, 28*(4), 203-212.
- Bae, S.H., Mark, B., & Fried, B. (2010). Use of temporary nurses and nurse and patient safety outcomes in acute care hospital units. *Health Care Management Review, 35*(3), 333-344.
- Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). *Educating nurses: A call for radical transformation*. San Francisco, CA: Jossey-Bass.
- Duffield, C., Roche, M., O'Brien-Pallas, L., & Catling-Paull, C. (2009). The implications of staff 'churn' for nurse managers, staff, and patients. *Nursing Economic\$, 27*(2), 103-110.
- Goode, C.J., Lynn, M.R., Krsek, C., & Bednash, G.D. (2009). Nurse residency programs: An essential requirement for nursing. *Nursing Economic\$, 27*(3), 142-147.
- Goode, C.J., Lynn, M.R., McElroy, D., Bednash, G.D., & Murray, B. (2013). Lessons learned from 10 years of research on a post-baccalaureate nurse residency program. *Journal of Nursing Administration, 43*(2), 73-79.
- Hofler, L.D. (2008). Nursing education and transition to the work environment: A synthesis of national reports. *Journal of Nursing Education, 47*(1), 5-12.
- Institute of Medicine. (2011). *The future of nursing: Leading change, advancing health*. Washington, DC: The National Academies Press. Retrieved from <http://www.thefutureofnursing.org/IOM-Report>
- Jones, C.B. (2004). The costs of nurse turnover, Part 1: An economic perspective. *Journal of Nursing Administration, 34*(12), 562-570.
- Jones, C.B. (2005). The costs of nurse turnover, Part 2: Application of the nursing turnover cost calculation methodology. *Journal of Nursing Administration, 35*(1), 41-49.
- Jones, C.B. (2008). Revisiting nurse turnover costs: Adjusting for inflation. *Journal of Nursing Administration, 38*(1), 11-18.
- Kovner, C.T., Brewer, C.S., Fatehi, F., & Jun, J. (2014). What does nurse turnover rate mean and what is the rate? *Policy, Politics, & Nursing Practice, 15*(3-4), 64-71.
- National Council of State Boards of Nursing (NCSBN). (2014). *Why transition to practice?* Chicago, IL: Author. Retrieved from <https://www.ncsbn.org/transition-to-practice.htm>
- Patterson, P.D., Jones, C.B., Hubble, M.W., Carr, M., Weaver, M.D., Engberg, J., & Castle, N. (2010). The longitudinal study of turnover and the cost of turnover in emergency medical services. *Prehospital Emergency Care, 14*(2), 209-221.
- Spector, N., Blegen, M.A., Silvestre, J., Barnsteiner, J., Lynn, M.R., Ulrich, B., ... Alexander, M. (2015). Transition to practice study in hospital settings. *Journal of Nursing Regulation, 5*(4), 24-38.
- The Joint Commission. (2002). *Health care at the crossroads: Strategies for addressing the evolving nursing crisis*. Chicago, IL: Author. Retrieved from www.joint-commission.org/assets/1/18/health_care_at_the_crossroads.pdf
- The Lewin Group. (2009). *Evaluation of the Robert Wood Johnson Foundation wisdom to work: Retaining experienced nurses research initiative*. Retrieved from <http://www.rwjf.org/content/dam/farm/reports/evaluations/2009/rwjf41981>
- Trepanier, S., Early, S., Ulrich, B., & Cherry, B. (2012). New graduate nurse residency program: A cost-benefit analysis based on turnover and contract labor usage. *Nursing Economic\$, 30*(4), 207-214.
- Ulrich, B., Krozek, C., Early, S., Ashlock, C.H., Africa, L.M., & Carmen, M.L. (2010). Improving retention, confidence, and competence of new graduate nurses: Results from a 10-year longitudinal database. *Nursing Economic\$, 28*(6), 363-375.
- U.S. Department of Labor. Bureau of Labor Statistics. (2013a). *Occupational employment and wages – May 2013*. Retrieved from <http://www.bls.gov/oes/2013/may/oes291141.htm>
- U.S. Department of Labor. Bureau of Labor Statistics. (2013b). *Employer costs for employee compensation (news release)*. Retrieved from http://www.bls.gov/news.release/archives/ecec_03122014.pdf
- U.S. Department of Labor. Bureau of Labor Statistics. (2015). *Occupational employment statistics*. Retrieved from <http://www.bls.gov/oes/tables.htm>

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