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Julie N. Wolford

University of Kentucky, julie.wolford@nortonhealthcare.org

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The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Assistant Dean for MSN and DNP Studies, on behalf of the program; we verify that this is the final, approved version of the student's DNP Project including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Julie N. Wolford, Student

Dr. Debra Hampton, Advisor

DNP Final Project Report

The Evaluation of a Multi-Hospital System Nurse Residency Program on New Graduate Nurse
Retention and Engagement

Julie N. Wolford

University of Kentucky

College of Nursing

Spring, 2018

Dr. Debra Hampton - Committee Chair

Dr. Kim Tharp-Barrie- Committee Member

Dr. Carol Goss - Committee Member/Clinical Mentor

Dedication

This project and DNP work is dedicated to my husband, who has supported me through this degree and any other challenge our life has brought to us. This is for my two children who have been understanding and tolerant of my “homework.” This is so I may be an example to them of the importance of education and making a difference. This is for my parents, who have always encouraged and supported my many endeavors. This is for my brother and sister-in-law, who have been there for me when help or a fun time was needed. This is for my mother-in-law, a fellow nurse, so that nursing may be a stronger profession from this work.

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Abstract

PURPOSE: The purpose of this evaluation project was to determine the effectiveness of the Norton Healthcare new graduate nurse residency program on retention and engagement of newly- licensed registered nurses.

METHODS: This study was a retrospective pre-test, post-test design of the impact of the nurse residency program on turnover and engagement for the participants in the first year of the Norton Healthcare Nurse Residency Program. Engagement was evaluated using the Utrecht Work & Well-being Survey (UWES). Return on investment was also evaluated for the first year of the program. The sample included 791 newly-licensed registered nurses hired between January 2014 and October 2015 and 232 newly-licensed registered nurses that participated in the nurse residency program in 2016.

RESULTS: There was a significant decrease in turnover from the control group to the nurse residency program group (14.0% vs. 3.5%; $p < .001$). Scores on the UWES for nurse residency program participants demonstrated a statistically significant correlation between months of work experience and the engagement factor, vigor ($p = .04$). The estimated turnover/replacement cost for newly-licensed registered nurses at Norton Healthcare was calculated to be \$44,085.61 per nurse.

CONCLUSION: This study demonstrated the value of the nurse residency program related to decreasing turnover and promoting engagement and provided insight in the cost/benefit ratio for the program. This study showed the necessity for support of the newly-licensed nurse transition to practice and the significance of using the nurse residency program as the vehicle for support.

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The Evaluation of a Multi-Hospital System Nurse Residency Program on New Graduate Nurse Retention and Engagement

Introduction

Nurse residency programs (NRP) have been recommended by the Institute of Medicine (2010) to assist newly-licensed registered nurses (NLRN) with their transition to practice. At Norton Healthcare, the nurse residency program has been identified as a strategy for providing support to the NLRN with the goal of retention of that nurse. Norton Healthcare is a system with five acute care hospitals that hires hundreds of new graduate nurses annually. While retention at this organization is close to best practice percentages, there is a system goal of decreasing turnover in the less-than-one-year registered nurse population. The purpose of the nurse residency program at Norton Healthcare was to support NLRN in their transition to practice, ultimately fostering engagement and retention of NLRN within the system.

Background

Today's nurses are increasingly challenged due to complex patients and fast-paced environments. Nursing shortages have caused acute care hospitals to hire more newly-licensed registered nurses (NLRNs) because of the lack of available experienced nurses (Maresca, Eggenberger, Moffa, & Newman, 2015). The RN Work Project (2009) was a ten-year project funded by the Robert Wood Johnson Foundation that focused on the careers of NLRNs. As of 2012, the data showed: (a) 41% of NLRNs planned to leave their first job within three years, (b) 18.1% of NLRNs left their first nursing job within 13 months of starting, and (c) 26.2% of NLRNs left their first nursing job within 25 months of starting. The cost of turning over a nurse has been calculated to be as much as \$90,000 per nurse (Schulze, 2017). It has become apparent that support for NLRNs in this environment is essential.

Increased support, job satisfaction, and decreased workplace violence have been shown to result from nurse residency programs. New graduate nurse residency programs are an effective way to reduce turnover (D'Ambra & Andrews, 2014; Harrison & Ledbetter, 2014; Wierzbinski-Cross, Ward, & Baumann, 2015). New graduate nurse turnover is a national challenge that organizations seek to manage. The 2017 National Health Care Retention and RN Staffing Report completed by Nursing Solutions, Inc. included survey data from 136 healthcare facilities nationwide representing 29 states. The reported 2016 average less-than-one-year RN turnover was 25.6%, accounting for almost one-third of total registered nurse turnover and

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57.8% of a hospital's total turnover for the organizations surveyed. The University Health System Consortium (UHC) and the American Association of Colleges of Nursing (AACN) reported the retention rate goes up to 91% if new graduate nurses complete a residency program (AACN, 2016). Due to the expense of turnover, new graduate nurse residency programs can be a strategy to retain NLRNs.

One of the goals of the NRP was to promote the engagement of the nurse by facilitating a successful transition to practice with the intent to keep the NLRN greater than one year. Work engagement is defined by an employee's commitment to an organization, including their desire to stay with the organization and promote effective organizational functioning (Bakker & Schaufeli, 2014). The Utrecht Work Engagement Scale (UWES) is the most widely used scale for measuring work engagement; therefore, it was chosen for this study (Appendix A). The scale includes the measurement of three engagement dimensions: vigor, dedication, and absorption, that are combined to represent an overall engagement result for the respondent (Schaufeli & Bakker, 2004). Vigor indicates the respondent's energy and stamina while working. Dedication indicates the respondent's enthusiasm and pride for their work. Absorption indicates the respondent's level of immersion in their work indicating the level at which time seems to fly by or not when they are working (Schaufeli & Bakker, 2004). Findings from studies using the UWES indicated there is a negative association between work engagement and burnout and workaholism and engagement. Engaged employees show positive attitudes, good performance, and better mental health. Lastly, engagement can be crossed over to others, contributing to collective engagement (Schaufeli & Bakker, 2004).

Norton Healthcare (NHC) implemented a system new graduate nurse residency program in January of 2016 that included NLRNs from four hospitals. Beginning in 2017 all five hospitals in the Norton Healthcare system included their NLRNs in the program. The nurse residency program's goal is to facilitate a successful transition from student to practice with the goal for improving patient care, patient outcomes, and patient satisfaction.

The nurse residency program is currently in the adopt, adapt, or abandon stage of NHC's Nursing Strategic Plan. The purpose of the evaluation of the current new graduate nurse residency program was to provide evidence of the success of the program as demonstrated by decreased less-than-one-year registered nurse (RN) turnover, evaluation of RN engagement of individuals that participated in the nurse residency program, and a verified return on investment

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for the budget money invested in the program. This project will help justify the need for NHC to continue with the current residency program or examine other possible structures for the support of the NLRN.

Purpose

The objectives of the NRP evaluation included:

- 1.) Compared less-than-one-year RN turnover for the time period from January 2014 to October 2015 to turnover for participants in the first year of the Nurse Residency Program, from January 2016 to December 2016, for the four adult hospitals (Norton Downtown, Norton Audubon, Norton Women's and Children's, and Norton Brownsboro).
- 2.) Evaluated the engagement of new graduate nurses that have completed the NHC nurse residency program cohorts from March 2016 to February 2017 (cohort 1), July 2016 to June 2017 (cohort 2), and October 2016 to September 2017 (cohort 3).
- 3.) Calculated the return on investment for the NHC NRP based on the Newly-licensed Nurse Turnover/Replacement Cost Worksheet (Cappannelli & Cleary, 2017).

Methods

Design

This study was a retrospective pre-test, post-test design of the impact of the NRP on turnover and engagement for the participants in the first year of the NHC NRP. Return on investment was also evaluated for the first year of the NHC NRP.

Setting

Norton Healthcare is comprised of five hospitals, immediate care centers, and physician practices that care for patients through the lifespan. The mission of Norton Healthcare is to provide quality care that aligns with community needs and reflects the faith heritage of the organization. The Norton Healthcare Nurse Residency Program is supported by the Institute for Nursing Department. The Nurse Residency Program supports new graduate nurses employed by the five hospitals.

Sample

The sample included 791 NLRNs hired between January 2014 to October 2015 and 232 NLRNs that participated in the NRP in 2016. The hire date, status, and termination date were

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included for the NLRNs in the time frames that met the inclusion criteria of being a NLRN hired to Norton Downtown, Norton Audubon, Norton Women's and Children's, and Norton Brownsboro within the date ranges. Exclusion criteria for the turnover assessment was registered nurses who were hired with start dates within the timeframes, but who did not actually start working at NHC as a registered nurse.

The sample for the evaluation of engagement using the Utrecht Work Engagement Survey included 232 participants. Inclusion criteria for the survey was new graduate nurses from the adult hospitals (Norton Downtown, Norton Audubon, Norton Women's and Children's, and Norton Brownsboro) at NHC who participated in the nurse residency program from March 2016 to February 2017 (cohort 1), July 2016 to June 2017 (cohort 2), and October 2016 to September 2017 (cohort 3). Exclusion criteria were registered nurses who were hired with start dates within the time frames, but who did not actually start working at NHC as registered nurses and NLRNs that were not included in the residency program.

Measures

Turnover for NLRNs with hire dates during the first year of the NHC NRP (2016) was compared to a control group of new graduate nurses hired prior to the start of the program (January 2014 through October 2015). Turnover for each group was reported in a percentage of total nurses leaving in less-than-one-year from hire date divided by total nurses hired within the time frame for the control group and total nurses leaving in less-than-one-year from hire date divided by total nurses in the NRP for the NRP group.

Engagement of the participants in the first year of the program was evaluated using the UWES. The validity and reliability of the UWES has been studied multiple times since its introduction in 1999 (Shaufeli & Bakker, 2004). Studies have shown that work engagement was negatively associated with workaholism; positive consequences of engagement include job satisfaction, commitment to the organization, and low turnover intent (Shaufeli & Bakker, 2004). The UWES-17 has been demonstrated to have high reliability (vigor $\alpha=.82$, dedication $\alpha=.89$, absorption $\alpha=.83$, total score $\alpha=.93$) (Shaufeli & Bakker, 2004).

Return on investment for the first year of the program was calculated based on the budget for the program and by the use of the Newly-licensed Nurse Turnover/Replacement Cost Worksheet (Cappannelli & Cleary, 2017) shown in Appendix B. The worksheet examines three

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key areas of costs including: hiring costs, vacancy costs, and orientation and training costs to estimate the turnover/replacement cost per NLRN.

Data Collection

Approval to complete the study was obtained prior to collection of data from the University of Kentucky Institutional Review Board (IRB) and the Norton Healthcare Office of Research and Administration (NHORA). For the turnover analysis, data was obtained from human resources. Information identifying the specific hospital was blinded by human resources prior to release of information to the researcher.

For the engagement analysis, participants received an email that included a link to a REDCap survey that included demographic items (age, number of months of RN experience, gender, and race) and the UWES items. The email invitation to participate in the anonymous survey was sent to RNs at NHC that participated in the Nurse Residency Program from March 2016 to February 2017 (cohort 1), July 2016 to June 2017 (cohort 2), and October 2016 to September 2017 (cohort 3).

Budgetary data for 2016 was obtained from the nurse residency cost center budget history. Data for the return on investment, to include new graduate nurse hourly rate, hiring costs, vacancy costs, orientation and training costs, included 2016 data.

Data Analysis

Descriptive statistics, including means and standard deviation (SD), were used to describe the survey respondent's demographic characteristics for the UWES survey. Outcome variables for the survey were compared using the Independent Sample *t*-tests. Chi-square analysis was performed for the turnover relationship. All analysis was conducted using SPSS version 22; an [*alpha*] level of .05 was used for statistical significance throughout the study.

Results

Sample Characteristics

A total of 232 NRP participants were included in the sample for turnover calculation. Of the participants in the NRP, 68 responded to the UWES. The mean age for the group was 29.7 years old, with the majority being Caucasian, and 81.7% female.

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Turnover

The less-than-one-year turnover for the control group was 14%. Turnover for the group that participated in the residency program in 2016 was 3.5% during their one-year time post start date with NHC. There was a significant decrease in turnover from the control group to the NRP group. A chi-square test was performed to examine the relation between turnover for the control group and the NRP group. The relation between these variables was significant [$\chi^2(N = 68) = 19.55, p < .001$].

Engagement

The overall UWES engagement mean score was 3.97 for the survey participants. The UWES engagement mean scores ranged from .90 to 5.02. The mean score 3.97 for the UWES (N=68) was in the average category compared to the norm score as reported by the UWES Manual (see Appendix C). In relation to the components of work engagement, the mean score for vigor was 3.96, dedication 4.44, and absorption 3.52. See Table 1 for UWES data and UWES manual comparisons.

The only statistically significant correlation between variables in the study was between months of work experience and the engagement factor, vigor ($p = .04$). As number of months of experience increased, scores for vigor, dedication, absorption, and engagement decreased, but were only significant for vigor. There was no association with age, gender, or race in relation to the engagement factors.

Return on investment

The replacement cost of a NLRN for NHC was calculated to be \$44,085.61. A NLRN must work 1,198 hours or 8.32 months (36 hours/week) in productive status to neutralize the cost of their orientation.

The cost of the nurse residency program for 2016 was \$97,777, to include manager salary, supplies, printing, parking, dietary, and other costs. The break-even point for the cost of the program would be the prevention of turnover of three NLRNs during their first 8.32 months of work in productive status.

Discussion

This study aimed to evaluate the efficacy of the NHC NRP in relation to turnover, engagement and a return on investment. The study demonstrated a significant decrease in less-

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than-one-year RN turnover for the group that participated in the residency program as compared to a group that did not participate in the residency program.

Turnover

The Institute of Medicine (2010) recommends NRPs to help facilitate the successful transition of a NLRN from student to practice. One of the indicators of success is job satisfaction, which is related to the tendency for turnover. The goal of the NHC residency program was to promote confidence and success of the NLRN during their first-year transition into practice and thereby reduce turnover related to circumstances under the control of the NLRN. There is expected turnover for NLRN related to life situations the NLRN might encounter, such as relocation. The guidance of the residency program is aimed at preventing turnover from situations the NLRN can control, such as job dissatisfaction.

NHC uses the Health Care Advisory Board for regional benchmarking data. The regional benchmark for 90th percentile less-than-one-year RN turnover for 2016 was 2.9%, which was lower than NHC's NLRN turnover of 3.5%. Although the residency group's turnover was not in the desired benchmark, there was a significant reduction in turnover from the control group.

Engagement

The overall engagement mean score for nurse residents was 3.97, which was an average engagement score based on data published by Schaufeli & Bakker (2004). As the months of experience went up, engagement scores went down. For a cross-national study by Schaufeli, Bakker, & Salanova (2006) that included 2,777 (18.8%) healthcare workers, vigor was $M=3.94$, which was one of the lowest scores for the occupational groups examined. The mean residency group's vigor score was 3.94, which is the same as the score for Schaufeli, Baker, and Salanova's study. The residency group's absorption score was $M=3.52$, compared to $M=3.55$ for Schaufeli, Baker, and Salanova's study.

Although there was no comparison in engagement from the control group to the residency group, it is useful to understand the level of engagement of RNs that were in the residency program. This information could be used to target specific activities related to increasing engagement and specifically vigor. In the UWES, vigor is assessed by asking questions about energy and resilience, willingness to give effort, persistence when faced with challenges, and fatigue. NLRNs today are entering practice into healthcare at a particularly

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challenging time with complex patients and nursing shortages. Providing tools for resilience and strategies for maintaining energy in the face of adversity would be useful for future residency groups to increase their vigor in relation to their work.

Return on Investment

The estimated cost to replace a new graduate nurse for NHC was calculated to be \$44,085.61 using the Newly-licensed Nurse Turnover/Replacement Cost Worksheet (Cappannelli & Cleary, 2017). The replacement cost is significantly less than the literature reported \$90,000 per nurse (Schulze, 2017). The worksheet suggested using national averages for calculation or changing them to be organization specific. By changing those numbers to NHC specific metrics, a more realistic cost was calculated. The worksheet provided a calculation for the productive hours that needed to be worked by a new graduate RN to neutralize their orientation costs; hours calculated for NHC were 1,198 or 8.32 months for a 36 hour per week nurse.

The residency program workshop participation did not start for a NLRN until they were finished with the preceptor portion of their orientation. Considering orientation for a NLRN was on average eight weeks, the one year of participation in the residency program provided them support past the 8.32 month mark to reach orientation neutralization.

The cost for the program in 2016 was \$97,777. There were 232 participants in the residency program in 2016. If turnover would have remained 14%, as in the control group, 33 new graduate RNs would have been lost, prior to one year, at a cost of \$1,454,825.13. The NRP group turnover of 3.5% represents 9 new graduate RNs lost at a cost of \$396,770.49. There was positive fiscal return on investment for the NRP.

Limitations

Several limitations were identified in the design of this study. The NRP control group did not consist of all NLRNs hired to NHC in 2016 because all NLRNs hired did not participate in the NRP. Turnover for the NRP group was calculated only for those that participated in the NRP in 2016. Data was collected from one control group and one NRP group in one organization limiting the generalization of the study. The sample size for the UWES was small and did not include the engagement of the entire NRP group. The engagement was not evaluated in the control group; therefore, a comparison was unable to be studied between the two groups.

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Recommendations for future studies

Recommendations for future studies include comparing multiple NRP groups to the control group and to each other in terms of turnover and engagement. A larger study using the UWES to evaluate comparative engagement would be valuable to show the effect of the NRP on engagement. Since the UWES scores indicated a decrease in engagement as the number of months of experience increased, a study targeting the time frame of a NLRN's engagement decline could help give insight into when to provide specific educational experiences to combat the loss of engagement. A study to include more NRP participants in the turnover calculation would also be valuable to show the effect of the NRP on turnover. Since 2016, there have been more participants in the program that could add to the number to evaluate turnover.

A study of the clinical outcomes for patients who were cared for by nurses that participated in the NRP would help demonstrate the impact of the program to patient care. Future studies that concentrate on the performance of NRP nurses related to not only clinical outcomes, but professional development would further validate the success of the NRP's goals. The NRP is still in its early stages, but as time passes, more long-term effect studies will become an option.

Conclusion

The goal of this study was to demonstrate the impact of the NHC NRP on NLRN turnover and engagement and to demonstrate a return on investment for the program. Comparing a control group of NLRNs that did not complete the NRP to a group of NLRNs that completed the NRP, a statistically significant reduction in turnover was demonstrated. The UWES was given to the NRP group and showed a significant decrease in the vigor variable as months of service increased. This study demonstrated the value of the NRP related to decreasing turnover and promoting engagement and provided insight in the cost/benefit ratio for the program. This study showed the necessity for support of the NLRN's transition to practice and the significance of using the NRP as the vehicle for support.

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Table 1. *Descriptive Statistics of the Study Sample (N=68)*

Characteristic (Scale = 0-6)	Mean	Std. Deviation	Minimum	Maximum	UWES Manual Average Mean Score Range
Vigor	3.96	.85	0.50	5.50	3.21-4.80
Dedication	4.44	.87	.20	5.80	3.01-4.90
Absorption	3.52	.60	2.00	4.83	2.76-4.40
Engagement	3.97	.67	.90	5.02	3.07-4.66

Table 2. *Correlation Between Experience and Engagement Measures (N=68)*

Variables	Months of Experience	Vigor	Dedication	Absorption
Months of experience		-0.25 (0.04)	-0.19 (0.11)	-0.11 (0.40)

Appendix A

English version

Work & Well-being Survey (UWES) ©

The following 17 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, cross the '0' (zero) in the space after the statement. If you have had this feeling, indicate how often you feel it by crossing the number (from 1 to 6) that best describes how frequently you feel that way.

	Almost never	Rarely	Sometimes	Often	Very often	Always
0	1	2	3	4	5	6
Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

1. _____ At my work, I feel bursting with energy* (VI1)
2. _____ I find the work that I do full of meaning and purpose (DE1)
3. _____ Time flies when I'm working (AB1)
4. _____ At my job, I feel strong and vigorous (VI2)*
5. _____ I am enthusiastic about my job (DE2)*
6. _____ When I am working, I forget everything else around me (AB2)
7. _____ My job inspires me (DE3)*
8. _____ When I get up in the morning, I feel like going to work (VI3)*
9. _____ I feel happy when I am working intensely (AB3)*
10. _____ I am proud on the work that I do (DE4)*
11. _____ I am immersed in my work (AB4)*
12. _____ I can continue working for very long periods at a time (VI4)
13. _____ To me, my job is challenging (DE5)
14. _____ I get carried away when I'm working (AB5)*
15. _____ At my job, I am very resilient, mentally (VI5)
16. _____ It is difficult to detach myself from my job (AB6)
17. _____ At my work I always persevere, even when things do not go well (VI6)

* Shortened version (UWES-9), VI= vigor, DE = dedication, AB = absorption

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Appendix B



Newly Licensed Nurse Turnover/Replacement Cost Worksheet	
1	Newly Licensed Nurse (NLN) Benefited Hourly Rate (including salary, benefits, and other payouts) \$ 29.21
HIRING COSTS	
2	Advertising (all costs, including internal and external postings, publications, recruitment, etc) \$ 550.00
3	Hiring Bonus or Employee Referral Bonus \$ 800.00
4	HR Interview and Screening of Applicant \$ 2,000.00
5	Hiring Unit Interview \$ 48.25
6	Employee Physical/Pre-Screening Health Assessment \$ 132.00
7	Criminal Background and Reference Check \$ 100.00
8	ESTIMATED PRE-HIRE COST PER-NLN [CALCULATION: sum rows 2, 3, 4, 5, 6, & 7] \$ 3,630.25
VACANCY COSTS	
9	Agency Tiered RN Hourly Rate (non-critical care) \$ 72.00
10	Average Benefited Overtime Hourly Rate of Experienced Clinical Nurse (non-agency, non-critical care) \$ 60.00
11	"Hourly Premium" is the difference in cost between the average agency/ove rtime hourly rate and the NLN hourly rate. [CALCULATION = (row 9 + row 10) / 2 - row 1] \$ 36.79
12	Average Days to Fill Vacant Positions 62.66
13	Average Days to Fill Converted to Hours 501.28
14	Average Length NLN Clinical/Precepted Orientation in Hours 288.00
15	ESTIMATED COST OF STAFFING EACH VACANT POSITION {CALCULATION= (rows 13 + 14) x row 11} \$ 29,037.61
ORIENTATION & TRAINING COSTS	
16	NLN Clinical/Precepted Orientation Cost [CALCULATION= row 14 x row 1] \$ 8,412.48
17	Number of Hours of Core Education per NLN (Includes new employee orientation, nursing orientation, computer training, residency, etc,) 85.00
18	Average Number of NLNs in each Core Education Class 25.00
19	Average Benefited Hourly Rate of Core Education Classroom Educator \$ 45.72
20	Distribute core education cost (employee attendance and instructor costs) evenly across attendees. \$ 2,638.30 [CALCULATION= Step 1 : (row 1 x row 17) \$2,482.85 Step 2 : (row 19 x row 17)/row 18 \$155.45 Step 3: Add results of step 1 and 2]
21	Number of Hours Allotted for NLN to Complete Self-Study Education *(If none, or if completed during clinical or classroom 0
22	Cost of Specialty Education Materials/Programs Purchased for each NLN (e.g. TNCC, ECG, ECCO, AORN, etc.) \$ 115.00
23	Cost of NLN to Complete Self-Study or Specialty Content [CALCULATION= (row 1 x row 21) + row 22] \$ 115.00
24	Number of Hours of Specialty Classroom Education (e.g. ACLS, Pediatric Transitions, Oncology Fundamentals , etc) 8.00
25	Average Number of NLNs in each Specialty Class 20.00
26	Average Benefited Hourly Rate of Specialty Classroom Educator \$ 45.72
27	Distribute specialty education cost (employee attendance and instructor costs) evenly across attendees. \$ 251.97 [CALCULATION= Step 1 : (row 1 x row 24) \$233.68 Step 2 : (row 26 x row 24)/row 25 \$18.29 Step 3 : Add results of step 1 and 2]
28	ESTIMATED TRAINING AND ORIENTATION COSTS PER NLN [CALCULATION= sum rows 16, 20, 23, 27] \$ 11,417.75
ESTIMATED TURNOVER/REPLACEMENT COST PER-NLN	
29	Pre-Hire Costs+ Vacancy Costs+ Training & Orientation Costs [CALCULATION= sum rows 8, 15, 28] \$ 44,085.61
BREAK-EVEN POINT: Number of hours a NLN must work in a productive status post-orientation to neutralize expenses	
30	Total per-NLN turnover replacement cost/hourly premium used to fill vacant positions {CALCULATION= row 29/row 11} 1198 hours

Data provided represents national averages. Replace ALL pre-populated fields with organization-specific metrics to individualize calculation.

• Round all dollar values to two decimal places

Appendix C

Table 32: Norm scores for the UWES-15 (N = 9,679)

	Vigor	Dedication	Absorption	Total score
Very low	≤ 2.00	≤ 1.60	≤ 1.60	≤ 1.93
Low	2.01 – 3.20	1.61 – 3.00	1.61 – 2.75	1.94 – 3.06
Average	3.21 – 4.80	3.01 – 4.90	2.76 – 4.40	3.07 – 4.66
High	4.81 – 5.65	4.91 – 5.79	4.41 – 5.40	4.67 – 5.53
Very high	≥ 5.66	≥ 5.80	≥ 5.41	≥ 5.54
M	3.99	3.81	3.59	3.82
SD	1.11	1.31	1.18	1.10
SE	.01	.01	.01	.01
Range	.00 – 6.00	.00 – 6.00	.00 – 6.00	.00 – 6.00

Table 33: Norm scores for the UWES-17 (N = 2,313)

	Vigor	Dedication	Absorption	Total score
Very low	≤ 2.17	≤ 1.60	≤ 1.60	≤ 1.93
Low	2.18 – 3.20	1.61 – 3.00	1.61 – 2.75	1.94 – 3.06
Average	3.21 – 4.80	3.01 – 4.90	2.76 – 4.40	3.07 – 4.66
High	4.81 – 5.60	4.91 – 5.79	4.41 – 5.35	4.67 – 5.53
Very high	≥ 5.61	≥ 5.80	≥ 5.36	≥ 5.54
M	3.99	3.81	3.56	3.82
SD	1.08	1.31	1.10	1.10
SE	.01	.01	.01	.01
Range	.00 – 6.00	.00 – 6.00	.00 – 6.00	.00 – 6.00

6.3. Other language norms*Group norms*

In order to interpret the scores of a particular group of employees on (a dimension of) the UWES, the mean score from the database can be used. A simple t-test can be used in order to test the significance of the difference between the specific group at hand and the database score. Table 34 shows the means, standard errors, and standard deviations of the three engagement dimensions of the various versions of the UWES, and of the total-scores of the UWES.