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Aligning Theory and Evidence-Based Practices to Enhance Human Flourishing in Nurse Executives

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Table of Contents

Abstract

Today's nurse executives lead highly complex and bureaucratic organizations undergoing sweeping reform at an unprecedented rate of change. Change and high levels of stress are the norm in health care, and ineffective stress management can hinder organizational performance and adversely impact personal wellbeing. The risks of nurse executive burnout and unprecedented turnover led to the development of a 4-hour program to teach theory-guided and evidence-based stress management techniques. The program was intended to increase awareness, enhance effective stress management skills, and improve the nurse executive's ability to flourish in high stress environments. A pre-intervention and 6-month post-intervention assessment ($n=12$) was conducted, and the results for 12 matched pairs were statistically significant for improved personal and organizational indicators of stress over time, indicating improved vitality, engagement, and sustainability. Findings validated concerns regarding the prevalence of stress in the nurse executive group and demonstrated positive outcomes for key performance indicators that support personal wellbeing, resilience, retention, and success. One nurse executive identified she no longer felt like leaving the organization and nurse executive leader turnover has decreased measurably following the intervention. The relative low costs, positive outcomes, and flexible format of this program make it feasible to support spread and enculturation of improved stress management practices that benefit both employee and organization through existing orientation and ongoing professional development strategies.

Keywords: *nurse executive, chief nursing officer, caring science, HeartMath, stress management interventions, resilience, healthy work environment*

Section II. Introduction

Health care reform and the 2010 Patient Protection and Affordable Care Act (ACA) have led to increased focus on the Institute for Healthcare Improvement (IHI) triple aim goals of improved quality/safety, affordability, and care experience (IHI, 2016). The introduction of a quadruple aim reinforces the importance of nurse leaders as architects of health care and the impact of resiliency and care provider satisfaction on efficient and effective work environments (Batcheller, Zimmerman, Pappas, & Adams, 2017). There is also a major shift in reimbursement, as consumerism and payers align expectations toward value-based versus volume-driven delivery care models (U.S. Department of Health & Human Services, 2017). These changes result in enormous pressure on nurse executives, as they continually seek innovative ways to reduce health care costs, develop and retain high performing teams, and consistently demonstrate measurable progress on a growing list of publically reported outcome measures. Stress abounds in environments where radical change is the norm, and the literature identifies the adverse effect of this stress on mental clarity, work performance, interpersonal relationships, and overall physical wellbeing (McCraty & Zayas, 2014). Studies also identify the risks associated with stressful environments on both groups and individuals, as well as the downstream operational impact of stress on organizational performance, burnout, and potential separation (Sanders, 2015).

Problem Description

This large, not-for-profit, integrated health system located in northern California experienced a sudden and striking increase in nurse executive turnover in 2015, with 17 out of 28 (61%) positions affected by transitions or separations from the nurse executive role (Appendix

A: Nurse Executive Leader Turnover). The nurse executive team is comprised of 14 chief nurse executives (CNE), five CNEs in dual chief operating officer (COO) and CNE roles, and one associate chief nurse executive (ACNE) responsible for leading approximately 25,000 nurses in 21 hospitals located across the northern California region (Appendix B: Nurse Executive Positions). The nurse executive leader (NEL) team also includes seven regional executive nurse leaders serving in executive director or regional director roles and one regional CNE and vice president (CNE/VP). Nurse executive turnover involved a combination of voluntary and forced attrition, which is poorly differentiated due to a lack of formal reporting and the confidential nature of nurse executive turnover. High turnover led to instability and gaps in top-level nurse leader roles, redistribution of existing workloads to help compensate, increased reliance upon interim executive nurse leaders, and a persistent risk of further turnover. Combined efforts to recruit and retain nurse executives were critical to ensure stability in patient care environments and sustain operational excellence across the region.

In exploring organizational context, there were several large-scale disruptive events that directly impacted the nurse executive role between 2013 and 2015. Nurse executives had navigated the opening of three new hospitals, the introduction of the ACA in California (e.g., Covered California), early retirement programs, a staged reduction in force, unprecedented labor disruptions, and sweeping changes in regional executive leadership. A time of great uncertainty coupled with incredible opportunity, but it was also, irrefutably, a time of great change and extreme stress.

Training opportunities to support nurse executives were focused largely on educational programs to support organizational alignment and ensure compliance with key initiatives. The mounting workload and unremitting organizational stressors were a legitimate risk in the nurse

executive's ability to sustain more fulfilling and purposeful engagement. Learning to effectively manage the unrelenting flow of stress and reconciling gaps that may hinder full engagement is central to transform bureaucracies into humanistic, self-renewing organizations that nurture hope, courage, passion, energy, and self-discipline (Porter-O'Grady & Malloch, 2015). Wholeness is a concept that recognizes personal and organizational transformation that begins with a conscious state of internal harmony and then radiates outward, creating, evolving, and sustaining people and systems that flourish *in the moment* despite chaos, complexity, and adversity. The risk of burnout and unprecedented turnover in nurse executives represents a legitimate risk to organizational performance and sustainable success (Prestia, 2015).

The region had adopted Jean Watson's Theory of Human Caring and introduced HeartMath stress management programs for clinicians and clinical leaders with positive quantitative and qualitative results and broad acceptance from care teams beginning in 2007 (Goldfisher, Hounslow, & Blank, 2014; Watson, 2008). However, no theory-guided HeartMath training program had been conducted with the NEL group, to date. The need for a focused caring science and HeartMath program for the NEL group was convincing, consistent with the organization's brand promise of total health (e.g., "Thrive"), and universally supported by the NEL team as their choice learning session to be conducted in conjunction with their annual winter holiday retreat. The primary goal of the program was to promote resilience and support NELs working in highly stressful environments and not to directly position the program as a focused strategy to improve retention. The alignment, opportunity, and enthusiastic response of the NEL group served as the chief impetus for the proposal, approval, and subsequent implementation of this doctor of nursing practice (DNP) project.

Available Knowledge

Influenced by Caring Science HeartMath programs developed and structured for clinical

nurses and nurse managers/leaders at the Mayo Clinic in Scottsdale, Arizona (Pipe, 2009; Pipe et

al., 2012), a qualitative metasynthesis of available literature was conducted.

PICOT Question

A PICOT (population, intervention, comparison, outcome, timeframe) question was

developed to frame and guide a systematic search and critical appraisal of available evidence: In

a group of nurse executives (P), does implementation of a Caring Science HeartMath program

(I), when compared to no intervention (C), enhance indicators of human flourishing (O) over a 6-

month period (T)?

Systematic Literature Review

A literature review was conducted using the search words *nurse executive, chief nursing*

officer, caring science, HeartMath, stress management interventions, resilience, and *healthy*

work environment. The keyword search was combined using the *and* approach and further

refined using a backward keyword and backward reference search from relevant literature that

supported the original PICOT question. A search of the evidence was conducted using the search

engines and databases within CINAHL, Cochrane, Fusion, Joanna Briggs Institute EBP

Database, and PubMed. Studies were selected based on keywords aligned to the PICOT and

specific to the (a) nurse executive, (b) chief nursing officer (CNO), (c) caring science, (d)

HeartMath, (e) stress management interventions, (f) resilience, and (g) healthy work

environment. Inclusion criteria included studies published between 2007 to present, appearing in

peer-reviewed sources, published in English, including interventions in health care settings, and

specifically addressing the defined PICOT question.

A paucity in available evidence specific to nurse executives led to the expansion of search criteria to include relevant studies involving the clinical nurse and nurse manager. The search for evidence resulted in over 139 articles, which was narrowed down to identify eight relevant articles that helped answer the original PICOT question.

Summary of Evidence

Articles were critically evaluated using the Johns Hopkins *Non-Research Evidence Appraisal Tool* for non-research studies (Dearholt & Dang, 2012) and scored for quality by a rating of either A for high, B for good, or C for low. The level of evidence was scored ranging from Level 1 as the highest level of evidence, experimental study/randomized controlled trial (RCT), to Level V as the lowest level, expert opinion (Appendix C: Evaluation of Evidence Table). The articles were evaluated for alignment with defined inclusion criteria and a synthesis table was created to support critical appraisal (Appendix D: Evidence Synthesis Table). A summary of the evidence was conducted to determine the feasibility of the planned theory-guided intervention (Melnyk & Fineout-Overholt, 2015).

Evidence to Support Caring Science Theory

The organization has a longstanding commitment to the integration and spread of caring science programs, which are grounded in Watson's theory of human caring and the 10 caritas processes as central tenets of the theory (Watson, 2008; Watson, 2012). A description of the philosophy, ethic, and theory of human caring is provided as part of the rationale for this project.

A systematic review of evidence revealed four articles that employed caring science theories as a conceptual framework; two studies by the same author specifically identified Watson's theory of human caring (Pipe, Bortz, & Dueck, 2009; Pipe et al., 2012).

Evidence to Support Stress Management Interventions

Bishop (2013) conducted a mixed-methods evaluation using both qualitative and quantitative measurements to determine the impact of a caring-based intervention on improving work engagement and retention with older nurses. The framework was trans-theoretical and incorporated mid-range theory, including Schaufeli and Bakker's theory on work engagement and Boykin and Schoenhofer's (2001) theory of nursing as caring. Bishop (2013) identified self-care as central to the possibilities of caring for others, a concept consistent with the first of Watson's caritas processes "practice loving-kindness and equanimity for self and other", which identifies the importance of practicing and modeling self-care in order to cultivate caring consciousness and support healthy work environments (Watson, 2008).

Bishop (2013) conducted a pre-intervention survey using the *Utrecht Work Engagement Scale*, which was re-administered 30 days post-intervention. Discussion groups were facilitated by expert faculty using appreciative inquiry to explore themes that surfaced during the discussions with participants, including dialogue on the true meaning of caring. Content was focused on Boykin and Schoenhofer's (2001) concepts of caring in personal and professional life, including caring relationships with self, co-workers, and patients. The intervention and caring theory framework were intended to increase the nurses' value of caring as a unique way of being and caring in their personal and professional life and not as an end goal of wellness in itself. Discussions supported core values of nursing, including intentional caring for self and others to reinforce and rekindle a sense of purpose and commitment to nursing.

Bishop (2013) organized the quantitative findings into key areas of work engagement, including vigor, dedication, and absorption. Qualitative themes included caring for one's self, reawakening the spirit of nursing, changes in views on caring, concerns for the future, and

leaders taking time to care. The results of the study indicated that a theory-based intervention that integrates caring theory and supports work engagement can have a significant impact (Bishop, 2013). Overall, the scores on the level of engagement had statistically significant increases in the subsets of vigor, absorption, and dedication. Definitions of these subsets identified by Bishop (2013) were:

- Vigor. A measure of resilience or being able to sustain energy, not become easily fatigued, and persistence in the face of difficulties.

- Absorption. A measure of flow or the ability to be totally and happily immersed in one's work.

- Dedication. A sense of connection, pride, and inspiration, as well as being challenged by the job.

The qualitative themes indicated a value for relationships and the ability for nurses to come together and decompress and support team engagement that enhances retention (Bishop, 2013).

Fortney, Luchterband, Zakletskaia, Zgierska, and Rakel (2013) conducted a single sample, pretest-posttest design at four points in time, including baseline, and one day, eight weeks, and nine months post-implementation. Forney et al.'s pilot study explored whether an abbreviated mindfulness intervention could increase job satisfaction, quality of life, and compassion in a group of primary care physicians and nurse practitioners. The relevance of this evidence supports an abbreviated approach to mindfulness in high stress health care settings where training time is difficult to secure and interventions to help support care givers in developing stress management skills is critical. The intervention was abbreviated mindfulness-based stress reduction (MBSR) classes over an 8-week period, with a solid scientific foundation involving Kabat-Zinn's (1990, 2003) various meditation styles recognized as a healthy way to

manage stress. Meditation techniques included guided sitting, walking mindfulness, and group

dialogue regarding examples of *practice in your practice* that encouraged participants to work

with patients using mindful attitudes.

Fortney et al. (2013) created a website to supplement teaching to pause, to be fully

present with the patient, and then to proceed with interactions to mindfully address the patient's

needs. Outcome measures from four different surveys were administered at defined intervals

over a secure web-based survey system. Study outcome data were analyzed with linear mixed

effects models that integrated the four surveys for all participants and allowed for measurement

of changes over baseline to ascertain if changes persisted in the 9-month follow-up period.

Fortney et al. outlined their findings, which included:

1. Abbreviated mindfulness intervention may help ease burnout and support wellbeing
   of participants.

2. Significant reductions in measures of burnout, depression, anxiety, and stress on all
   three follow-up surveys.

3. Long-term benefits obtained after relatively short exposure to mindfulness training
   without booster sessions.

4. Even limited initial training may be sufficient to teach fundamental mindfulness
   practices.

5. Strikingly high levels of emotional exhaustion and depersonalization were present in
   baseline measures among participants.

Fortney et al.'s findings suggested this intervention is a relatively low cost, collegial, time

efficient way to improve wellbeing and manage burnout symptoms that have implications for

patient care. A lack of data and few programs actively address clinician burnout, as it relates to personal wellness and quality care.

Pipe et al. (2009) conducted an RCT utilizing Jean Watson's theory of human caring as a conceptual framework, recognizing the potential interplay between mind, body, and spirit healing and a mindfulness program to promote stress reduction in clinical leaders. Watson's theory supports the concept that compassionate leadership begins with caring for self and others. The theory supports the concepts of consciousness, intentionality, and positive leadership relationships to improve communication, teamwork, and decision making.

Pipe et al. (2009) offered a condensed 4-hour MBSR program, including a combination of classroom instruction and Kabat-Zinn's (1990, 2003) individual daily meditation practice. The control group received classes on advanced principles of stress and leadership strategies without meditation. The instruments and statistical methods were detailed, and findings supported the primary hypothesis that self-report measures of stress, anxiety, and mood for those participants undergoing MBSR training would improve over the control group. Pipe et al. found statistically significant improvements over baseline measures in the MBSR group in comparison with the control group. The findings confirmed high levels of baseline stress in nurse leaders and the effectiveness of a condensed mindfulness intervention that is consistent with Watson's caring theory. Pipe et al. identified the following implications for nurse administrators and educators:

1. Acknowledge the intense and chronic nature of stress and its impact on nurses.

2. Explore feasible ways of translating stress management techniques into moment-by moment living.

3. Exert leadership influence to create organizational environments that support healthy stress management.

Jamieson and Tuckey (2016) conducted a systematic review of 40 articles, with a goal of examining the role of mindfulness interventions and how they might be improved in the workplace. Their review was comprehensive and included articles from diverse settings, including the use of MBSR interventions in health care. The results of the study were helpful to identify key issues within the literature related to the top four mindfulness interventions taught in the workplace, including loving-kindness meditation, and how to translate recommendations from a comprehensive systematic review into improved interventions with optimal impact. Jamieson and Tuckey compiled a list of recommendations with the intent to inform future research and improve future mindfulness interventions in the workplace:

1. Ensure clear definitions to describe mindfulness.

2. Maintain the key elements of established mindfulness training protocols in abbreviated programs.

3. Conduct compliance checks with self-directed delivery modes.

4. Ensure experienced trainers.

5. Consider different forms of mindfulness training to identify the most beneficial effects.

6. Measure and report findings.

7. Track and report program data to support success and expansion of programs.

8. Include objective measures of variables and processes that should be associated with mindfulness (i.e., retention, service scores, and organizational metrics).

9. Adopt a multifaceted approach regarding workplace context; different groups have different needs for building individual capacity for mindfulness.

Mindfulness comes easy to some and less so to others, but can be taught and cultivated through practice and quality interventions. Jamieson and Tuckey (2016) described a state of mindfulness as the immediate experience of being more mindful, present, and engaged. Whereas, trait mindfulness involves duration, frequency, and intensity that enhances present moment awareness in any situation or encounter a person may have, regardless of how challenging it may be. Mindfulness practices were defined as a mechanism for enhancing both state and trait mindfulness, which can be taught through mindfulness-based interventions (Jamieson & Tuckey, 2016).

Evidence to Support HeartMath Intervention

One peer-reviewed study (Pipe et al., 2012) was identified to support a HeartMath intervention with nurses, with some evidence for transferability to a group of nurse executives. Clinical abstracts, conference proceedings, and case studies describing HeartMath interventions in nursing failed to meet the appropriate rigor for inclusion, resulting in a scarcity of evidence. The following article by Pipe et al. (2012) serves as a key source of evidence in addressing the PICOT question for this project.

Pipe et al. (2012) conducted a non-experimental pretest/posttest design pilot study using a proactive, interventional approach to improving work environment through enhancement of resilience and positive caring communication. The intervention was intended to empower nurses to use positive coping strategies. Pipe et al. selected HeartMath because it supports development of positive coping skills and uses a structured standardized approach. A detailed business case was outlined to illustrate the potential impact of improved communication and optimum work teams among caregivers, in particular between nurse and physician, to improve quality, safety, service, and operational performance. The conceptual framework for this study was Jean

Watson's (2012) theory of human caring, which emphasizes care for self and others as a means of promoting a healing environment. Leadership priorities included support for work environments, with a focus on caring consciousness and a practical evidence-based *in-the-moment* approach to building awareness and resilience (Pipe et al., 2012). Resilience was described as the ability to adapt and agility was the ability to adapt quickly. The role of positive emotions was discussed, which was described as more than being happy, but a deeper approach to how life is experienced. The role and health benefits of positivity and optimism in wellness and the ability to thrive were described, including improved immune function, lower levels of stress hormones, reduced inflammatory response to stress, lower blood pressure, reduced pain, and improved sleep (Pipe et al., 2012).

Pipe et al. (2012) began the intervention as a retention strategy, but shifted to a focus on resilience, which was consistent with a broader humanistic caring science lens. This study was identified as an expansion of previous theory-guided work the organization had conducted on mindfulness training as a form of self-care, which was found to be feasible and associated with positive outcomes (Pipe et al., 2009). Lessons in a previous mindfulness program included a need for a variety of approaches, an interest in focusing on resilience, and a desire to test the feasibility of teaching in cohort or smaller work groups. Pipe et al. outlined the objectives and expected outcomes, including long-term organizational outcomes, a structured protocol outline strategy for future training for facilitators, and additional workshops around transforming stress. The materials and methods included 63 oncology nurses and a selected group of 37 clinical managers, supervisors, and educators. The recruitment, orientation, and consent processes were outlined. Primary inclusion criteria included employment on a direct care unit or other clinical areas identified by the leadership team. There were no exclusion criteria.

The intervention was a HeartMath workshop designed to teach individuals to recognize stress symptoms and to use evidence-based skills to counteract the negative effects of stress (Pipe et al., 2012). Techniques taught included behavioral interventions to focus on improving self-regulations of physiologic responses to stress through approaches that combine mindfulness with generating positive emotions that could be used in real time or at any point during the day. A personal biofeedback device was available to participants as an opportunity to use heart rate variability (HRV) to learn how to self-generate coherence or a healthier physiological state (Pipe et al., 2012). Assessments and measures included use of the *Personal and Organizational Quality Assessment-Revised* (POQA-R), identified as a validated assessment tool designed to provide an overview of personal and job-related constructs designed by the Institute of HeartMath (IHM).

Administration of the program included measurement intervals of baseline, two weeks, and seven months (Pipe et al., 2012). Surveys were coded with a personal passcode known only to the participant to ensure confidentiality. The results of the POQA-R were analyzed and results were grouped into constructs for purposes of translating results into meaningful and actionable findings. A table clearly depicting the means and paired difference on each of the POQA-R indicators was provided. Improvements in organizational performance had to be balanced with other organizational initiatives in place simultaneously (Pipe et al., 2012). The discussion of the results demonstrated positive impact of the intervention on the personal and organizational indicators of stress. Pipe et al. identified that the close team cohesiveness and *supportive neighborhood* may have influenced higher scores for the oncology nurses versus the leader group. Watson's theory was noted as *very helpful* in guiding the interpretation of the findings. The neighborhood of support demonstrated stronger outcomes and was attributed to possible

changes in the energetic electromagnetic field of the heart, which was described as containing information that impacts those in close proximity. The prevalent, positive, and sustained coherence of the individuals in the group with local support was considered potentially contagious in a positive way (Pipe et al., 2012). The findings were deemed consistent with Jean Watson's theory in terms of the impact of caring affect and behavior of one individual that potentially impacts others. In line with Watson's theory, Pipe et al. believed there was a potential for a type of emotional contagion to impact patients and families. The improvements in personal symptoms in both groups, despite continuous change and uncertainty, was considered notable. Limitations included relatively small sample size, sample selection bias, and sources of nonrandom error (Pipe et al., 2012).

Pipe et al. (2012) concluded that positive coping strategies taught in the workplace intervention were feasible and effective in producing statistically significant outcomes. The intervention appeared more successful when taught to groups who normally work together, which could be related to available support systems and other sustainability strategies. Pipe et al. noted a need to focus on sustainability and ways to expand the work, including possible online approaches to this intervention. The study concluded that employees can learn and practice HeartMath techniques to help create and sustain healing and caring environments. The HeartMath techniques were considered helpful in minimizing the negative effects of stress, improving resilience and agility, and supporting employees who were seeking more creative and rewarding engagement in their roles, personally and professionally. Pipe et al. identified that by creating a conscious shift to more positive emotions, nurses can improve their ability to recognize and transform stress. Caring presence was acknowledged as a major theme in Jean Watson's theory of human caring, with the caring-healing relationships extending from nurse to

other (i.e., patients, colleague, family, and beyond) for optimal wellbeing (Pipe et al., 2012;

Watson, 2008).

Evidence to Support Resilience

Hudgins (2016) conducted a quantitative descriptive study to identify relationships

between resilience, job satisfaction, and anticipated turnover of nurse leaders in roles ranging

from manager to system level leaders. Despite the fact that resilience is considered a favorable

personal characteristic in nurses, there was limited research on how resilience influences nurse

leaders. A definition of resilience included the ability to transform disaster into a growth

experience and move forward, and as a whole literature concludes, resilience is a protective

quality during adversity (Hudgins, 2016). Resilience can be viewed as a quality, a process, or a

vital skill in coping with adversity. Hudgins used Polk's resilience model as the theoretical

framework, which considers that science of nursing and resilience share a similar premise that

people are more than an aggregate sum of their individual parts. The study provided evidence

that resilience does impact job satisfaction and retention and that nurse leaders need to enhance

their own resilience, while helping develop more resilient teams. Hudgins (2016) described the

following strategies to develop and practice resilience:

1. Awareness of personal weaknesses.

2. Focus on strengths leads to increased self-confidence.

3. Adopt a positive worldview and regulate emotions.

4. Develop a network (personal and professional) of positive mentors.

5. Empower others to decrease work demands and help develop others.

6. Redefine passions, consider the value of serving others, and explore spiritual beliefs.

Hudgins (2016) identified that a belief in a higher purpose is considered a protective quality that leads to resilience. Practicing and modeling resilience is a process described by Polk's theory in four distinct phases: dispositional, situational, relational, and philosophical patterns. These phases can serve as a practical framework for the creation of new interview tools to help recruit resilient nurses and training materials to support continuous team development (Hudgins, 2016).

Ingwell-Spolan (2016) reported on a phenomenological-qualitative study to explore the professional lived experience of the CNO to gain a better understanding of how CNOs demonstrate being the professional voice for nursing in health care organizations. The research question used for this phase of the study was: What is your lived experience as a CNO who is the lead voice for professional nursing at the point of care? Analysis of the phenomenon revealed one primary theme and three essential themes. The primary theme was *challenging* and the three essential themes were *battling, morphing,* and *relating*. Ingwell-Spolan explored the theme of battling, which was an essential component of the CNOs' lived experiences and discussed by all of the participants. The CNOs characterized their day as a battle for money, staffing, patient satisfaction surveys, and politically motivated trivial topics that included parking spaces, office window area, or seat placement in the corporate suite (Ingwell-Spolan, 2016). The participants viewed choosing battles as a major distraction that interfered with already demanding work.

Ingwell-Spolan (2016) determined that patient care and finance are often not aligned, placing the CNO in the middle as translator of patient and staff needs for non-clinical organizational leaders and, in reverse, helping translate financial and business concerns in ways clinicians can understand. Topics discussed in the interviews included the perceived gap between clinical leader and business expert, including an unwritten hierarchy in the executive suite that

does not consistently recognize the CNO as an equal (Ingwell-Spolan, 2016). Discussions around

finance and business supersede clinical discourse in most cases, and both male and female CNOs

were criticized for being too emotional when speaking in clinical terms. When CNOs struggled

to communicate effectively in advanced business terms, many felt they were not heard and

believed non-clinical executives were making clinical decisions without full or adequate input

from the CNO. The majority of CNOs interviewed identified that they needed higher-level

leadership and financial skills in order to be heard and respected (Ingwell-Spolan, 2016).

Ingwell-Spolan (2016) described the CNOs interviewed as being bullied, with expressed

concerns regarding an unwritten hierarchy where they did not feel respected for their clinical

expertise and not treated as an equal by non-clinical executives. There was a perception that they

were in a constant battle and living under constant stress. Each CNO had ascended to their

position from clinical roles, rising up to the level of nurse executive through their incremental

clinical accomplishments and innate leadership skills and, as a result, did not feel they received

adequate education or training in the business and finance aspects of the role (Ingwell-Spolan,

2016).

The relevance of the Ingwell-Spolan (2016) study is its focus on the voice and lived

experience of a small group of CNOs, revealing their expressed perceptions that each day is a

literal battle for money, resources, respect, and decisions impacting patient care. The participants

also identified a lack of preparation to fully and equally assume the many complex and diverse

business and finance accountabilities of their role. These challenges require more than acquiring

additional knowledge and honing a well-developed business acumen identified by the study.

They also justify the importance of CNO's developing resilience and effective stress

management skills in order to sustain their roles, maintain caring-healing environments, and

continually learn, evolve, and seek to confidently occupy the role of CNO at all levels of the organization. A fully engaged, competent, and confident CNO is critical to the organization's success and its ability to advocate for nursing practice and sustain healing environments (Ingwell-Spolan, 2016).

Prestia (2015) presented results from a qualitative study using interpretive phenomenological analysis. The theoretical framework for the study included Ray's theory of bureaucratic caring, a defined caring science theory, as well as authentic leadership theory and resiliency theory. Prestia identified six themes, supported by several subthemes, as sustaining CNOs in the professional practice of nursing leadership.

1. Loving the profession

    a. Subthemes: innate passion, identity as a nurse, terminal career choice, pride

2. Having a broader impact

    a. Subthemes: scope of influence, keeping patients central, mentoring, growth of staff

3. Reflecting on one's own work

    a. Subthemes: time to think, learning from mistakes, keeping an optimistic attitude

4. Learning to manage conflict

    a. Subthemes: understanding the issues, maintaining objectivity, direct communication, stepping back, utilization of resources and information, positioning through collaboration and alignment, depersonalizing the situation

5. Maintaining work/life balance.

    a. Subthemes: boundaries, daily time management, diversionary activities

6. Working with supportive leaders

    a. Subthemes: supportive CEO, supportive administrative team, CNO

        networking, supportive subordinates

Additional themes included reliance on spirituality and welcoming challenges, worry and distress

related to governing bodies, public negativity over health care reform, and a fear of the future of

health care reform. Prestia (2015) concluded that the ability of the CNO to sustain and thrive is

essential to repositioning nursing, actively improving patient care, and contributing to the

redesign of health care. Desire and passion were viewed as insufficient to sustain CNOs;

education and new competencies are required to innovate (Prestia, 2015).

Rationale

The conceptual and theoretical framework for this project was Jean Watson's theory of

human caring, a continuously evolving theory that can be interpreted as both a grand theory and

a middle-range theory. Watson (2015) identified that grand theory concepts can be viewed as a

philosophy, ethic, theory, and expanded science model (i.e., caring science) within a unitary

transformative paradigm. As middle-range or specific theory, the 10 caritas processes provide the

structure and language necessary to frame the core aspects of nursing care and support clinical

caring research (Appendix E: 10 Caritas Processes). Caritas originates from the Latin word

meaning "to cherish and appreciate, giving special attention to, or loving" (Watson, 2015, p.

323), which makes explicit the link between love and caring within expanding views of science

as a moral ideal. The conceptual and foundational elements of the evolved theory described by

Watson include:

1. 10 caritas processes – the structured and organized language of caring.

2. Transpersonal caring moment – the theory lives in the human-to-human connection that transcends time, space, and physicality.

3. Caring-healing consciousness and intentionality – energetic caring-healing presence where the nurse is the environment.

4. Caring-healing modalities – holistic caring practices, including HeartMath.

Additional aspects of the theory include unitary views of self and person, worldviews of connectedness, caring-healing consciousness and heart-centered presence, human-environmental field of a caring moment, and advanced caring-healing modalities (Watson, 2015). Nursing incorporates healing arts and integrates science, art, beauty, and spirituality, which includes humanity, caring, and what it means to be human in ways conventional science does not address (Watson, 2012, 2015). The core concepts and caritas processes serve as a framework for inculcating caring practices within clinical practice settings and among teams and are the foundations of integrating the theory of human caring.

Caring Science and Caritas Process 1: Self-Care

A central tenet of caring practice and key element of this project is outlined in Caritas Process 1: The practice of loving-kindness and equanimity within the context of caring consciousness (Watson, 2012). Loving-kindness begins with self and radiates outward. Danish philosopher Soren Kierkegaard (2016) stated "Above all do not forget your duty to love yourself" (p. 1). An unsettling reality is that for many nurses and nurse leaders, it is easy to forget to love yourself when your view of care does not include yourself (the nurse) as central to the care equation. The importance of this theory-guided reminder is that it also serves as the foundation for Caritas Process 8: Creating and sustaining healing environments. Environments with effective self-care strategies include best practices for managing stress and mitigating the

untoward biological, relational, and performance effects of stress on one's ability to deliver quality, exceptional service, and safe patient care (Duffy, 2009; Pipe et al., 2012).

Although, the impact of stress is well documented and the consequences are well described in the literature, seldom do organizations teach self-care best practices or offer programs to ensure leaders and care teams have the essential life competencies required to cope effectively and perform consistently to their highest levels, either individually or as a team (Ingwell-Spolan, 2016). This strategy gap results in most nurses seeking their own approaches to manage stress, which may or may not include best practices demonstrated to be effective in improving resilience/agility, performance, or sustained engagement (Jamieson & Tuckey, 2016; Segal, Smith, Robinson, & Segal, 2016).

The organization has a framework and nurse executive development map that outlines self-care competencies as *relationship with self* and offers core content specific to caring science, work/life balance, leading within a caring science framework, whole person/whole systems approach, appreciative leadership, and emotional intelligence. Caring science programs have been introduced to cultivate self-awareness and inculcate best practices to help mitigate stress, but adoption has been protracted and inconsistent due to turnover in executive nurse leaders across the region (Waxman, Roussel, Herrin-Griffith, & D'Alfonso, 2017). Opportunities to reestablish and align self-care competencies to support integration and system-wide adoption for all nurse executives existed through the implementation of this project.

Caring Science and Quality

In 2013, Duffy described the importance of caring attributes, caring practices, and the integration of caring science grounded in the theory of human caring, as they relate to quality patient-centered care in health care settings. Duffy's work helps validate the critical importance

of integrating caring competencies as part of a core curriculum for nurses, managers, and leaders. The affective domains (e.g., self-care, authenticity, presence, consciousness, intentionality, and engagement) of co-creating a care experience are key to the successful integration of any best practice knowledge or technical skills (Duffy, 2013). The need for competency is further articulated through alignment with the goals outlined by the Quality and Safety Education for Nurses (QSEN) project that identified the framework required for health care professionals to achieve essential quality and safety competencies (Cronenwett et al., 2007). In striving to achieve patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics related goals outlined in QSEN, reflective practice was identified as a key learning strategy in promoting a culture of inquiry and expanding the capacity to lead systems redesign (Sherwood & Deutsch, 2015).

Caring Science and Reflective Practices

The reflective organization is a self-knowing system and reflective practice, from a systems perspective, and is integral to promoting a fully engaged team that is self-aware and accountable to self-care, particularly in health care cultures where change is a constant stressor (Sherwood & Deutsch, 2015). Stress has well-defined biological effects that impact one's ability to cope, think with clarity, and act with consciousness and intentionality. Stress poses a challenge to full engagement and a threat to quality and safety in healing environments (McCraty & Zayas, 2014). The distraction that accompanies stress detracts from a person's ability to think and act at their highest possible level. Therefore, stress becomes an important factor that must be addressed at all levels of the organization in order to mitigate the risks and foster cultural transformation through leadership and caregiver resilience, agility, full engagement of care teams, reflection, and, ultimately, conscious action (Sherwood & Deutsch, 2015, p. 361).

Caring Science and Resilience

By definition, the term resilience refers to a person's ability to bounce back or recoil following a personal or work-related set back (Resilience, n.d.); whereas, agility adds the qualities of mental and physical skills applied with speed and grace (Agility, n.d.). The alignment of caring science theory and HeartMath evidence-based best practices offers an opportunity to merge the principal elements of awareness/consciousness, early detection, intentionality, and active management of stress in order to avoid the potential loss of engagement, productivity, compassion, or general life-work balance (Pipe et al., 2012; Prestia, 2015).

Caring Science and Heart Science

The organization recognizes HeartMath practices as an evidence-based heart science modality that advances the integration of caring science and promotes healthy self-care practices to help mitigate stress, improve resilience, and support healthy work environments (Goldfisher et al., 2014). The caritas processes and science of the human heart help deepen intelligent heart-centered presence and inform caring actions in the moment. Research reveals that the human heart functions as much more than a physical pump for oxygen-rich blood. McCraty and Zayas (2014) identified that the human heart actively communicates with the brain, sending twice as many signals to the brain as the brain sends to the heart. The heart also has the ability to generate electromagnetic waves (i.e., electrocardiogram) that can be measured several feet beyond the body. The presence of this energetic field emphasizes the importance of heart-centered consciousness within a caring science model, suggesting that what one carries in their heart (i.e., coherent versus chaotic HRV patterns) truly matters (Turkel, 2014). Through awareness and focused heart-centered practices, nurses can learn to consciously shift toward more coherent HRV and decrease the effects of stress, which supports personal wellbeing and healthier work

environments (Pipe et al., 2012). Caring science and heart science have implications for nurses and organizations when awareness, intentionality, thoughts, emotions, and even spoken words are recognized for their potential negative or positive impact on the surrounding energetic field (Watson, 2012).

Caring science serves as an ethical-moral foundation and covenant for conscious leadership to encourage self-care, nurture heart-centered caring relationships, foster cultures of reflective practice, promote caring-healing environments, and value caring moments between patients, nurses, and others (Prestia, 2015). When caring science informs nursing education, clinical practice, research, and leadership, it offers a different paradigm that expands the discipline of nursing and supports the transformation of professional practice. The adoption of caring science values, the caritas processes, and caring-healing practices can help open hearts as nurses and leaders reconnect to purpose and continue to flourish in complex, stressful, and challenging life/work environments (Pipe et al., 2009; Watson, 2015).

Heart Science and HeartMath

Heart science is a growing body of knowledge and includes best practices that have evolved over the past few decades of research and training. Heart science involves the science of stress, which describes precisely what goes on in the human body when humans face stressful events and lack the skills to halt the instantaneous and widespread biological responses that are now considered mostly maladaptive for our modern lifestyles. The premise of caring science and heart science combined education is that human beings (i.e., NELs, nurse leaders, and clinical nurses) must cultivate awareness and learn to control or manage their emotional responses to the world around them in order to navigate the stressors of life/work to effectively care for self and others (Murphy, 2014).

HeartMath training focuses on the biological pathways between the heart and brain, which can be measured by HRV or in the beat-to-beat interval of the heart rhythm. HeartMath training offers participants the opportunity to learn how to generate self-induced positive emotions (breathing in combination with visual imaging), which in turn, increases coherence or a smoothening effect in the beat-to-beat interval in the heart. This demonstrates a physiologic and visible indicator of how effective the self-induced positive emotions and practices are in elevating dehydroepiandrosterone (DHEA) levels in the body and mitigating the direct impact of known stress hormones, such as cortisol, adrenaline, and norepinephrine. When the heart is incoherent or under the influence of stress hormones, the HRV becomes erratic and the waveform looks visually similar to ventricular tachycardia. In contrast, when the heart is coherent and the impact of stress hormones is minimized, the waveform becomes smooth, even, and resembles a typical sine wave. The translation to quality practice, service excellence, and patient safety is when the heart is incoherent or out of sync, the preponderance of evidence suggests the person is out of sync, as well. This means that a person can actually learn to control their mental and subsequent physical response to stress (McCraty & Zayas, 2014).

Through simple HeartMath breathing and imaging techniques, a person has the ability to develop resilience and cope with stress more effectively. Workplace stress can be caused by many factors, but a major source of stress for nurses can be a perception or requirement to work under constant pressure, with tight deadlines, for optimum performance over extended periods of time. The symptoms of workplace stress are many and may include:

- Feeling anxious, irritable, and depressed

- Apathy, loss of interest in work

- Fatigue

- Problems sleeping

- Trouble concentrating

- Muscle tension, headaches, stomach aches

- Social withdrawal

- Increased use of alcohol or drugs to cope

- Decreased sex drive

Many of these symptoms would create cause for alarm in any health care setting and could ultimately contribute to potential risks associated with serious errors, near misses, conflicts among the team, and threats to patient safety (Segal et al., 2016).

Nurse Executive Leader Awareness and Readiness

The proposed intervention for system nurse executives was intended to improve perceptions of resilience through self-reported indicators of human flourishing based on previous successes and positive feedback from nurse managers and care teams attending similar programs since 2007. The goal was to build upon the familiar, since nurse executives were initially oriented to core concepts of caring science as the designated nursing theory and professional practice model for the region. Nurse executives were also aware of HeartMath as a modality for actualizing the theory and aligning to the caritas processes (i.e., Caritas Processes 1 and 8); although, few had completed any formal training program. Consistent with Bishop (2013), the nurse executive group expressed a level of readiness and openly supported the intervention as an opportunity to come together in a supportive environment away from the clinical setting to celebrate, share, learn, reconnect, and explore new approaches to self-care that support resilience. Resources and funding had been allocated to support the intervention, as well as ensure monthly group and individual touchpoints. The evidence (Pipe et al., 2012), previous

experiences, and readiness of the nurse executives to engage offered reasonable confidence that the program could be successful and achieve its aim.

Specific Aims

The AIM statement for this project included a plan to implement a Caring Science – HeartMath program for a group of nurse executives in northern California. The intention of this program was to align self-care concepts of nursing theory defined by Dr. Jean Watson with evidence-based mindfulness breathing techniques and stress management strategies developed by HeartMath. A pre-intervention survey was conducted, followed by a post-intervention survey at six months. Outcomes were intended to improve nurse executive perceptions of personal indicators of human flourishing, which indicate enhanced stress management and resilience, while supporting sustainability.

Positive program outcomes have the ability to justify establishing this intervention program as requisite training for new NEL orientation. Program success could lead to increased momentum and new opportunities to innovate and expand values-based self-care programs for all leaders, interdisciplinary care teams, and employee's system-wide.

Section III. Methods

Organizational Context

Caring Science – Theory and Programs

In 2008, the organization formally adopted Dr. Jean Watson's theory of human caring system-wide and began the journey to integrate and spread the concepts of caring science. The adoption of caring science was launched with formal presentations to senior leaders, where the president of the organization shared his belief that caring science was "by far one of the most important initiatives our organization will undertake in the coming year" (G. Adams, personal communication, April 10, 2008). The vision and investment in caring science was articulated, but the incredible pace of change and dynamics of health care reform resulted in essential shifts in organizational leadership and priorities, which resulted in diminished momentum over time.

CNE Launch of Caring Science

Caring science focuses on a relational ontology of connectedness and considered by Watson (2008) to be an ethical, moral, and philosophical underpinning for professional nursing practice. All CNEs attended an initial 2-day training session to provide them with a working foundation of the theory and to support their efforts to spread theory-guided clinical best practices across the region. Turnover within the CNE leadership group weakened coordinated caring science efforts among caregiver teams and eroded organized progress and advancement of caring science programs. There is considerable variation in adoption, enculturation, and spread of caring science and HeartMath modalities across the 21 hospitals.

Caritas Coaches

The initial adoption and spread of caring science included the addition of designated

clinical nurses specially trained in caring science theory and integration, formally designated as caritas coaches. Over 70 nurses representing each of the 21 facilities and regional headquarters were funded to attend a 6-month caritas coach education program, with focused education and professional development on all aspects of the theory. Caritas coaches were intended to serve as experts in caring science and theory integration at the point of care, supporting and coaching peers in the moment and at the bedside. The focus of caritas coach work has been on direct care providers and their impact has been marginalized as a direct result of nurse leaders who lack continuity with the historical context for the caritas coach role and the potential benefits this role offers to support caring-healing environments across the system.

HeartMath Trainers

Over 70 nurses and leaders in the organization have been certified as HeartMath trainers since 2008 and have conducted hundreds of caring science/heart science stress management programs for point of care leaders and clinical nurses across the region. HeartMath research, evidence-based practices, and biofeedback technology have emerged as essential caring science teachings, helping make the more implicit aspects of the theory (i.e., intentionality, heart-centered practice, creating the healing environment, loving-kindness, and consciousness) more explicit (Pipe, 2008). The NEL team, as a whole, has not participated in a focused program on caring science since the original 2-day workshop in 2008, and no structured HeartMath program has been offered for the group to date.

Human Caring and Caritas Consortium Programs

In 2008 and 2009, over 400 direct care nurses participated in five 2-day human caring programs (HCP) that included core concepts of the theory and the opportunity for participants to personally experience caring science practices, which included the art and esthetic expressions of

caring, reflective journaling, empathic listening, and self-care. There have been no HCPs since 2009. In addition, the organization offered a large 3-day caritas consortium event annually in northern California for six years running, with diverse programs designed to expand caring science knowledge, share best practices, and create experiential learning opportunities from experts in the field of caring science. Thousands of nurses from across the region and from the community have participated in the regional caritas consortium experience over the past six years.

Watson Caring Science Institute Affiliate

In 2010, Dr. Jean Watson invited the organization to become an affiliate of the Watson Caring Science Institute (WCSI). The WCSI affiliate organizations are recognized for their exemplary integration of caring theory and make a commitment to evidence-based caring science practices and scholarship. The organization is recognized by Dr. Watson as the largest WCSI affiliate in the world. Member organizations must commit to sustain integrated caring science practices to retain their affiliate status, including evidence of caring science in:

- organizational systems and processes;

- cultures of caring for staff, patients/families, and community;

- integration and advocacy of caring-healing modalities;

- investment in resources to generate and guide transformation; and

- active participation in caring science clinical research and scholarly work (WCSI, 2015, p. 2).

Caring Science Scholarship

Leaders and clinicians have actively participated in the ongoing journey to integrate caring science across the organization and have published their work in professional journals, as

well as participated in podium and poster presentations at national and international meetings.

Commensurate with CNE and leader turnover in the organization, the level of scholarly

engagement in caring science integration has leveled off in recent years related to inconsistent

support at the facility level, as well as time and economic constraints. The reduced visibility at

professional meetings and participation in national and international caring science programs

threatens the organization's ability to fulfill defined WCSI affiliate obligations.

Leadership Development and Training Programs

Leadership training and skill development alone have not been successful in executive

nurse leader retention or in closing performance gaps over the past five years. Investments in

education, professional development, and multiple forums to prepare nurse executives and care

teams for the essential shift to value-based care have not produced sustainable outcomes due to

persistent and widespread turnover in nursing leadership positions. The organization continues to

struggle with structured succession planning, despite recent attempts to introduce nurse executive

development and CNE fellowship programs. The lack of consistent NEL pipeline and continuous

turnover in the nurse executive role limit advancement toward envisioned cultures of innovation

and transformation (D'Alfonso, Zuniga, Weberg, & Orders, 2016).

Opportunities for Existing Resources

Strides have been made in caring science integration, including the investment in diverse

region-wide programs and the development of training resources since 2008. A paradox exists

between the unrelenting stress and disruptive events described earlier and lack of structured

caring science and/or HeartMath programs for new and existing NELs. As the chief architects of

the organization's caring-healing environments, the nurse executive needs clarity and confidence

in speaking to the theory, ethics, and values and advocating for best practices as they lead and

model caring science and HeartMath practices with care teams. In addition, opportunities exist to engage and deploy the more than 140 caritas coaches and HeartMath trainers across the region to help teach, coach, and mentor teams on self-care and best practices to balance stress. These skilled resources remain enthusiastic, but underutilized.

Planning the Intervention

Context

As described, this large, integrated, not-for-profit health care system in northern California lacks a structured program to align caring science theory and evidence-based HeartMath practices to help nurse executives manage stress and flourish in their role. Nurse executive engagement is critical to advance and sustain established caring science programs and expand evidence-based methodologies that foster authentic connections, nurture caring-healing environments for patients and staff, ensure high quality care, and ultimately retain precious nursing resources.

The regional CNE/VP expressed concerns regarding the high levels of stress the NELs were experiencing related to unrelenting performance and operational pressures. There were also concerns that the NEL group needed the opportunity and time to connect, decompress, discuss, and cope with the loss and uncertainty resulting from unprecedented turnover in the NEL group.

In October of 2015, the system CNE/VP solicited advice from direct reports regarding ideas to provide a value-added education program to complement the annual holiday retreat and celebration for system-wide NELs. There was interest in ensuring the retreat offered an essential respite from the day-to-day stressors, while optimizing group time to strengthen relationship bonds, promote authentic and supportive discourse, and inspire renewal for the leadership journey in 2016 (Bishop, 2013).

In context with the expressed interests of the system CNE/VP, the author of this project, a DNP student and regional operations nurse executive in the organization, proposed an education program that could support healing and renewal for the NELs, as well as address the identified education gap in caring science training since 2008. The idea involved offering a half-day program to include mindfulness and HeartMath training to support renewal and promote resilience within a caring science context. The program would provide an opportunity for the NEL group to establish a new baseline for the basic tenets of caring science and HeartMath techniques to support self-renewal. The NELs have the opportunity to actualize the theory and enhance their ability to thrive in highly stressful environments. The system CNE/VP and the regional directors embraced the concept and agreed this program would be an ideal value-added holiday gift to help the NELs realign to caring science, learn new skills to manage stress, reinforce the importance of self-care, and strengthen resilience and coping skills central to full engagement and sustainability in the role.

Aligning Project Design

The program was identified as a potential DNP project during discussions with the CNE/VP. This approach offered the project leader an opportunity to collaborate with regional leadership and the NEL group to implement a theory-guided, evidence-based quality intervention to address personal (i.e., ontological) and operational learning opportunities. The benefits of this approach included a more organized and systematic exploration of the available evidence and understanding of the role stress plays in the NELs' perceived ability to thrive. Understanding the scope and impact of the problem allowed the NEL to approach stress proactively and apply project outcomes and personal experience to help inform future theory-guided self-care strategies to enhance caring-healing environments and advance best practices with direct reports and care

teams. The CNE/VP agreed that the added structure and potential benefits of the intervention were beneficial and should be discussed with the nurse executives. The proposal and rationale were reviewed with the NEL group during their monthly peer group meeting in October 2015. The discussion led to enthusiastic dialogue and unanimous support for a Caring Science – HeartMath program to be delivered as part of a comprehensive DNP project during the annual holiday retreat.

Key Stakeholders

As a result of discussions and agreements with the NEL group, a list of primary stakeholders for the program was identified and planning for the caring science HeartMath intervention commenced. A total of 28 direct stakeholders were identified, which included the CNE/VP, CNEs, COO/CNEs, ACNE, and regional nurse leaders. Stakeholders were identified as active members of the regional NEL team with an expressed interest in participating in the program. Although, all members were invited to participate in the learning, participation in data collection was voluntary and some choose not to participate or opt out in the planned pre- and post-intervention survey data collection. Secondary stakeholders included senior leaders and the board of directors with no direct involvement in the actual program, but with defined business interests in programs and investments to support NEL retention and improve organizational quality and performance.

Members of the NEL group have both role specific and shared leadership responsibility and influence for organizational performance and practice excellence across the region. A quality intervention (i.e., DNP project) to help mitigate stress and support resilience was deemed appropriate for the entire NEL group versus excluding members based on individual role differences. The NEL stakeholder group is identified in Appendix B: Nurse Executive Leader

Positions.

Communication: Strategic Messaging Map

The strategic messaging map for the NEL program outlines commitment and communication strategy across all levels of stakeholders, including the NEL group, senior leaders (regional and national), and board of directors. The goal was to align the program with organizational core values, while reinforcing the importance of providing support to enhance NEL success, optimal performance, and retention. To the NEL, it communicates a value for his/her personal and professional development and ability to thrive in the organization. This win/win messaging places a high value on whole person leadership to achieve and sustain this goal.

Messaging was deliberately simple and focused on the unique needs and goals of each stakeholder and linked to the organization's mission and vision for total health. The methodologies to communicate the plan were diverse and provided maximum flexibility for each stakeholder, ranging from individual and peer group meetings, conference calls, and email communication to support accessibility, remove barriers, ensure flow of information, and enhance sustained engagement in self-care practices post-implementation (Appendix F: Strategic Messaging Map).

Gap Analysis

New nurse executives lacked institutional context regarding caring science theory, available programs, resources, and the commitments to promote caring-healing environments through theory-guided clinical and leadership best practices. A gap analysis revealed that the regional NEL group had not received consistent or role specific education on caring science integration since system-wide adoption of the theory in 2008. Over the past five years, the

organization experienced significant turnover in NEL, as previously identified. The hiring and

onboarding of new nurse executives over the past year occurred during times of significant chaos

and change, including high turnover and major disruptive events impacting at all levels of the

organization. Orientation and onboarding of 17 new NELs in 2015 was inconsistent and

extended over a 3-month period or longer, as transitions into new roles and operational priorities

competed with broader regional initiatives and system level orientation. There was strong

justification for a structured NEL program to help reinvigorate caring science programs and

advance theory-guided practices, including HeartMath training to promote resilience, enhance

retention, and support transformation of caring-healing environments.

SWOT Analysis

A SWOT (strengths, weaknesses, opportunities, and threats) analysis of the current state

was developed to provide a summary and visual of the organization. The goal was to optimize

strengths and opportunities, while addressing and controlling for potential weaknesses and

potential threats (Appendix G: SWOT Analysis).

Strengths included the organization's strong culture (i.e., ethos) for wellness, self-care,

and total health, as well as established investment in ongoing caring science programs and

HeartMath training to support nurses and care teams. The organization had internal and external

resources to support training and provide follow-up to enhance sustainability. Funding was

allocated each year for an annual NEL holiday retreat, which included a budget for a scheduled

half-day learning session, followed by a lunch and group celebration in the afternoon.

Opportunities existed to strengthen NEL value, knowledge, and understanding of existing

caring science and HeartMath programs to increase awareness and engagement in supporting the

advancement of programs to improve self-care, authentic presence, and stress management

practices with care teams. Offering this program for the entire NEL group provided a unique opportunity for an experiential learning event to actualize the caring science theory through HeartMath methodologies. In turn, this personal knowledge and experience can serve to strengthen future possibilities for the continued integration and spread of caring science and HeartMath programs with direct reports and other areas of the organization. The group experience offers a time to build relationships among NELs, fostering a positive rapport and common language around the theory and emphasizing the importance of balance and resiliency among teams.

The survey was optional, which could limit participation in the project. The other vulnerabilities involved scheduling challenges, competing operational priorities that may impact sustained engagement and consistent adoption of stress management techniques. It is also a half-day program and customized to NELs, reinforcing the importance of follow-up and touchpoints post-implementation to strengthen ongoing use of the practices taught in the program.

Threats regarding continued turnover in the NEL group remain a legitimate risk. There had also been changes in senior level leadership and reporting structures, which posed an ongoing risk of shift in the leadership philosophy, focus, funding, and priorities. Change and uncertainty may have also posed a concern for participant privacy of their survey responses. Participating in the survey is voluntary, so the integrity of the program needed to address concerns of any NELs who may feel obliged or coerced into participation as a result of direct or indirect reporting relationships.

Program Objective

The goal of this program was to support nurse executives on their personal and professional journey, while enhancing their ability to sustain peak performance and thrive in

their roles. The program was designed to provide nurse executives with new knowledge on

caring science theory and HeartMath techniques they can integrate, model, and spread as they

nurture cultures accountable for creating and sustaining healthy work and care environments.

Program effectiveness was assessed through pre- and post-intervention surveys to measure

participant perceptions of defined indicators of human flourishing. Positive outcomes have the

potential to improve NEL perceptions of stress and sustainability. The ability to improve

retention and NEL performance metrics are possible outcomes over time (Appendix H: NEL:

Caring Science/Heart Science Program).

Barriers to Implementation

Potential barriers to implementation of this project were identified as unforeseen

organizational or leadership changes that could impact support and funding for the program.

Shifting operational priorities, unpredictable clinical demands, and continued turnover, as well as

personal challenges, could hinder NEL participation or interfere with their ability to meet

proposed program objectives and timelines. Faculty engagement was crucial, which required

close coordination of program timelines, content development, and planned implementation

dates to ensure project objectives were met. Support resources were allocated and who was

responsible for logistics, materials, and program needs to ensure there were no obstacles to

successful implementation or evaluation of the program. Weekly meetings and close follow-up

were effective in managing potential barriers and needs as they arose to ensure overall project

success.

Resource Requirements

Resources and specific responsibilities to conduct and support this project included:

- Project leader – an ELDNP student with an approved project plan and authority to plan, implement, evaluate, and manage all program related needs.

- Two expert faculty/facilitators, one focused on teaching caring science concepts and the other teaching HeartMath content, both supporting group interactive exercises.

- Program support resource – A person to manage program logistics, including invitations, faculty needs, room reservations, AV needs, program materials, ordering training product, preparing invoices, and ensuring program continuity and flow according to project plans.

- Internal and external consultants – Engaged at the direction and discretion of the project leader and as appropriate to ensure success of the project, including the system CNE, specific internal resources (i.e., finance, human resources), the USF faculty advisor, and content experts in caring science and HeartMath.

Project Controls / Authority / Responsibility

Project controls ensured clear lines of communication, including appropriate authority for decision making and defined responsibilities surrounding project implementation. The project leader was responsible for overall design and final approval for the project budget, planning, design, implementation, and evaluation. Faculty and support resources were responsible for assigned tasks, as approved and delegated by the project leader. Consultation resources, including external subject matter experts, provided input based upon project requirements or as identified by the project leader. It was the project leader's responsibility for project analysis and evaluative summary documentation.

Gantt Chart

Project implementation required advanced preparation, administration of a pre-

intervention survey, and implementation of the 4-hour didactic and experiential program, as well as monthly touch-points and administration of a 6-month post-intervention survey. The total project timeline from concept to analysis and written project spanned an 18-month timeframe. A project Gantt chart was created to serve as a reference guide for program planning and to outline and continually monitor critical milestones (Appendix I: Project Gantt Chart).

Key segments of work were divided into project planning, budgets and milestones, data collection, and post-implementation project needs. A deliverable-oriented work breakdown structure (WBS) was developed for a 4-hour caring science and heart science training program designed specifically to meet the objectives of the program. The overall strategy included significant planning and coordination, which made the deliverable-oriented WBS process well suited for organizing and visualizing the various deliverables associated with each step of the process (Appendix J: Deliverable-Oriented WBS).

The project team worked together to identify the various needs of the program, including key areas and work streams that may have needed to be managed separately yet progress in parallel and ultimately converge into the final implementation date or program deliverable. Project monitoring, scheduled touchpoints post-implementation, and administration of the post-survey at 6-months was managed by the project leader, and project resources were activated as needed or on an ad hoc basis post-implementation.

Detailed Statement of the Intervention

The following areas were identified as key groupings for developing the program and served as the project level descriptors for the WBS.

1. Planning

2. Logistics

3. Content Development

4. Supplies and Technology

5. Attendees

6. Faculty and Staff

7. Budget

Planning. Planning at the project level included forming a team to provide program

oversight and to manage specific deliverables. Project leads were identified for each project level

and the team began to identify and outline the important details for each work stream. Details

were organized and listed and then reviewed by the group to ensure alignment and inclusivity.

Minor modifications were made and flexibility was built into the WBS, as it was not intended to

be static or rigid.

The one element of the program that was fixed was the actual program implementation

date. Scheduling and calendar coordination required availability of training space at a local hotel,

which required contracts, deposits, block sleep rooms, and other essential logistics. Considering

local operational challenges and potential conflicts with existing meetings, scheduling during the

annual nurse executive holiday celebration and regular peer group meeting appeared to offer the

most opportune time to implement the project and ensure optimum attendance. In collaboration

with the system CNE/VP, the date was confirmed and agenda times were identified for

conducting the pre-intervention surveys and the 4-hour training session.

Logistics. To help align calendars and finalize the program plan, the proposed date was

verified with each NEL by email to confirm availability and plans to attend. Additional logistics

included securing hotel meeting space for the target date and ensuring external faculty did not

have conflicts. The logistics were integral to program design, and the details of hotel, meeting

room space, audio-visual equipment needs, coordination of block rooms, valet and parking

needs, and catering options all required formal confirmations. The decisions made at the project

level guided the actual deliverables for each work stream. Hotel contracts and costs related to the

program were critical and required timely negotiations, contract review, invoice processing, cost

center allocation, and final approval so that "save the date" and communication, planning, and

program details could be shared with the NELs and team members. Resources would be onsite

the day of the program to oversee any needs relative to attendee, hotel, room set-up, catering,

facilitation, and last-minute needs that may arise.

Content development. The goals and objectives of the project guided program design

and development of essential content and support materials. This project level outlined each step

of content development, including identification of expert trainers, faculty collaboration,

curriculum and content design, and flexible interactive teaching methodologies that honor adult

learning concepts.

Supplies and technology. The program involved interactive training on a portable

biofeedback device, which consisted of an iPhone application and ear sensor known as Inner

Balance (HeartMath, Boulder Creek, California) and were provided to each participant.

Technology needs included equipment to support PowerPoint presentations, including laptops,

an LCD projector, power cords, and a secure Wi-Fi router. In addition to the technology, poster

boards, marker pens, registration materials, and other teaching supplies were identified,

purchased, and delivered at the hotel prior to the program. Coordination and delivery of supplies

and technology reduced the need for rental or purchase through the hotel where possible and

helped avoid unnecessary program related expenses.

Attendees. The program planners developed a soft touch communication strategy that included early engagement of all prospective NEL attendees to establish ongoing communication regarding program details, logistics, and support. It was important to confirm attendance and identify any individual barriers or needs that could interfere with the NEL's ability to be present and engage fully in the planned program. This approach was also consistent and modeled the relational values of caring science in creating a positive and caring environment for individual and group learning experience (Bishop, 2013). The team wanted the NELs to feel cared for and to help control for any stressors they may be navigating as they adjusted their busy schedules and made plans to attend the program.

Faculty and staff. Faculty qualifications required defined expertise in aligning caring science theory with HeartMath training techniques. Expert HeartMath trainers were contracted to serve as program faculty, facilitators, and content experts for the program, which helped ensure the abbreviated 4-hour program addressed all core tenets of HeartMath teachings and eliminated the potential risks of less experienced trainers (Jamieson & Tuckey, 2016). The project leader and program support staff were onsite to provide faculty support, help with coordinating technology, and ensure smooth transitions for participants between the pre-intervention survey process, implementation, and interactive exercises.

Intervention

Program Implementation

As described previously, a 4-hour NEL Caring Science – HeartMath program was implemented on December 3, 2015. This program provided instruction and interactive learning on the core concepts of caring science and evidence-based self-care best practices based upon the science and stress management techniques developed by HeartMath. The intervention also

included follow-up coaching sessions, monthly touchpoints, and voluntary participation in pre-

and post-intervention surveys. The program overview, agenda, and content outline are provided

in Appendix K: NEL Caring Science – HeartMath Program and Content Outline.

Aligning Theory Content

Program content was focused on increasing NEL awareness of how stress affects the

body and mind and leads to a long list of stress-related symptoms that can include fatigue,

apathy, lack of focus, depression, high blood pressure, and many other serious and harmful

consequences (McCraty & Zayas, 2014). Stress is identified throughout the literature as a critical

issue for all nurse leaders (Sanders, 2015); it has been identified as a source of broken

communication, fractured teamwork, and a major element in sentinel events that resulted in

either serious harm or death (Nixon et al., 2016). The concern is the impact stress has on NELs

who work in challenging environments every day and must cope with unrelenting stress as a part

of their daily routine. The goal was to improve perceptions involving indicators of human

flourishing, which was an outcome measure to determine whether the intervention helped nurse

executives adopt more effective coping strategies and improve personal resilience (Pipe et al.,

2012).

Watson (2008) promotes an awakening of the nurse leader and nurses to the ethical,

moral, and societal imperatives to reimagine care and transform the current sick care approach to

health care to a more whole person, whole systems approach. Her theory of human caring is

central to a professional nursing practice model adopted by many hospitals across the United

States and around the world. Articles published from Kaiser Permanente Northern California

(Foss-Durant, McDermott, Kinney, & Triner, 2015), Mayo Clinic in Scottsdale, Arizona (Pipe et

al., 2012), and Dr. Jean Watson (Watson & Brewer, 2015) help identify current best practices in

caring science and theory-guided practice that support transformation of health care systems and care providers from the inside out.

Alignment of caring science philosophy and caritas processes with HeartMath training focus on increasing resilience through evidence-based mindfulness and stress management techniques that help balance and restore energy levels. Balance is possible through reflective practice, which creates greater opportunities for personal and professional growth, connection, and added meaning (Sherwood & Deutsch, 2015). The link to caring science concepts of self-care, developing authentic trusting relationships, and creating and sustaining healing environments was presented in relation to the caritas processes and HeartMath practices that support leadership effectiveness and sustainability (Goldfisher et al., 2014; Watson, 2008).

HeartMath Learning and Activities

Facilitated group activities, led by expert faculty, engaged participants in exercises to identify energy-draining situations and describe the feelings those situations evoke, as well as the current practices they use to help counteract energy depletion. In contrast, the second facilitated group exercise focused on situations or interactions that participants perceived as either energy renewing or creating feelings of *recharging* one's battery. These activities increased awareness of emotions that can either be energy depleting and energy renewing. The third and final facilitated group exercise plotted different emotions on a grid that helped illustrate the physiologic impact of emotions on hormone levels. Building on previous learning, the counter balancing effects of cortisol and DHEA, as well as sympathetic and parasympathetic responses to stress, were mapped on the grid. Emotions play an integral role in our body's response to stress. Whether energy depleting or renewing, awareness and conscious measures to correct and balance

the hormonal cascade help support resilience and healthier responses to stress (McCraty &

Zayas, 2014).

At the center of the program were two HeartMath techniques to help manage stress and

promote resilience that participants were asked to conscientiously adopt as a regular daily

practice over the next six months and, preferably, beyond. These two evidence-based techniques

for conscious behavior modification and self-regulation included heart-focused breathing and

quick coherence and were demonstrated and practiced by participants during the program.

Heart-focused breathing involves slow, regular, conscious breathing (i.e., inhale for five

seconds, exhale for five seconds), while focusing on the area of the heart and envisioning breaths

flowing in, around, and out of the heart and chest area. This technique is considered the first step

to shift HRV from chaotic patterns to a more coherent state, which has a direct impact on

physical and mental clarity. The second HeartMath technique was quick coherence, which

involves conscious heart-focused breathing coupled with activation of a positive or regenerative

feeling of authentic appreciation, gratitude, care, and/or love. Quick coherence helps harmonize

heart, mind, and emotions to support the physiology of resilience described previously. These

two techniques offer simple, in-the-moment mindfulness practices to help shift and reset

reactions to stress as they arise, while learning to calm the mind and enter a more coherent state

to help mitigate the autonomic cascade of stress hormones (McCraty & Zayas, 2014).

Participants were provided with a personal Inner Balance biofeedback sensor, that when

attached to the earlobe and connected to an iPhone app offered direct visual and audio feedback

on HRV and conscious shifts from incoherent to more coherent states. The techniques and

technology provided during this program are proprietary and licensed. The iPhone application

(i.e., Apple App) is free, and assigned staff helped participants upload to their iPhone just prior

to the program or during interactive group practice sessions. The biofeedback sensor was provided, along with a program guide created by IHM located in Boulder Creek, California. Participants were offered the option to choose either the iPhone or personal computer versions of Inner Balance for use during the program, at work, or at home during their personal practice. Use of Inner Balance was not required to experience the benefits of heart-focused breathing and quick coherence; it was provided only as a complement and added reinforcement to training.

A laminated caritas touchstone card was included in the program materials, illustrating the integration of theory-guided caritas heart practices and HeartMath techniques for caring science in a convenient pocket-sized teaching tool. Participants were informed that they would be contacted to schedule follow-up coaching sessions and monthly touchpoints. A copy of all teaching tools used during the education and training is included in Appendix L: Teaching Tolls.

Monthly Follow-Up and Touchpoints

Follow-up and personal coaching sessions outside the group training were scheduled with each NEL and coach directly. Touchpoints were planned on a monthly basis from January to July of 2016, including one-on-one in person, telephone calls, and facilitated group dialogue during scheduled monthly nurse executive peer group meetings. An external expert HeartMath coach and trainer helped facilitate monthly touchpoints to ensure confidentiality and eliminate potential barriers to open and authentic discussions about individual progress, challenges, and personal/professional learning.

Budget

A budget was developed to support the project over an 18-month implementation plan, including pre- and post-intervention surveys and analysis of the results. Costs related to the program included honoraria and travel expenses for outside faculty. Employee salary costs were

not included, as these were considered integral to their already compensated roles and

organizational responsibilities. Program materials, including purchase of the Inner Balance

device, printing costs, program materials, and survey administration costs, were included. Hotel

expenses included the cost of meeting room space, audio-visual equipment rental, food, and valet

parking for all participants. A block of rooms was negotiated at a reduced rate for CNEs who

may need or choose to arrive the night before the program. Participant travel and lodging was not

factored into program costs, which is the routine protocol for regional peer group meetings. As

outlined, the Gantt and WBS were designed, implemented, and closely monitored to ensure that

the project remained on time and on budget (Appendix I: Project Gantt Chart; Appendix J:

Deliverable-Oriented WBS). Weekly meetings with the project team provided regular

touchpoints with key internal and external program resources and promoted ongoing

communication and opportunities to adjust implementation strategy, as indicated, to ensure

program milestones were achieved. The budget and financial analysis are detailed in Appendix

M: Financial Analysis.

Financial Analysis

Financial analysis and return on investment (ROI) estimates demonstrate significant cost-

benefit in offering this low-cost program to a small group of nurse executives. In consideration

of one sustained NEL in their current role, avoiding turnover could result in a potential cost

avoidance of $119,500. Subtracting the total cost of the program ($17,350) results in a projected

ROI of $102,150. The cost-benefit of the program may be quantitatively assessed based on

improved NEL retention; although, the current project could neither accept credit or attribute

NEL retention to this one small intervention, when so many other variables impact the NELs'

ability or intent to stay in their current role or with the organization. The benefit and opportunity

for this project was related to promoting NEL renewal, resulting from the education and adoption of new personal resilience skills to improve the NELs' ability to flourish in their current role, which may or may not impact retention.

The regional CNE/VP had approval authority for training budgets and approved the budget based on program alignment with regional leadership and patient care services goals. Specific metrics related to the potential impact of the project on NEL retention were not identified, as actual NEL retention targets, turnover, and executive compensation data were not accessible and are not reported in non-executive workforce projections. Obtaining accurate and reliable data on actual NEL salaries, turnover, and demographic data was challenging, which required the use of NEL meeting rosters, contact lists, and other available resources to manually compile and validate data.

The average NEL salary data provided for 2016 appeared low, based on evaluation of more recent NEL compensation and salary bands. The estimated annual salary for a new NEL in 2016 was reported as $239,000 and was used to calculate ROI, replacement costs, and potential cost avoidance related to this project. All participants in pre- and post-intervention surveys were under executive compensation or a single human resource entity in the organization. As a result of this project and financial analysis, new opportunities surfaced to collaborate and identify discrepancies in national workforce planning turnover reports and demographic data, which set the ground for continued dialogue and potential improvements in transparency, tracking, and ongoing reporting of NEL turnover.

The costs related to NEL turnover could be as high as $1.5 million per individual (Srendl & Peng, 2010). Kosel and Olivio (2002) identified NEL replacement costs at an estimated 150% times the annual NEL salary, which included direct, indirect, and intangible losses related to

recruitment, onboarding, salary, and benefit related expenses (Appendix N: Replacement Costs).

Adjusted turnover costs for 2017, using an inflationary calculator, are estimated at nearly $1.7

million, based on an average inflationary rate of 2.11% or cumulative adjustment of 36.69%

(U.S. Department of Labor, 2017). As described, previous losses and escalating NEL turnover

rates in the organization could plausibly exceed $18 million in estimated turnover costs between

2011 and 2017. This estimate was based on the average NEL salary and the more modest 150%

times the annual salary to calculate replacement costs for 52 NELs over a 6-year period. The

total NEL turnover numbers include all categories of separation with replacement, including

voluntary attrition and involuntary terminations, internal and inter-entity transfers, promotions,

interim placements, new hires, and retirements (planned and unanticipated).

The more recent turnover of 17 NELs in 2015, and impetus for this DNP project, could

be estimated to have cost the organization nearly $6.1 million in replacement costs. The average

NEL turnover based on 28 positions across the system since 2011 is 25%, which deliberately

excludes calendar year 2015 as a year with possible special cause variation. When all six years

are averaged (2011 to 2016) and include 2015, the annual NEL turnover rate approaches 31%.

The average annual replacement cost for a 25% NEL turnover rate is $2.5 million each year, and

for a 31% turnover rate, the replacement costs would be $3.2 million each year. Due to

bureaucratic data controls and inconsistent reporting, potential sensitivity of NEL turnover and

replacement costs, and a lack of transparency regarding executive compensation and retention,

there is no way to support or refute these estimated NEL replacement costs. Exit interviews are

not conducted for NELs who separate from the organization, which complicates attempts to

accurately assess specific learning, development, or training needs that might enhance NEL

retention.

Implementation costs related to this program were low and on budget, at less than $18,000. If one NEL participant is influenced to stay as result of developing improved resilience skills following participation in the project, the potential cost avoidance is estimated at $119,500 (Appendix M: Financial Analysis). Turnover costs are typically divided into hard and soft costs, where hard costs are easy to calculate (i.e., administrative costs, severance payouts, recruitment, and onboarding) and soft costs are more challenging to quantify and qualify. Soft costs include reduced operational efficiencies, lost productivity, absenteeism, impact on patient and employee satisfaction, lost expertise, and the potential risks related to loss of reputation (Srendl & Peng, 2010).

Workforce instability in top-level nursing leadership, coupled with high turnover rates, dependency on interim leaders, and prolonged vacancy rates, lead to chaos, uncertainty, increased stress, and decreased operational efficiencies (Segal et al., 2016). Renewal and resiliency programs can support retention efforts and support the expansion of soft skills to help avoid the hard and soft costs related to avoidable NEL separation, recruitment, and replacement.

Ethical Considerations

Organizational approvals for this evidence-based change in practice project were obtained from the NEL peer group and regional CNE/VP in October 2015. A DNP statement of non-research determination was submitted to the University of San Francisco School of Nursing and Health Professions Institutional Review Board (IRB). The project received IRB approval for implementation and exemption as a non-research, evidence-based change in practice project (Appendix O: Statement of Determination).

Invitation and Disclosure

An invitation and participant disclosure statement was presented prior to implementation

of the project and prior to administration of the pre-intervention survey. Essential elements

included clarity around the purpose and design of the program as a comprehensive DNP project.

Participation in pre- and post-intervention surveys was voluntary, and all information, including

demographic, quantitative, and qualitative data, remained strictly confidential.

A sign-in sheet allowed participants to acknowledge their willingness to participate, and

space was allocated to record the last four digits of their social security number. The 4-digit code

would ensure all pre- and post-surveys could be matched for analysis. All personal information

was de-identified, and at no time did the employer have access to individual survey scores. Data

entry and analysis was conducted by the IHM, a not-for-profit, independent research group.

Paper surveys were destroyed following data entry and analysis. All data were shared in

aggregate format only and participants were informed they would be provided the option to see

the results.

Participation in the survey was voluntary and not required to engage in the planned

education and training program. A review of the PICOT question and AIM statement was

provided to participants (Appendix P: Invitation and Disclosure Statement). Opportunities for

questions and concerns were provided and participants were encouraged to reach out to the

project leader at any time. Contact information, including email and cell phone numbers, were

shared.

Key Ethical Concepts

Privacy and confidentiality were respected and protected through controls that ensured

personal information, and individual survey results were not accessible to those not directly

involved in administration, data entry, or analysis. Participants must feel confident and trust that

the principles of privacy and confidentiality remain foremost in the project team's advocacy and

oversight of the survey process.

Autonomy was honored through each individual's right to choose participation in the pre- and post-intervention surveys or to opt out. Free will means personal choices are free of coercion and that reporting structures and organizational hierarchy do not have a role in the learning process or interfere with independent decision making.

Ethical concepts in the project addressed beneficence or the desire to do good, which is a key goal of the project to empower and support NELs to enter into reflective mindful practices that are theory-guided and evidence-based to support wholeness and balance in managing day-to-day stress related to their roles and responsibilities.

The ethical principle of nonmaleficence or to avoid doing harm was embodied in the inclusivity of the intervention to help mitigate stress. Pipe (2012) identified that stress levels in nurses were much higher than anticipated and that denying the intervention to nurses bordered on unethical. Learning from this experience, this project did not identify exclusion criteria and permitted all who wanted to participate and learn HeartMath practices to join in the education and training as a way of helping as many NELs as possible to learn new stress coping skills.

Fidelity involved keeping commitments made to participants, caring for their ability to feel safe and authentically engage in the learning intervention, and serving as advocates to optimize their learning experience and ensure integrity of the project.

ANA Code of Ethics

The American Nurses Association (ANA) Code of Ethics for Nurses with Interpretive Statements, Provision 5, identifies the ethical and moral imperative that nurses owe "the same duties to self as to others, including the responsibility to promote health and safety, preserve wholeness of character and integrity, maintain competence, and continue personal and

professional growth" (ANA, 2015, p. 19). Self-regarding duties include duty to self and the importance of self-care, including the importance of healthy diet, exercise, sufficient rest, maintaining relationships, and engaging in leisure time, as well as attending to spiritual and religious needs. Nurses are encouraged to seek balance, and "it is the responsibility of nurse leaders to foster this balance within their organizations" (ANA, 2015, p. 19). Nurses serve as moral agents and one's duty to self is to express an authentic moral point of view. Wholeness of character requires reflection and discernment. When integrity is "compromised by patterns of institutional behavior … resulting in moral distress, nurses have an obligation to express their concerns and work to resolve them in a way that preserves … integrity (ANA, 2015, p. 21).

Caring Science Ethics

Watson's (2008) practice of loving-kindness toward self and others is central to leading from the heart and embodying unitary caring science through whole person and whole systems leadership. The dynamic process of transforming self through restorative self-care practices provides the necessary energy and clarity required to lead innovation and transformation of toxic systems and unhealthy work environments from the inside out (Watson, 2006). Practicing awareness and consciousness, as well as activating positive feeling and intentions, are integral to HeartMath techniques. These evidence-based self-care strategies help validate caring science and create value for the influence of mindfulness and positive emotions on human physiology and personal wellbeing. As leaders develop trusting-caring relationships, cultivate consciousness, and practice intentionality, they are creating and sustaining caring-healing environments that help nurture self-renewal, harmony, and a deeper sense of purpose (Turkel, 2014).

Integrating the knowledge and science behind the energetics of the human heart allows leaders to remain attentive to the ethical implications of what we hold in our hearts really

matters. Awareness and emotions also impact subtle energetic fields, which affects the surrounding healing environment in either positive-renewing or negative-depleting ways. Positive loving-caring intentions establish an energetic that fosters trust, openness, and receptivity. Authentic presence, modeling, and active listening honors the sacred connectedness and transpersonal relationship that compels caring science leaders to seek out and create caring moments with peers, patients, subordinates, and all members of the care community. Caring science is grounded in the ethics of belonging, human caring, and universal love, and recognizes caring and love as the greatest source of all healing for self and others (Watson, 2012).

Ignatian Values

One of the six Jesuit principles, Ignatian Values is consistent with the philosophy and ethics of caring. The *contemplative in action* actively seeks to see the mysteries, beauty, and presence of God in all things (Otto, 2016). Prayerful and reflective practices seek to move beyond the superficial and into new possibilities to access universal wisdom, compassion, care, and love, which lead to informed moral choices and action. The contemplative is aware of the importance of active reflection and makes conscious choices at regular intervals throughout the day to create and sustain balance, inner harmony, and a connection with higher purpose (i.e., God's will). This fluid and in-the-moment conscious practice is where unity or oneness with God is cultivated, fostering a sense of connectedness, wholeness, and peace (Otto, 2013; Watson, 2008).

Section IV. Results

Methods of Evaluation

The POQA-R4

A tested, valid, and reliable instrument known as the *Personal and Organizational Quality Assessment-Revised 4* (POQA-R4) scale, developed by the IHM, was approved and administered by the project leader for the collection baseline data prior to the program and then repeated at six months post-implementation of the project intervention. The POQA-R4 (Appendix Q) is based on 52 questions from the original POQA-R (Pipe et al., 2012), revised and updated by HeartMath Research Center scientists. A new, empirically validated conceptual framework measures four major scales of workplace quality that directly impact health and job performance. The questionnaire gathers self-report information on socio-demographic and key psychological and workplace elements that contribute to overall organizational effectiveness. This 52-question paper survey utilizes two 7-point Likert scales, ranging from *not at all* to *always* for items 1 thru 40 and from *strongly disagree* to *strongly agree* for items 41 to 52. The POQA has been used in multiple health care organizations and has evolved over the past few decades to help evaluate the impact of HeartMath training on nurses in a variety of settings (Larkey & Hector, 2014).

The project leader managed administration, collection, secure tracking, and final reporting. Statistical analysis was conducted by IHM research scientists using the IBM SPSS Statistics software to analyze useable or matched pre- and post-intervention surveys. The POQA-R4 instrument used for data collection includes four primary scales and 10 subscales that are identified as either positive factors or negative factors, depending on their impact on

organizational performance. A list of POQA-R4 scales and subscales with brief descriptors

includes:

Positive Factors – Enhance organizational performance

Emotional vitality scale – positive emotional energy versus low energy

- Emotional Buoyancy subscale – level of emotional energy to invest

- Emotional Contentment subscale – levels of contentment, inner peace

Negative Factors – Impede organizational performance

Organizational stress scale – organizational impediments and relational discord

- Pressures of life subscale – overwhelmed, pressures work/life balance

- Relational tension subscale – coworker conflict, stressful work place

- Stress subscale – group average standardized score, overwhelmed by various

  sources of stress as whole or stress level over past month

Emotional Stress scale – emotional discord, quality of life, and wellbeing

- Anxiety/depression subscale – levels of anxiety, happiness, sadness

- Anger/resentment subscale – levels of anger, resentment, control feelings

Physical Stress scale – fatigue, poor health, and overall stress

- Fatigue subscale – tiredness, fatigue, and physical exhaustion

- Health symptoms subscale – physical tension, aches, pains, stomach upset,

  rapid heartbeats, and headaches

- Intention to quit subscale – red flag, increased likelihood of quitting

Administration

The baseline pre-intervention POQA-R4 assessment was administered in person just prior

to the start of the NEL Caring Science – HeartMath 4-hour program. The survey was a self-

report paper instrument developed by IHM and, as noted previously, questionnaires were

identified by the last four digits of the NEL's social security number. The instrument is available

in Scantron format, which supports cursory review for completeness and prevents potential

issues with legibility. The questionnaires took approximately 15 minutes to complete and then

were placed in a large envelope, which was secured by the project leader for hand delivery to the

IHM research center in Boulder Creek, California for data entry and preliminary analysis.

Baseline Data

One male and 17 female (n=18) NELs completed the pre-intervention questionnaire,

which offered insight into potential challenges and opportunities to support the group moving

forward. The POQA-R4 provided quantitative and qualitative data, including relevant

demographic data and normative scoring of primary scales and subscales that served as the

baseline assessment for the 4-hour Caring Science – HeartMath program. Demographic detail is

outlined in the post-intervention survey results.

Pre-intervention scores were compared to norms from a large convenience sample of

5,971 health care workers to help place interpretation of the results in a broader context. The

distribution of scores for the normed sample was rescaled to a statistical scale with a maximum

value of 100. Scores of 25 or below are considered low and scores 75 and above are considered

high. The four primary and 10 subscales were reverse-coded to show the degree of improvement

over time and support internal consistency in participant responses.

The initial pre-intervention assessment validated regional leadership concerns that the

NELs were coping with persistent and high levels of stress (group average standardized score of

72%). All four of the primary scales were within the average range, whereas three of the 10

individual subscales were below average. Three negative factors reflected NELs felt they were

being pressed for time (75% *agree* or *strongly agree*), felt fatigued (50% *often to always*), or felt like leaving the organization (8% *agree* or *strongly agree*). Positive factors of emotional buoyancy and emotional contentment reflected that the NELs remained optimistic, motivated, and thankful, despite the high levels of stress (Appendix R: POQA-R4 Baseline Data).

Results

The 6-month post-intervention POQA-R4 questionnaires were administered in person during the scheduled monthly NEL peer group meeting. Focused time to administer and collect questionnaires was allocated on the agenda and took approximately 15 minutes. Completed questionnaires were marked with the last four digits of the NEL's social security number to ensure the post-intervention measures could be matched with pre-intervention results. The questionnaires were gathered in a large envelope, secured by the program leader, and hand delivered to IHM.

In the pre-intervention group, 18 NELs (1 male, 17 females) completed the POQA-R4 survey, and 12 participants completed the post-intervention survey (12 female), for a 66% return rate. There were 12 matched pairs for analysis from the original 18 NELs. The use of the last four digits of the participant's social security number versus a random code prevented issues with recall or matching of pre/post surveys. The decrease in participants and matched pairs in the post-intervention survey was attributed to some fallout, as well as continued turnover in the NEL group, which included a combination of retirement, transfer, promotion, and separation from the organization.

The 12 matched pairs included seven (58%) who were married or partnered. The majority of participants were ages of 41 to 70 (83%), with a diverse distribution: 8% were 31 to 40, 25% were 41 to 50, 33% were 51 to 60, 25% were 61 to 70, and 8% were over 70. All participants

(100%) had a master's degree. Participants report hours worked per week at 41 to 50 hours

(33%), 51 to 59 hours (17%), and over 60 hours (50%). Years with the organization were 50%

less than two years, 8% zero to one year, 42% one to two years, 17% two to five years, 8% five

to 10 years, 17% 10 to 20 years, and 8% greater than 20 years. Participants reported 83% had

been in their position for less than two years, including six months to one year (8%), one to two

years (75%), two to five years (8%), and five to 10 years (8%).

Paired *t*-tests were used as a way to analyze the two-time intervals and difference in

means between pre/post POQA-R4 data. Although, smaller sample size can challenge achieving

statistical significance between matched pairs, statistically significant differences were found for

each of the four primary POQA-R4 scales, including organizational stress ($\rho < 0.05$), emotional

vitality ($\rho < 0.01$), emotional stress ($\rho < 0.01$), and physical stress ($\rho < 0.05$). The pre/post primary

scales are depicted in Appendix S. The POQA-R4 pre- and post-subscales showed statistical

significance in emotional buoyancy ($\rho < 0.05$), emotional contentment ($\rho < 0.01$), anxiety and

depression ($\rho < 0.01$), anger and resentment ($\rho < 0.05$), and health symptoms ($\rho < 0.01$). The pre-

and post-subscales are depicted in Appendix T. Raw score means and paired differences for the

POQA-R4 primary and subscale indicators are outlined in Appendix U.

Practical significance was noted in positive directional improvements in pressures of life,

relational tension, and fatigue. In addition, one participant indicated they intended to leave the

organization in the pretest, but the posttest identified that following the intervention, no NELs

were thinking about leaving the organization. The posttest average standardized score for stress

went from a high of 72 to 39, indicating practical significance in assessing the groups improved

perception of how stressed they felt in the previous month, as compared to the time when the

pretest survey was administered six months earlier (Appendix V: Stress – Group Standardized Score).

The subsets of emotional buoyancy reflected four of the eight questions were scored at 100% in the posttest and the remaining four showed increases, with the question "I wake up and look forward to each day" moving from 58% to 83%. This item is a positive factor in emotional vitality and indicates high levels of emotional energy to invest in their work and personal lives. The subset of emotional contentment showed significant increases in all indicators, including appreciative, thankful, grateful, calm, peaceful, and relaxed. The individual measure for *calm* showed the greatest improvement, moving from 45% to 92% in the post-intervention scores, which was a strong indication of the level of contentment, gratitude, and inner peace that is reflective of unitary consciousness described by Watson (2008).

The emotional stress subscales of anxiety/depression and anger resentment were improved with statistical significance, with the majority of the measures at 0% for those who responded *often to always*. There were changes in every indicator, with the exception of the measure *worried*, which remained at 17%. This indicator is closely linked to sleep and, if the score was higher, may indicate increased levels of anxiety, but the relatively low score and significant improvements in every other measure suggest NELs are not experiencing high levels of anxiety, unhappiness, sadness, and/or depression. The anger and resentment subscale showed seven of the eight questions at 0% in the posttest scores and the measure *annoyed* improved from 33% to 17%. Low levels of anger and resentment indicate the NELs are effective in controlling their feelings and emotions.

The physical stress scale and its subscales of fatigue and health symptoms showed significant improvements. The question of *my sleep is inadequate* is the only measure that

worsened (25% to 33%) post-intervention, which could be related to high levels of NEL

accountability, round-the-clock responsibility, and perhaps ongoing performance demands. All

other measures improved post intervention, including the question *fatigued* (50% to 25%). The

question *exhausted* went from 42% to 8%. The self-report health symptoms were improved in

every question post-intervention, including decreased body aches (36% to 17%); indigestion,

heartburn, or stomach upset (27% to 8%); rapid heartbeats (8% to 0%); muscle tension (42% to

17%); and headaches (17% to 8%).

The organizational stress scale included the subscales of relational tension and pressures

of life. Relational tensions between management and staff went up (17% to 25%), which may

represent ongoing tensions between labor and management. The NELs reported 25% in all three

measures of relational tension. The pressures of life subscale showed improvements in all five

questions, with perceptions regarding having enough time (75% to 50%), feeling pressed for

time (75% to 42%), can't keep up (25% to 17%), balancing time between work and personal

priorities (55% to 25%), and it takes a lot of effort to sustain my performance level (42% to

25%) showing significant improvements. A summary of the subscales and subsets of given items

showing pre- and post-intervention scores is provided in Appendix W.

Organizational Measures

As noted, prior to this study, there was a sudden and striking increase in nurse executive

turnover, with 17 out of 28 (61%) positions affected by transitions or separations in 2015. In the

calendar year immediately following the implementation of the NEL Caring Science –

HeartMath program, NEL turnover dropped to 29% (Appendix A: Nurse Executive Leader

Turnover). In considering the impact of the intervention on retention metrics, it is important to

note that a new system CNE/VP joined the organization in January 2016, just one month

following implementation of the Caring Science – HeartMath intervention. The new CNE/VP

introduced a variety of programs and initiatives to help support and sustain the NEL group,

including continued support for the planned 6-month follow-up coaching and monthly

touchpoints outlined in this project. System-wide changes and focused enhancements to stabilize

the NEL workforce and support their ability to manage stress are important considerations in any

interpretation of broader organizational measures.

Performance measures of interest included the organization's *Hospital Consumer*

Assessment of Health Care Providers and Systems (HCAHPS) ratings. As the most senior nurse,

the NEL is responsible for creating team alignment with the mission and vision of the

organization, while fostering a culture of innovation and accountability that delivers exceptional

levels of quality, service, and patient safety. The HCAHPS ratings offer insight into the patient's

perspective on hospital and nursing care (e.g., nursing leadership and environment); scores

remained relatively flat for 2014 and 2015. Despite high NEL turnover, large scale change

following the implementation of ACA, as well as many other challenges previously identified,

the organization has continued to experience an increase in its performance for "Rate Hospital,

Recommend Hospital, and Nurse Communication". The greatest increase was experienced in

nurse communication, 0.5 points from 90.4 in PY2014 to 90.9 in PY2016 (Appendix X:

HCAHPS Scores).

Qualitative Measures

The program was well received by participants. Feedback on NEL perceptions and

responses to the intervention were captured in the following quotes:

- I feel grateful, calm, and relaxed following the HeartMath exercises.

- It was a renewing experience for me. Thank You!

- I rediscovered that the solution to my stress is all within me.

- I use HeartMath intermittently to help quiet the "noise" and focus on the issue at hand.

- I felt peace and a sense of contentment.

- I am working with our HeartMath trainers to use during staff huddles and at the beginning of meetings to set the intention.

- I feel like myself again!

- It seems we need this type of connectivity within ourselves and with each other.

- It's important to take time for reflection.

- I was able to develop more self-awareness.

- The ability to take a moment to do something for myself that in turn will help me help others is appreciated.

- I feel I am in control of my responses.

Section V. Discussion

Summary

A 4-hour education program was conducted for a small group of NELs to align self-care concepts of nursing theory defined by Dr. Jean Watson with evidence-based mindfulness breathing techniques and stress management strategies developed by HeartMath. A pre-intervention survey (n=18) was conducted just prior to the intervention, followed by a post-intervention survey at six months (n=12). There was a 66% return rate for pre- intervention surveys and 12 matched pairs available for analysis. The program produced statistically significant outcomes in all four primary scales and in five out of 10 subscales designed to measure indicators of organizational and personal performance relative to stress.

Consistent with project aims, outcomes reflected improved nurse executive perceptions of personal indicators of human flourishing, which indicate enhanced stress management, resilience, and sustainability. Although, the sample size was small, practical significance was demonstrated through positive directional improvements in each primary scale and subscale measure. Coping skills were enhanced in the majority of subscale questions, with the exception of indicators for sleep adequacy and tension between management and staff. The improvements in stress subsets indicated that despite improvements in effective coping skills, organizational stress remains an area of concern in the organization. The subscale indicator for *intention to quit* revealed one NEL no longer felt like leaving the organization, which supported ROI and cost avoidance projections related to decreased turnover.

The NELs were fully engaged during the 4-hour intervention and had the opportunity to practice two HeartMath techniques taught during the program. Watson's theory of human caring

(2012) and caring science theory served as the theoretical framework to support interpretation and was very helpful in framing the content for participants around the ethical aspects of self-care, transpersonal relationships, and healing environments. Theoretical concepts were explicitly linked to the science of HeartMath, including open dialogue on unitary consciousness and the energetic fields of love, intentionality, and heart-centered care for self and others. Watson's theory is the professional practice model for nursing in the organization, and this program helped translate the theoretical abstracts into concrete behaviors and actions that help actualize the theory. Increased awareness and direct experiential learning supports the NEL's ability to live consciously and model the theory as a leader, supporting a whole person and whole systems philosophy that is congruent with personal and professional theory-guided practices.

The use of the Inner Balance biofeedback sensor and iPhone app offered visual and auditory feedback on HRV shifts during HeartMath practice sessions. The participants valued the technology and app as an adjunct learning tool, but the device does increase program costs and is not required to practice effective HeartMath breathing techniques. The technology is readily available for future participants who wish to purchase it. Demonstration of the technology can be accomplished with a laptop and projector showing waveforms and emotional responses to chaos and coherence during the program.

Monthly touchpoints between participants and an expert HeartMath coach were considered helpful to support adoption and sustain new stress management practices throughout the 6-month post-intervention phase. Participants' qualitative feedback reinforced the value of ongoing support, with the opportunity to discuss experiences and explore integration in both personal and work life. The impact of the original 4-hour half-day program was enhanced by the coach and added value to help optimize project outcomes.

The increased visibility and support of both caring science and HeartMath integration was further enhanced by monthly NEL peer group meetings and dedicated time on the agenda for the expert coach to check in with the group, share a reflection, lead a group HeartMath breathing exercise, offer an inspirational story, and celebrate NEL success stories. The supportive climate developed by the new regional CNE/VP and entire NEL peer group was both encouraging and validating regarding the ethics and value of self-care in order to better care for others and the importance of renewal to strengthen resilience and sustain performance, even in the most stressful environments. There was also a sense of connection and community among the peer group as a result of the program, with continued dialogue on caring science and HeartMath, where NELs were able to authentically engage, nurture positive collegial relationships, and demonstrate care and compassion for one another.

The significance of the program is related to the demonstrated improvements in NEL indicators of human flourishing and positive feedback on the impact of the intervention on personal practices to help manage stress more effectively. The program focused on supporting renewal and building resilience, as well as a practical retention tool. The content is transferable and consistent with established theoretical foundations for professional practice, and HeartMath best practices support the organization's commitments to health promotion, prevention, and wellness.

Through support of healthy, fully engaged leaders, who practice and model effective stress management in the organization, self-care education transitions into essential leadership practices (i.e., the quadruple aim) that enhance personal resilience and organizational performance. Creating and sustaining healing environments supports whole person engagement and authentic caring-healing relationships between leaders and care teams, which foster optimal

caring-healing environments for patients, families, and the community. The benefits of an

abbreviated, low cost, and adaptable stress management intervention, with good outcomes,

justifies the spread of these programs in internal NEL orientation, nurse executive fellowship

onboarding, leadership development programs, and potential transferability outside and beyond

the organization.

Interpretation

Demographic measures revealed a sample of 12 females (no males), each with a master's

degree, and an average age distribution that is reflective of the broader NEL group. The

demographics identified a high percentage of newer NELs, who were also new to the

organization. In addition to the complexity and stress of a large health system, NELs hold highly

stressful positions with round-the-clock responsibility for local and/or regional operations and

patient care. Internal support networks develop over time, and 42% of the participants were

single, divorced or widowed, indicating social and support networks may be underdeveloped. All

participants worked beyond a 40-hour work week, with 50% working over 60 hours a week,

which reflects some of the anticipated stress-related risks associated with the NEL role in

maintaining work/life balance, the need for easy/flexible self-care practices, and the importance

of social/support networks at work and home, as described in the evidence (Hudgins, 2016).

High scores in the two subscales of emotional buoyancy and emotional contentment

indicate participants have the energy and positive emotional state required to navigate

complexity and thrive in stressful environments. The NELs' appear to be managing their energy

and their responses to emotional vitality indicate improvements in resilience, which Bishop

(2013) identified as vigor and essential to sustainability. This is consistent with the themes

described by Prestia (2015) that included the driving force or energy found in successful CNEs

included a deep love of the profession, innate passion, clear identity as a nurse, and sense of pride. McCraty & Zayas (2014) described calming the mind as one of the key behavioral shifts that help mitigate stress and support coherence, smoothening of HRV, and decreased autonomic stress response. Accessing and activating these positive indicators in the moment (i.e., calm, gratitude, appreciations) supports both state and trait mindfulness and can be taught through mindfulness training, according to Jamieson & Tuckey (2016).

Bishop (2013) identified that work engagement can be enhanced by building work environments that support both a sense of belonging and opportunities to decompress, as well as build positive working relationships. As described, the structure of the learning intervention as a cohort for NELs to come together during a retreat allowed for group discussion about organizational and personal stress, coping strategies, and shared learning on how the integration of caring theory and HeartMath builds resilience. The group developed a sense of cohesiveness and comradery that has endured well beyond the program. There were several new NELs, and their ability to bond and learn together appears to have strengthened the working relationships and collaboration and allowed caring science and HeartMath practices to expand within the monthly peer group meetings and in individual work settings. Learning was focused on enhancing individual coherence, but group coherence appears to have been a value-added benefit of the NEL cohort style learning intervention.

Fortney et al. (2013) reported that abbreviated mindfulness interventions can offer significant reductions in measures of burnout, depression, anxiety, and stress. These findings were consistent with findings from this DNP project, including the benefits of offering a low cost, modified, time efficient intervention that communicates caring for colleagues and supports caregiver wellbeing and quality of life. Fortney et al. identified that it was possible to obtain

long-term results with short-term training in the basic principles of mindfulness. A caring

approach to training and peer support were identified as consistent with mindfulness teaching

and practices. Jamieson and Tuckey (2016) also recommended that abbreviated programs be

taught by expert faculty to ensure content is structured and adheres closely to core principles of

mindfulness training. These findings and recommendations support the development and design

of the NEL program, including ensuring it was taught by expert HeartMath trainers.

Setting the learning environment as a cell-free zone and offering the program at an off-

site hotel helped provide planned time away from the pressures of work and prevented

unnecessary interruptions. The NELs were able to engage without distractions in a structured

stress-free zone. The outcomes of the 4-hour abbreviated NEL program, as well as monthly

touchpoints and access to a personal coach, offered both short- and long-term benefits reflected

in pretest and posttest scores and qualitative feedback from NELs. Fortney et al. (2013)

identified the lack of available evidence and programs to actively address stress as it relates to

personal wellness and quality of care. This gap regarding available literature was experienced by

this scholar and reinforces the need for further research and new evidence on the subject of

mindfulness training to improve wellbeing and manage stress.

Ingwell-Spolan (2016) described nurse executive group perception as being in a constant

battle and living under constant financial stress, which many articles supported. Baseline data

from multiple studies offered consistent concerns regarding unanticipated and excessive levels of

stress reported by care providers and nurse executives (Fortney et al., 2013; Hudgins, 2016; Pipe,

2009; Pipe et al., 2012). Pre-intervention assessment of NELs revealed persistent and high levels

of stress, as well, which was reduced dramatically in the post-intervention outcomes identified

previously. These findings support the importance of addressing stress early and often, planning

and proactively supporting improved screening for resiliency skill sets during interviews, and integration of stress management programs in new employee orientation and professional development programs. The spread of caring science and HeartMath programs is an ethical imperative and compassionate act for health systems leaders.

Prestia (2015) identified that key elements to sustain nurse executives were related to maintaining an optimistic attitude, conscious strategic thoughts, and acting in ways that reflect one's own values. The combination of caring science and HeartMath reinforced the connection between professional practice and an ethic of care, compassion, and healing with an evidence-based mindfulness intervention focused on self-awareness, conscious shifts to more renewing and positive thoughts, and fostering inner peace as a source of healing for self and others. The NELs are leaders, but foremost, they are nurses with a deep passion for the profession and desire to make an impact on quality patient care. The purpose of basing the HeartMath intervention in a caring science framework was to help NELs rekindle the source of their inner energy as a caring, compassionate, and committed nurse leader. This inner energy is what helps NELs stay connected, strive for equilibrium between care and value, and remain open to new ways of leading, motivating, and inspiring teams to care more, not less. Prestia identified that the wise and successful NEL grasps early on that the journey to inspire and sustain others begins with self-first and then radiates outward. This wisdom was an important element in the genesis of the initial NEL Caring Science – HeartMath program.

Pipe et al. (2009, 2012) based mindfulness programs within a caring science framework, believing it helped reconnect caregivers and leaders to a stronger sense of purpose. Caring science provided an ethic, a language for caring, and a moral compass anchored in consciousness, intentionality, compassion, balance, and love. A unitary transformative paradigm

helps open the heart and encourages connection versus separation and creative solution seeking versus despair. The link between caring science and HeartMath is the ability for the NEL to pause, reflect, and look at the seemingly endless disconnects and stressors in the health care system through a different lens. The benefits of bringing the theory into mindfulness training is to help move beyond the tasks and linear steps of conscious breathing into a more meaningful journey of self-discovery, which was conveyed beautifully by the NELs in their own words following the program.

Limitations

Limitations of this study include the relatively small sample size and sample selection bias that poses potential nonrandom error. As a non-research project, the lack of random sampling methods limits generalizability of results. Survey analysis was based on aggregate data obtained through self-report questionnaires and, as a result, may not entirely reflect individual attitudes, feelings, or behaviors. The results of this pre-and post-survey may or may not have been affected by organizational initiatives running concurrently, which necessitates appropriate caution in interpretation.

The intervention was intended to offer new stress management strategies to NELs working in high stress environments, which was observed by high levels of stress reported in the initial NEL baseline data. A simple pre-and post-survey did not involve control groups, which could have limited access and presented ethical concerns deemed unacceptable.

Participation was voluntary, which allowed for more tenured NELs to opt out of the pre- and post-survey. The majority of NEL survey participants had been with the organization for two years or less, which could reflect increased receptivity in the newer NELs related to the new role, new organization, and sustained high levels of stress during their transitions.

Conclusions

Opportunities to build upon this Caring Science – Heart Math program include integration of concepts and personal coaching as integral to new NEL orientation. In early 2016, several new NELs were hired, and the regional CNE/VP supported personal teaching sessions and 1:1 coaching for all new NELs moving forward. The new personalized orientation has been positively received, and one of the NELs has already attended a formal Caritas Coach Education Program and HeartMath Trainer program. Booster programs have been provided for NELs and leadership teams to augment and sustain stress management teachings, including innovative programs on micro-resilience and a 2-day retreat working with equine experiential learning experts to practice subtle awareness and deeper forms of leadership, guidance, and heart-centered communication with horses.

The organization had a 10-year history of caring science and HeartMath programs and established groups of trainers who remain deeply committed, but tragically under-utilized. Caritas coaches, HeartMath trainers, educators, nurse researchers, and leaders at the highest levels of the organization were committed to spread and embed caring science across the organization, as outlined previously. Continued turnover in leadership at all levels of the organization, including the loss of senior leaders who valued and supported the launch and integration of caring science and HeartMath programs, is a legitimate risk. Efforts to reengage existing caritas coaches and HeartMath trainers are already underway, helping connect, organize, and mobilize these resources in more impactful ways across the system.

The ability to demonstrate value and track ROI for self-care programs is essential to program sustainability. Continued spread of caring science and HeartMath programs is dependent upon continued commitments and essential funding from senior leaders to ensure

programs remain viable and connected to professional practice and long-term business objectives. New senior leaders bring new philosophies and previous experiences, often lacking context or a broader perspective of the existing culture, and seek to establish their own legacy in the organization. This project provides added evidence for continued support from senior leaders and offers quantifiable and qualitative outcomes that can be shared across the organization and beyond nursing. Establishing exit interviews would enhance and improve current tracking and reporting of relevant data regarding NEL turnover in the organization. The plan for sharing the results of this study include internal presentations to the NEL peer group, senior level leaders, and caritas coaches/HeartMath trainers. The opportunity to share appropriate results through publication or podium presentations could help fill the void in available evidence and support expanded research on caring science, HeartMath, and mindfulness stress management interventions for NELs and others outside the organization.

This Caring Science – HeartMath project for NELs was an extension of the organization's longstanding caritas leadership conspiracy of sorts, which involved a commitment to transform nursing leadership to more evolved concepts of whole person-whole systems thinking and practices one leader at a time. A bold vision of authentic leadership strives to facilitate the shift from outdated industrial, militaristic, and often dehumanizing leadership models to more humanistic quantum caring dimensions for creating and sustaining healing cultures energized by consciousness, optimism, and compassion that engenders hope and infinite new possibilities.

The hope for this project is that the caritas conspiracy will continue to thrive through a newly expanded group of NELs who have experienced the personal and professional impact of caring science and HeartMath programs. Several of the NELs have already made deliberate

efforts to revitalize caring science and HeartMath programs with their direct reports and care

provider teams. The goal for current regional leadership is to sustain NEL engagement, fuel their

passions for the work, and support their efforts to sustain positive momentum for personal and

system transformation from the inside out.

Section VI. Other Information

Funding

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Section VIII. Appendices

Appendix A

Nurse Executive Leader Turnover

Percentage: Annual and by Position

Year	Regional CNE/VP (n=1)	Local CNE (n=14)	Local COO/ CNE (n=5)	Local ACNE (n=2)	Regional EDir/Dir (n=7)	Annual Turn-over	*Total Turnover % by Year
2011	0	4	1	1	0	6	21%
2012	0	3	1	0	2	6	21%
2013	0	8	1	0	0	9	32%
2014	0	5	1	0	0	6	**21%
2015	1	10	2	0	4	17	*** 61%
2016	0	5	1	1	1	8	29%
Turnover by Position	1	35	7	2	7		
% by Position	100%	250%	140%	100%	100%		

*Total turnover by year based on an average of 28 FTEs/year over a 6-year period.
**New regional senior vice president(s), opening of 3 new hospitals.
***post system-wide labor/strike activity, post implementation ACA-covered CA, turnover regional CNE

Appendix B

Nurse Executive Leader Positions

Year	Regional CNE	Local CNE	Local COO/CNE	Local ACNE	Regional EDir/Dir	Annual Total FTEs
2011	1	14	5	1	7	28
2012	1	14	6	0	7	28
2013	1	14	6	0	6	27
2014	1	15	5	1	6	28
2015	1	14	5	1	6	27
2016	1	15	4	1	9	30
Avg. FTEs by Position	1	14	5	1	7	28.0

Regional and Local FTE Count: Annual and by Position

Appendix C

Evaluation of Evidence Table

Citation	Conceptual Framework	Design Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Study Strengths-Weaknesses	Level (L) and Quality (Q) Rating*
Bishop, 2013	Mid-range theory. Schaufeli and Bakker's theory on work engagement with Boykin and Schoenhofer's theory of Nursing as Caring: A Model for Transforming Practice. Care of self is central to possibilities of caring for other, to be fully engaged, deepens relationship with others, reconnect to purpose, creates an organizational culture that values caring.	Mixed methods, both qualitative and quantitative measurements - determine the impact of caring-based program on improving engagement in older nurses. The timing was sequential and the design was transformative (sequential with theoretical focus).	Nurses 45 years or older (avg. age of RN in community), at the bedside 5+ years. Retirement risk. Sample 141 nurses, non-profit community medical center. 19 individuals recruited – respondent driven sampling. 3-day retreat – 8h days. Compensated and consented.	**Quantitative measures – work engagement.** Vigor: levels of energy and resilience, willingness to invest, not easily fatigued, persistence in face of difficulties. Dedication: sense of significance of one's work, feeling enthusiasm and proud, inspired and challenged. Absorption: immersed in work, difficulty detaching from work. **Qualitative** – appreciative inquiry: reflect, share stories,	Work engagement pre-intervention and post-30 days. 17-item Utrecht Work Engagement Scale – Work and Well Being Survey. 7-point Likert scale ranging from 0 (never) to 6 (always). Qualitative: 7 themes identified – focus group transcripts.	**Quantitative**: 17 participants completed pre- and post. Paired t-test was used (blinded) to measure changes. The Statistic Package for Social Sciences (SPSS incorporate 2010) was used to conduct descriptive statistical analyses. **Qualitative:** Focus groups (60 days post intervention) determine effect of program, taped and transcribed. Analysis to identify themes using first cycle coding method.	**Quantitative:** Demonstrated when older nurses have opportunity to spend time and reignite their spirit of caring they experience greater levels of work engagement. **Qualitative:** Themes identified: caring for one's self, reawakening the spirit of nursing, changes in views on caring for patients and families, changes in how I view work and my colleagues, concerns for the future, leaders taking	International database of engagement records of over 20,000 participants. Structure of dialogue regarding concepts of caring for personal and professional care – rekindle purpose, reaffirm core values. Relational focus. Limited to older nurses. Potential bias. Study has applicability, but not generalizabil-ity. Costs and time for program – feasibility. Unintended outcome need	L: III Q: B

							time to care. Value in coming to know colleagues and leaders.	to evaluate 12h shifts for older nurses	
Fortney et al., 2013	Pilot study: Abbreviated health mindfulness intervention with 20-year history of facilitating mindfulness-based stress reduction (MBSR) developed by Jon Kabat-Zin (Univ. MA) – well-researched as healthy way to manage stress. Various meditation styles, mindfulness focused on meaning and purpose. Best practice for mindfulness meditation chosen.	Single sample, pre-post design at 4 points in time (baseline, 1 day, 8 weeks, and 9 months post intervention). Volunteered to participate. Telephone screening interviews conducted to ensure participants met inclusion criteria (employment as primary care, working 50% in direct patient care, availability to attend all or most of intervention sessions, and agreement to complete 15-30-minute online survey 4 times). Pre-work assigned to prepare participants for	University setting from departments of family medicine, internal medicine, and pediatrics. 30 clinicians enrolled in an abbreviated MBSR course.	Variables included: perceptions of job satisfaction/ professional burnout syndrome (emotional exhaustion, depersonaliza-tion, and lack of personal accomplish-ment, quality of life (measures of resilience, the ability to recover from adversity), and compassion (focused on caring for others, concern, tenderness, and orientation toward supporting, helping, and understanding others).	Validated and reliable (brief) tools used worldwide Maslach Burnout Inventory (MBI), a 7-point Likert scale ranging from never to every day, the Depression Anxiety Stress Scale-21 (DASS-21), 21 questions 4-point Likert scale ranging from not at all to most of the time, the Perceived Stress Scale (PSS), 10-item, 5-point Likert ranging from never to very often, 14-item Resilience Scale (RS-14), 14 item, 7-point Likert measuring extent participant agreed or disagreed, and	Statistical analysis: descriptive analysis, mean and median tests, study outcome data analyzed with linear mixed effects models, adjusting estimates for missing data points, time dependencies modeled with AR(1) autoregressive error structure. Baseline data were compared subsequent surveys, allowing for estimates in changes in out-come measures during post-intervention period and ascertain whether changes persisted in 9-month follow-up. All analyses were conducted with	All 30 participants completed the baseline, one withdrew from the study. Percentages of participation were provided for each survey. Study sample (N = 30) was compared to normative sample (N = 11,067) and outcome scores for each survey were compared to baseline. Overview of findings: High levels of burnout syndrome, significant decreases in levels of emotional exhaustion from baseline. Increase in personal accomplish-ment, significant reduction in	Small single sample. Multiple surveys required to evaluate different variables. Few programs to address clinician burnout. Supports need and importance of additional research, including randomized controlled trial is needed to confirm findings. Statistical significance related to small sample size. No control groups. Generalizabil-ity is limited. Abbreviated version is relatively low cost, collegial, time-efficient way to improve well-being and manage	L: III Q: B

		abbreviated session.			the Santa Clara Brief Compassion Scale (SCBC), 5 questions, 7-point Likert extent statements are true for them not at all for me to very true of me.	SAS version 9.1 for Linux (SAS Institute Inc.).	perceived stress from baseline after the intervention on all 3 follow-up surveys. No significant change to resilience or compassion over time.	burnout symptoms. Demonstrate potential benefit of programs to improve work satisfaction, quality of life, and patient care within a demanding profession.	
Hudgins, 2016	Polk (1997) synthesized resilience literature to describe a resilience model and mid-range nursing theory that is multi-dimensional and describes 4 patterns found in resilience literature. 1. Dispositional (ingrained psychosocial attributes that demonstrate resilience) and 2. Relational patterns that support resilience. 3. Situational patterns are experience of individual that create resilience opportunities. 4. Philosophical pattern belief	Quantitative and descriptive study design used to investigate the relationship between variables of resilience, job satisfaction and turnover in nurse leaders. Using G*Power analysis program to demonstrate statistically relevant finding, a minimum sample size of 82 respondents was recommended. (alpha 0.05, power 0.80, and effect size 0.30). Participants	Voluntary participation of nurse leaders, Convenience sample of 495 nurse leaders of multi-hospital health care organization in VA, serves 18 counties, 6 cities, and serves over 1 million patients annually.	Resilience operationally defined as the total cumulative score on Connor-Davidson resilience scale (CD-RISC), job satisfaction (JS) and anticipated turnover operationally defined as total score on the anticipated turnover scale (ATS). Job satisfaction and anticipated turnover from current position.	CD-RISC, a single-item job satisfaction scale, a 25-item scale, 5-point scale ranging from not true at all to true nearly all of the time. Job satisfaction (JS) defined as respondents' answers to survey question: Please rate your satisfaction with your current nurse leader job. Anticipated Turnover Scale (ATS). Job satisfaction measured on 7-point Likert scale ranging from strongly	Descriptive statistics used to analyze demographic data. Reliability and validity of instruments was demonstrated. 89 completed surveys, response rate of 17%, all hospitals represented. Detailed analysis included: Mean job satisfaction score was 3.5 on 5-point Likert scale.	Results reflect a sample of nurse leaders who are not likely to remain in their jobs and view themselves as resilient. Implications for nurse leaders: statistically significant relationship between resilience and anticipated turnover. Nurse leaders were satisfied with their job, but not highly satisfied. Increased job satisfaction has direct relationship to anticipated turnover. Significant relationship	Low survey response rate, high number of "decline to answer" responses, study viewed as preliminary, and replicated study should be considered to validate current findings. Corporate email system was used, which may have hindered responses. Single satisfaction question, while functional, limited depth of understanding related to leaders' job satisfaction. Future studies may consider complexities of job satisfaction	L: III Q: B

one can find positive meaning in life experience. Polk's theory considers science of nursing and resilience share theme that people are more than aggregate sum of individual parts, i.e., integrated being.	had 14 days to complete the survey.			disagree to agree strongly.		between resilience and job satisfaction. Resilience plays a vital role in enhancing job satisfaction and mitigating anticipated turnover for nurse leaders.	construct. Reinforces the relationships between resilience, job satisfaction, and anticipated turnover or intent to remain (ITR). Integrated Polk's theory and concepts for nurse leaders to consider regarding developing personal, team, and leadership resilience.	
Ingwell-Spolan, 2016	Moustakas's transcendental phenomenology approach, guided by a naturalistic inquiry paradigm.	Phenomenolo-gical – qualitative study explored the professional lived experience of the CNO to gain better understanding of how CNOs demonstrate being the professional (point of care) nurse's lead voice.	CNOs from FL, KY, and TN (2 male and 8 female) 10 or more direct reports. Interviews were conducted. Demographic detail provided.	1 primary theme (challenging) and 3 essential themes (battling, morphing, and relating) were identified. Themes emerged and were discussed during interviews. Narratives defined individual perceptions of battling, morphing, and relating. This study focused on "battling"	Measurement was through review of discussions and reflection on the interviews conducted.	Analysis was through careful and studied consideration and interpretive analysis of the phenomenon being studied – themes were identified. CNO perceptions were summarized and aligned to themes.	Perceptions of those CNOs interviewed are that they are in a daily battle, finance, business, and clinical demand. Stories and comments reflect lack of CNO preparation for role, disproportion-ate financial focus, diminished value for clinical caring language in C-Suite, focus on	Small sample size. Insights are limited, but informative regarding stressors and psyche as expressed by a small group of CNOs. Themes listed, but not well defined, leaving gaps. One theme "battling" was the focus of this article. Solutions were limited to education, but do not address culture from C-	L: III Q: C

			and associated narratives.				hierarchy, conflicted priorities (i.e., care, finance, business), pressure to perform, clinical matters are discussed or decisions made without their involvement, constant change, battling hinders quality care, development is important to find solutions and affect the work environment. The leadership of the CNO is vital for creating a culture that supports excellent patient care and quality services.	Suite down. Implications identify need for addressing gaps in lived experience to meet value-added demands of healthcare today (ACA) and focus on quality for success. Implications for onboarding and professional development of CNOs. Lacks focus on coping skill sets. Results are highly subjective and not generalizable	
Jamieson & Tuckey, 2016	Summary, analysis, & recommenda-tions obtained through systematic review provide a framework to assist the progression of research on mindfulness	Systematic literature review examining role of mindfulness interventions and how they could be improved in the workplace. Review also	Research from diverse fields included in review via multiple search engines. Search terms included "mindfulness" in the title and combination of job, employee,	Inclusion criteria included primary empirical studies, published in English, in peer review journal, reporting relationship between	Summaries provided in table format. Studies were grouped according to mindfulness intervention implemented.	Analysis included identifying the most common mindfulness interventions, which was mindfulness-based stress reduction (a total of 30 or 75%) or a	Modifications in mindfulness programs must be thoughtful or effectiveness may be compromised. Programs need to be tailored to the facility and cost effective. Risks of	Extensive review of value to educators and practitioners seeking best practices to teach and evaluate effectiveness of mindfulness interventions.	L: V Q: B

	interventions in the work context.	addresses research from diverse fields to generate accurate and complete picture of existing work on the topic. Snowballing method captured additional studies, cited in the first pool of articles.	occupation in abstract or body of article. 787 articles identified for potential inclusion, 40 articles chosen.	mindfulness intervention and at least one measure of employee psychological health and well-being or organization-ally relevant outcome, within a sample of working participants. Expanded to include teaching and healthcare to provide more complete and accurate picture of current literature. Mindfulness is defined as being attentive to and aware of what is taking place in the present.		modification. Sample sizes ranged from 11 to 257 participants. Follow up intervals were between 2 weeks and 12 months. Recommenda-tions were identified to inform practitioners and support future research. Analysis included key areas of concern and provided a table with recommenda-tions to address.	inexperienced trainers was identified, ensuring proper training. Value of controls and variation in studies could support benefits for employees and organization. Programs should include work and personal benefits through repeat measurements. Participant satisfaction with intervention can guide modifications to improve engagement. Data triangulation, involving various forms of measurement versus self-report alone improves validity. Looking beyond health and well-being to job satisfaction, conflict management, etc. and	Detailed review and summary with tables to help share learnings from diverse programs. Organized and logical recommenda-tions.	

							evaluating organizational criteria (retention, absenteeism, productivity, burnout, etc.)		
Pipe et al., 2012	Jean Watson's Theory of Human Caring. Watson's theory emphasizes self-care for self and others as a means of promoting a more healing environment.	Non-experimental pre-test/post-test design. Pilot study evaluating the personal and organizational impact of an educational intervention on the stress of team members. Intervention to test approach to positive coping and resilience to teach individuals recognition of stress symptoms and apply learned skills to counteract negative effects.	Phase 1 pilot consisted of staff, primary nurses, on specified inpatient units (oncology) (n=63) and a selected group of clinical managers, supervisors, and educators from the hospital and ambulatory clinics (n=37). Voluntary participation and research aspects of the study were explained in first education session. Two workshop sessions, 5h course and second 2h session building on basic techniques. Phase 2 was a train the trainer session to teach select	Inclusion criteria was employment and working on the unit or in positions specified. No exclusion criteria identified. Examples of self-reported changes in 24 categories - variables include: Personal: fatigue, anger management, distress, and vitality; Physical stress symptoms: inadequate sleep, body aches, rapid heartbeats; Job related stress: satisfaction, productivity, clarity, communica-tion, and social support.	A validated assessment tool created by HeartMath Institute to provide an overview of personal and job-related constructs. The Personal and Organizational Quality Assessment Revised (POQA-R) tool was administered in pre- and post-intervention surveys. An 80-question survey measuring stress symptoms, psychological health, resilience, emotional competencies, organizational climate, and work performance. 7-point Likert scale ranging from not at all	The POQA-R was analyzed as a single instrument with subscales that relate to personal and organizational aspects of stress. The 80 items were grouped into constructs for purposes of helping translate the results into meaningful, actionable findings. The first group of 63 participants yielded 29 matches for pre-post analysis and the leadership group (n=37) provided 15 matches. There were three measurement intervals, baseline, 2-week, and 7-month post-intervention.	There were statistically significant differences (p<0.001) found for each of the personal indicators (positive outlook, gratitude, motivation, calmness, fatigue, anxiety, depression, anger management, resentment, and stress symptoms). Top five metrics for oncology nurses were: work attitude, manager support, goal clarity, communication effectiveness and intention to quit. Leader top five included: personal indicators of gratitude,	Sample size was relatively small. Sample selection bias and sources of nonrandom error were also potential limitations. Participants were not randomly assigned to control or treatment group. Future opportunities to collect physiologic data to enhance self-reported outcomes. Positive impact of the intervention on personal and organizational indicators of stress. Differences in results between oncology and leadership groups. Watson's Theory helpful in	L: III Q: B

| | | | employees to teach the intervention and support internal sustainability. | | to always and another scale disagrees or agrees with a particular statement ranging from strongly disagree to strongly agree. | | fatigue, depression, anger management, resentfulness, and stress symptoms. Organizational metrics included improvements in turnover (down from 13.12% to 9.8%), employee satisfaction scores improved, and patient satisfaction organization-wide showed improvements in key indicators. Results were interpreted with caution, since other initiatives were in place. | communicating impact of intervention on self-care, healing environments, and impact on others. Program is feasible and effective to address stress and promote well-being. | |
| Pipe et al., 2009 | Jean Watson's Theory of Human Caring guided the study, supports nurses in caring for self and others, resulting in compassionate leadership. | Randomized controlled trial (RCT) designed to rigorously evaluate a condensed 4-week mindfulness-based stress reduction (MSBR) on outcome | 33 nursing leaders from healthcare system (208-bed hospital) in southwest United States. Supervisory level and up. Clinical leaders in positions and active membership in | Major variables studied were stress, anxiety, and depression. Definitions and descriptions for each dimension in the SCL-90-R subscales were provided in a table. Inclusion criteria | Symptom Checklist 90-Revised (SCL-90-R). Self-reporting inventory 9 primary symptoms. 5-point Likert scale ranging from not at all to extremely. Chronbach α | Statistically significant improvements in 10 of 14 measures, including depression, anxiety, positive symptom distress index. Caring efficacy increased over | Self-nurturing interventions taught in a short MSBR program can positively impact compassionate leadership, helping leaders be more resilient and effective. | Low cost, workplace approach, was successful in impacting the outcome variables in a short 4-week time period. Because of severity of stress, anxiety and depression | L: I Q: B |

| | | measures of stress, depression, anxiety, and caring efficacy over time and as compared to a control group.

The original design was a longitudinal (12-month) RCT, with measures at baseline, 4 weeks, and 1 year. This study was limited to 4-weeks due to the severity of baseline scores in the control group, who received the MBSR training after the 4-week measures were taken. | formal leadership council. | included employed full time, able to speak English. Exclusion criteria included previous participation in an MBSR program and any health conditions that would limit participation (severe unassisted hearing loss, psychiatric disorders, malignancy and active infectious disease). | [alpha] coefficients range from .76 to .86, instrument tested, valid and reliable.

Caring Efficacy Scale (CES) in 30-item self-reporting instrument designed to assess confidence (efficacy) about ability to express caring orientation and establish caring environment with patients. 6-point Likert scale with responses ranging from strongly disagree to strongly agree. CES found to have high levels of internal consistency and content validity. | 4 weeks, no statistically significant change from baseline with CES post intervention. | Prevalence of stress much higher than anticipated or when compared to norming samples based on large population data. Consistent with caring science, mindfulness meditation as self-nurturing, intentionally focuses on perception rather than on the source of stress and can be useful regardless of source of stress. Implications for administrators to acknowledge intense and chronic nature of stress, explore feasible ways to employ stress-management techniques into moment-by-moment living, and exerting leadership influence to create organizational environments | baseline scores, the original plan for longitudinal (12-month) randomized, controlled trial was abandoned (deemed unethical to withhold). Outcomes offer added support to literature regarding value of MSBR training. Additional studies may compare 4-week to 8-week MSBR program. Weaknesses included limitations in the ability to monitor actual meditation practices, restricted generalizability due to selection bias (recruiting motivated nurses), relatively small sample and lack of long-term comparison to assess durability differences | |
|---|---|---|---|---|---|---|---|---|

							supporting health stress management.	between groups.	
Prestia et al., 2015	Ray's Theory of Bureaucratic Caring, Authentic Leadership Theory, and Resiliency Theory	Qualitative study using interpretive phenomeno-logical analysis. The purpose of this study was to explore how CNOs sustain themselves and update findings in the literature.	20 CNOs from for-profit and not-for-profit hospitals from across the US, 2 plus consecutive years in the role at their current acute care facility. CNOs known to the researcher meeting participant criterion were recruited to the study. Conducted by telephone interview.	Five questions were formulated based on information from a review of the literature with respect to complex nature of CNO position. Major variables included reasons for CNO turnover, concepts of authentic leadership, the ability to innovate, and the need for personal resilience as an important element in driving excellence in patient care outcomes.	Questions guiding the interview questions were developed for use in telephone interviews. Each guiding question addressed the major variables.	Step-by-step process, which included levels 1 and 2 coding, was used to identify subthemes and develop themes. 2-phase review of data included Phase 1: Key words and phrases were identified. Phase 2: Researcher coding to determine if it existed outside the particular question. Codes were refined and 6 themes were identified as sustaining CNOs	Six themes were identified, including loving the profession, having broader impact, reflection on one's own work, learning to manage conflict, maintaining work/life balance, and working with supportive leaders. Two additional findings did not emerge as major themes, but considered noteworthy and those were reliance on spirituality and welcoming challenges as material to their sustainment. All 3 theories were supported within the 6 identified themes. Elements of sustainability, including optimistic attitude,	Small study size and not generalizable, but may prove helpful in guiding dialogue and exploring educational or competency development. Phenomenolo-gical approach heavily dependent on knowledgeable and highly skilled researchers. Rigor is more difficult to maintain, assess, and demonstrate.	L: III Q: B

							conscious strategic thoughts, actions that reflect ones' own values, ability to refresh energy levels, and ability to impact patient outcomes.		

* Johns Hopkins Hospital/The Johns Hopkins University. (2012). Research appraisal tool. In S. L. Dearholt & D. Dang (Eds.), *Johns Hopkins nursing evidence-based practice: Model and guidelines* (2nd ed., pp. 237-240). Indianapolis, IN: Sigma Theta Tau International.

Melnyk, B. M., & Fineout-Overholt, E. (2015). *Evidence-based practice in nursing & healthcare: A guide to best practice* (3rd ed.). Philadelphia, PA: Wolters Kluwer.

Appendix D

Evidence Synthesis Table

	Bishop, 2013	Fortney et al., 2013	Hudgins, 2016	Ingwell-Spolan, 2016	Jamieson & Tuckey, 2016	Pipe et al., 2012	Pipe et al., 2009	Prestia et al., 2015
Theory, Intervention, and Concepts								
Caring Theory	X					X	X	X
Mindfulness Intervention	X	X			X	X	X	
Engagement	X	X	X	X		X	X	X
Resilience	X	X	X	X	X	X	X	X
Retention	X	X	X			X	X	X
Healthy Work Environment	X	X		X		X	X	

Appendix E

10 Caritas Processes

Core Aspects of Caring Science
Theory of Human Caring

1. Heart/Soul - Relational Caring as Ethical - Moral – Philosophical Values – Guided Foundation
2. Voice – Formal Language of Theory - **10 Caritas Processes**
3. Hearth/Home – Where Theory Lives - "In the Transpersonal Caring Moment – the Caritas Field"
4. Mind - Caring Moment informed by Consciousness, Energy, Intentionality & Heart Centered Human Presence
5. Hands/Embodied Practices - Caring/Healing Modalities

1. Practice Loving Kindness
2. Instill Faith and Hope
3. Nurture Individual Spiritual Beliefs and Practices
4. Develop Helping – Trusting Relationships
5. Promote & Accept Expressions of Positive & Negative Feelings
6. Use Creative Scientific Problem-Solving Methods for Decision Making
7. Perform Teaching and Learning that Address Individual Needs and Styles
8. Create a Healing Environment for the Physical and Spiritual Self which Respects Human Dignity
9. Assist with Physical, Emotional and Spiritual Human Needs
10. Allow Space for Miracles to Take Place

Caritas, the basis of love for the ultimate meaning and destiny of other humans.

Appendix F

Strategic Messaging Map

Message Map: Exec Nurse Coaching Program	Stakeholder 1 Board of Directors	Stakeholder 2 Senior Leaders	Stakeholder 3 Nurse Executives
Core Question or Concern	What can we do to build sustainable performance?	What can we do to improve satisfaction, performance, and retention of Nurse Execs?	What can I do to ensure my personal and professional success in this organization?
Key Message 1	We Adopted the Quadruple Aim! (Care for the Care Giver is a Core Value!)!	We Support Work/Life Balance and Stress Reduction Best Practices! (Work/Life Balance is Important to Us!)	I Have My Own Personal Coach and Self-Care Strategy for Success (My Organization Helps Me Thrive!)
Key Message 2	Commit Funding – **Approve the Plan**	Hire and Assign Personal Coach – **Support the Plan**	Engage Fully with Coach – **Work the Plan**
Key Message 3	Value Whole Person – Whole System Success – **Our Organization is Rising to Its' Highest Potential**	Promote and Celebrate Successes – **We Are Committed to Evolved Leaders**	Adopt/Apply & Integrate EBPs for Success – **I am Valued**
Methodologies: • Meetings • Video(s) • E-mail • Webex • Web-Based Instruction • Individual Coaching Sessions • Technology Integration	• Board Presentation • Sample Print Materials • Video of Heart Science and Outcomes (3") • Printed Outline of Deliverables • Time-Line Chart • Quarterly Reporting • Board Recommendations • Graphic Financial Impact, Clinical – Safety, Service Improvement	• Planning Meetings Face-to-Face • Video of Heart Science and Outcomes (3") • Review of NE Assessments, Performance Goals, Strengths, & Opportunities Meeting • Printed Program Materials • Demonstration of Bio-Feedback Technologies • Quarterly Review Metric Dashboard (In Person or	• 1:1 Self-Assessment • Baseline Performance Assessment / Goal Setting • Content – Story Book, Video, Readings, Dialogue. • Bio-Feedback Technology Device Orientation and Training • Create Personal Dev. Plan • Weekly Coaching

Appendix G

SWOT Analysis

Strengths (+)
- Strong org. ethos for Caring Science (CS) & Self-Care - "Thrive"
- Long term investment in CS & HeartMath(HM)
- History of previous success with programs
- External expert faculty & data analysis
- Internal resources to support follow-up
- Nurse Exec Leadership (NEL) want to engage
- Budgeted Prof. Dev. – No Fee to Participate

Weaknesses (-)
- Optionality – volunteer program which may hinder consistent adoption and adherence to CS-HM practices
- Competing operational priorities creating additional stress and challenge adoption
- Potential schedule conflicts for monthly follow-up
- Intervention is abbreviated – half day versus full day traditional program

Opportunities (+)
- Enhance NEL value, knowledge, & understanding of existing CS-HM concepts
- Improve NEL perceptions - response to stress
- Build NEL rapport & improve morale
- Level-set NEL core competencies – Self Care
- Reduce turn-over by promoting enhanced self-care, balance, & resiliency skill sets
- Strengthen possibilities for adoption & spread of CS-HM programs to NEL direct reports

Threats (-)
- Continued turn-over in NELs
- Risk of changes in senior leadership & reporting structures -disruption
- Labor unrest and external influences that disrupt training plan – Priorities
- Unintended coercion to participate related to reporting structures
- Potential concerns over privacy
- Loss of allocated funding

Jim D'Alfonso, DNP (c), RN, NEA-BC
USF: EL-DNP, Cohort 6 – SWOT Analysis

Appendix H

NEL: Caring Science/Heart Science Program
"Whole Person/Whole System Leadership"

Appendix I

Project Gantt Chart

Project Plan & Important Dates:	2015 Aug	Sep	Oct	Nov	Dec	2016 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2017 Jan	Feb	Mar	Apr	May	Jun	Jul
Semester 1: Fall 2015																								
Project Plan and Discussion with Faculty Advisor			▓																					
Identify Project Resources and Engage Expert Resources			▓																					
Outine Project Requirements and Budget			▓																					
Obtain Organization Approvals (Exec CNE & Quality)				▓																				
Organize Project Team and Secure Faculty				▓																				
Order InnerBalance® Devices and Support Materials				▓																				
Confirm Hotel and Logistics Needs for Training				▓																				
Develop/Design Caring Science - Heart Science Program				▓																				
Schedule Intervention and Program with Regional CNEs				▓																				
Finalize Program Content and Review with Faculty					▓																			
Conduct Pre-Program Assessment					▓																			
Conduct 4-Hour Education Program - Intervention					▓																			
Semester 2: Spring 2016																								
Finalize Training and Survey Collection						▓																		
Submit Training Surveys for Analysis							▓																	
Provide Ongoing Touch Points for CNEs						▓	▓	▓	▓	▓														
Submit Invoices and Close Out Program Expenses						▓																		
Reconcile Budget						▓																		
Semester 3: Summer 2016																								
Outline Opportunities for Follow-up Surveys										▓	▓													
Conduct Post-Program Surveys with CNEs											▓													
Submit Post Surveys for Analysis												▓												
Semester 4: Fall 2016																								
Analyze Data and Collaborate with Faculty Advisor														▓										
Semester 5: Spring 2016																								
Draft Project and Collaborate with Faculty Advisor																		▓	▓	▓	▓			
Semester 6: Summer 2017																								
Submit Final DNP Project Paper: July 1																								▓
Final Presentation: Thursday, August 3, 2017 at 11a PT																								▓
Graduation: December 13, 2017																								

Color Key	
Semester	
Post Implementation Project Needs	
Data Collection	
Project Budgets and Milestones	
Project Planning and Intervention	

Jim D'Alfonso, DNP(c), RN, NEA-BC, FANP
USF: EL-DNP, Cohort 6 - Project GANTT Chart

Appendix J

Deliverable-Oriented Work Breakdown Structure

Jim D'Alfonso, DNP(c), RN, NEA-BC, FANP
EL-DNP, Cohort 6

April 11, 2017

1.0: Conduct 4 Hour Nurse Executive Leader (NEL) Caring Science Theory and HeartMath Program

1.1: Planning	1.2: Logistics	1.3: Content Development	1.4: Supplies & Technology	1.5: NEL Attendees	1.6: Faculty & Staff	1.7: Budget
• 1.1.1: Coordinate mtg. activities onsite • 1.1.2: Conduct Webex planning & weekly touch-point sessions • 1.1.3: Match calendar & match activities • 1.1.4: Form program planning team • 1.1.5: Manage inter-group activities, needs, and schedule for deliverables • 1.1.6: Manage overall program expenses in line with approved budget	• 1.2.1: Conference room – AV Setup complete • 1.2.2: AV Order • 1.2.3: Catering Order – Menu Selection • 1.2.4: Parking/Valet • 1.2.5: Room Blocks and Hold Confirmed • 1.2.6: Event Planning – coordination • 1.2.7: Contract negotiation & pricing structure - Invoice • 1.2.8: Date options & other entity/activities • 1.2.9: Process invoice and payments for hotel	• 1.3.1: Program materials completed & delivered onsite • 1.3.2: Pre-program assessment (POQA Survey) • 1.3.3: Research and content validation • 1.3.4: Curriculum design – adult learning concepts • 1.3.5: Review needs assessment • 1.3.6: Identify design team and engage • 1.3.7: Agree on overarching program plan and design	• 1.4.1: Deliver "Inner Balance" device to hotel • 1.4.2: Caritas HeartMath guide, booklet, wallet cards • 1.4.3: Pens, Markers, Post-it Boards • 1.4.4: Laptops, power cords, back-up for hotel • 1.4.5: Process order and payment for technology	• 1.5.1: Coordinate week/day before reminders, travel and essential confirmations • 1.5.2: Pre-mailer and instruction to download HM App • 1.5.3: Reminder e-mailer and flyer at timed intervals • 1.5.4: Present plan, date, time, and proposed logistics at NEL Peer Group (3 mos. in advance) • 1.5.5: Identify and ensure all external/all new NELs have been prepped (CS/HM orientation) prior to training • 1.5.6: Identify learning needs and confirm objectives	• 1.6.1: Coordinate speaker and staff logistics-arrivals • 1.6.2: Pre-meeting(s) to review agenda, content and plan. • 1.6.3: Process Honoraria • 1.6.4: Contract for external speaker & honoraria • Process honoraria for payment to faculty	• 1.7.1: Identify and approve budget and available funds for speaker honoraria • 1.7.2: Identify and approve budget and available funds for materials and mailings required for the program • 1.7.3: Identify and approve budget and funds available for hotel, catering and related expenses • 1.7.4: Process all invoices and payments • 1.7.5: Reconcile budget

Appendix K

NEL Caring Science – HeartMath 4-Hour Program and Content Outline

Welcome and Introductions:
Welcome and Acknowledgements
Introductions – Attendees and faculty
Agenda Review
Housekeeping – Electronic device etiquette and way-finding

Overview:
Participant Invitation and Disclosure Statement: Thank you for joining this special holiday learning event today. This program is designed as part of a comprehensive DNP Project and participation in the survey is both voluntary and confidential. If you wish to participate, we ask that you sign the roster next to your name and include the last 4 digits of your social security number as a way of matching your pre-and post-survey. Your name and other demographic information is confidential and de-identified. At no time will anyone have access to your individual survey scores and compilation of survey results are completed by the HeartMath Institute (HMI) in Boulder Creek, at no time will the employer see the raw data or completed surveys. A pre-program survey will be offered today and a post-program will be administered at 6-months. Everyone in the NEL peer group is welcome to participate in the surveys, but it is not required to participate in today's program. All results will be aggregate data only. Surveys will be destroyed by HMI after they are entered into the database. Outcomes will be shared with the group when the study is completed. As the project leader, I will be here to answer any questions you may have.

Review of PICOT Question: A PICOT (Population, Intervention, Comparison, Outcome, Timeframe) question was developed to frame and guide a systematic search and critical appraisal of available evidence: "In a group of nurse executives (P), does implementation of a Caring Science HeartMath program (I), when compared to no intervention (C), enhance indicators of human flourishing (O) over a six-month period (T)?"

Review of Aim Statements: This program is intended to align self-care concepts of nursing theory defined by Dr. Jean Watson with evidence-based mindfulness breathing techniques and stress management strategies developed by HeartMath. A pre-program survey will be conducted, followed by a post-program survey at six months. Outcomes are intended to improve nurse executive perceptions of personal indicators of human flourishing, which indicate enhanced stress management and resilience, while supporting sustainability. Positive program outcomes have the ability to justify establishing this intervention/program as requisite training for new NEL onboarding. Program success could create increased momentum and new opportunities to innovate and expand values-based self-care programs for all leaders, interdisciplinary care teams, and employee's system-wide.

Time allocated for discussion and/or questions

Agenda: 0900-1300
This program is a condensed version of the Caring Science HeartMath Programs and customized for this group. The full program will take 4 Hours (9a to 1p) and lunch will be served. The annual holiday celebration and gift exchange will take place following lunch.

Objectives: Participants will learn to:
1. Align caring science ethic, philosophy, and theory to self-care (CP1), authentic caring relationships (CP4), and creating healing environments (CP8).
2. Increase personal resilience and energy levels.
3. Leverage the ability to think clearly under pressure.
4. Practice HeartMath techniques for heart-focused breathing and quick coherence
5. Increase the ability to maintain situation awareness - mindfulness
6. Diminish physical symptoms of personal and professional stress such as confusion, fatigue, and sleep disturbance.
7. Improve reaction times and coordination.

Materials:

Each of participant received a guide book and a personal "inner balance" bio-feedback technology to complement today's training and support personal practice using the techniques learned today.

Slide and Content Overview:

1. Introduction Slide
2. Review of Caring Science concepts and alignment with HeartMath
3. Theory and reflective practice can create greater opportunity for growth and meaning
4. Quote: "It's when we include caring and love in our science, we discover our caring –healing professions and disciplines are much more than a detached scientific endeavor, but a life giving and life-receiving endeavor." Jean Watson
5. Caring Science defined Philosophically
6. Review of the 10 Caritas Processes
7. Brief history of HeartMath
8. Overview of published HeartMath research
9. CaritasHeart Programs in hospital systems
10. Caring Science meets Heart Science and Watson Caring Science Center – CU Denver
11. Living the caritas processes
12. Caritas Process #1: Cultivating the practice of loving-kindness and equanimity toward self and other as foundational to caritas consciousness. Includes centering exercises, cultivation of a practice of gratitude and forgiveness, mindfulness meditation – Also address Caritas Process #4 (trusting relationships) and Caritas Process #8 (healing environments).
13. Core Values: Your natural self when you have energy – "What is your life like with more energy?" - Identify core values, purpose, mission, value, independence – Flip Chart
14. Caritas Ways of Being and Becoming – 10 Caritas Processes simplified – single statements.
15. The Resilience Advantage: Skills for Personal and Professional Effectiveness
16. Depleting and Renewing Emotions: Effect of emotions on major body systems, hormonal release, cascade of biochemical changes, emotions are the primary activators of emotions and hormonal release, different types of energy conserve and replenish energy.
17. Depleting Emotions: Understand your emotions - Fear, frustration, impatience, anger have a toxic feeling and cause the release of stress hormones. This results in reduced muscle mass, brain cell death, impaired memory, accelerated aging, impaired mental function, and diminished performance. **Worksheet and Flip Chart with group participation.**
18. Renewing Emotions: emotions and attitudes such as care, courage, tolerance, and appreciation create neurochemicals that regenerate your system and offset energy drain, resulting in: increased longevity, increased resilience to adversity, improved memory, improved problem- solving, increased intuition and creativity, improved job performance and achievement. **Worksheet and Flip Chart with group participation.**
19. Self-Awareness: One of the most important steps in being able to stop energy drains and increase resilience is to identify unnecessary energy expenditures.
20. **Heart-Focused Breathing Technique**: An intelligent energy self-regulation technique – practice session
21. Heart-Focused Breathing: is powerful and effective tool for self-regulation, it's the first step in shifting to a more coherent state – you are alert and calm at the same time, it can help you maintain your composure in challenging situations.
22. Heart-Focused Breathing Technique: Focus your attention in the area of the heart. Imagine your breath is flowing in and out of your heart and chest area, breathing a little slower and deeper than usual. Suggestions: Inhale 5 seconds, exhale 5 seconds (or whatever rhythm is comfortable). Quick Step: Heart-Focused Breathing.
23. Emotions and Heart Rhythms: Incoherence: Impairs performance, amplifies energy draining – inhibiting brain function. Coherence: Promotes optimal performance, builds resilience – facilitates brain function. Wave forms contrasted.
24. Heart Rhythms Directly Affect Physical and Mental Performance: Heart signals affect the brain centers involved in decision making, reaction times, social awareness, and the ability to self-regulate.
25. Our thoughts and emotions affect the heart's magnetic field, which energetically affects those in our environment (field) whether or not we are conscious of it. The unitary transformative model – "What you carry in your heart really matters!"

26. **Quick Coherence Technique:** An intelligent energy self-regulation technique – inducing a renewing emotion to begin the resilience-building process.
27. Emotions are feelings that create coherence: Courage, honor, dignity, confidence, appreciation, gratitude, kindness, care, love, compassion, tolerance, patience, enthusiasm, and joy.
28. Practice Quick Coherence Technique together –
29. Step 1: Focus your attention in the area of the heart. Imagine your breath flowing in and out of your heart and chest area, breathing a little slower and deeper than usual. This is the same technique as Heart-Focused Breathing!
30. Step 2: Make a sincere attempt to experience a regenerative feeling, such as appreciation or care for someone or something in your life. Suggestion: Try to re-experience the feeling you have for someone you love, a pet, a special place, an accomplishment, etc., or focus on a feeling of calm and ease.
31. Quick Coherence "Quick Steps:" 1. Heart-Focused Breathing, 2. Activate a positive or renewing feeling.
32. A short movie on – Our perception changes our response to events and circumstances. If you see chaos and sense angst, your body responds accordingly. Likewise, other people may hear a symphony and see grace and flow. The same video clip, just different sound tracks. Ask yourself, what soundtrack are you listening to?
33. Emotional soundtracks – What are the stories you tell yourself or you hear playing during certain interactions or emotional circumstances?
34. The physiology of coherence and optimal functioning – the physiology of resilience
35. Coherence: An optimal state in which the heart, mind, and emotions are aligned and in sync. Physiologically, the immune, hormonal, and nervous systems function in a state of energetic coordination – harmoniously!
36. Inner Balance for iDevices Demonstration and practice time.
37. Review and setup of the Inner Balance app and ear sensor.
38. Building and sustaining resilience
39. Three strategies for building and sustaining resilience: Prep - to set the tone for the day and to be more composed before upcoming stressful events; Shift and Reset – to a more coherent state as soon as possible after a stress reaction to minimize energy drain; Sustain – your resilience throughout the day through regular practice and by remembering to refresh your composure in between activities and events. "Micro-resilience" practices anywhere and anytime.
40. Appreciation and Closing

Lunch and Afternoon Program

Appendix L

Teaching Tools

Caritas Touchstones

Caritas in the Beginning:
- Offer Silent Gratitude for this day
- Breathe into heart
- Set Heart Intention to be open to all you will give and receive on this day

Caritas in the Middle:
- Pause and Heart Breathe
- Seek to "see" the Spirit-filled person before you
- Ask for guidance when unsure
- Return to Caritas Practices again and again

Caritas in the End:
- Offer gratitude for all that has entered your day
- Bless, forgive, release all to a higher, deeper order
- Dedicate the day to the sacred circle of your life and work

Caritas Continuing:
- Create your own authentic Caritas Heart Practices

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www.watsoncaringscience.org • Watson Caring Science Institute • Boulder, Colorado

Watson Caring Science Institute

♥ HeartMath

Quick Coherence® Technique
A Heart Centering Methodology for Caring Science

Transform stress into the energy needed to care more authentically and with greater resilience.

Step 1 - Heart Focused Breathing

Focus your attention in the area of the heart. Imagine your breath is flowing in and out of your heart or chest area, breathing a little slower and deeper than usual.
Suggestion: Inhale 5 seconds, exhale 5 seconds (or whatever rhythm is comfortable).

Step 2 - Activate a positive or renewing feeling

Make a sincere attempt to experience a regenerative feeling such as appreciation, compassion or care for someone or something in your life.
Suggestion: Try to re-experience the feeling you have for someone you love, a pet, a special place, an accomplishment, etc. or focus on a feeling of calm or ease.

Communication Application

Coherence enables us to hear more clearly and intuitively understand how to respond appropriately and with care to any situation.

www.heartmath.com
HeartMath is a registered trademark of the Institute of HeartMath. Quick Coherence is a registered trademark of Doc Childre.

Used by permission HMI 1

Energy-Draining Situations/Events Exercise

Identify situations that cause stress, the corresponding feelings that typically drain your inner battery and what you currently do now to handle them. Write them on the lines below.

Examples:

Situations	Feelings	Current Solution
Late for work	Anxious	Call co-worker
Argument with spouse	Angry, helpless	Wait for it to blow over
Can't get enough sleep	Frustrated, tired	Leave work early

Situations	Feelings	Current Solution

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Energy-Renewing Situations/Events Exercise

Identify situations or interactions and the corresponding feelings that renew you and recharge your inner battery. Write them on the lines below.

Examples:

Situations	Feelings
Hanging out with friends	Appreciation, happiness
Acknowledged for a good job	Confident, sense of accomplishment
Serving others	Proud, fulfilled, sense of honor

Situations	Feelings

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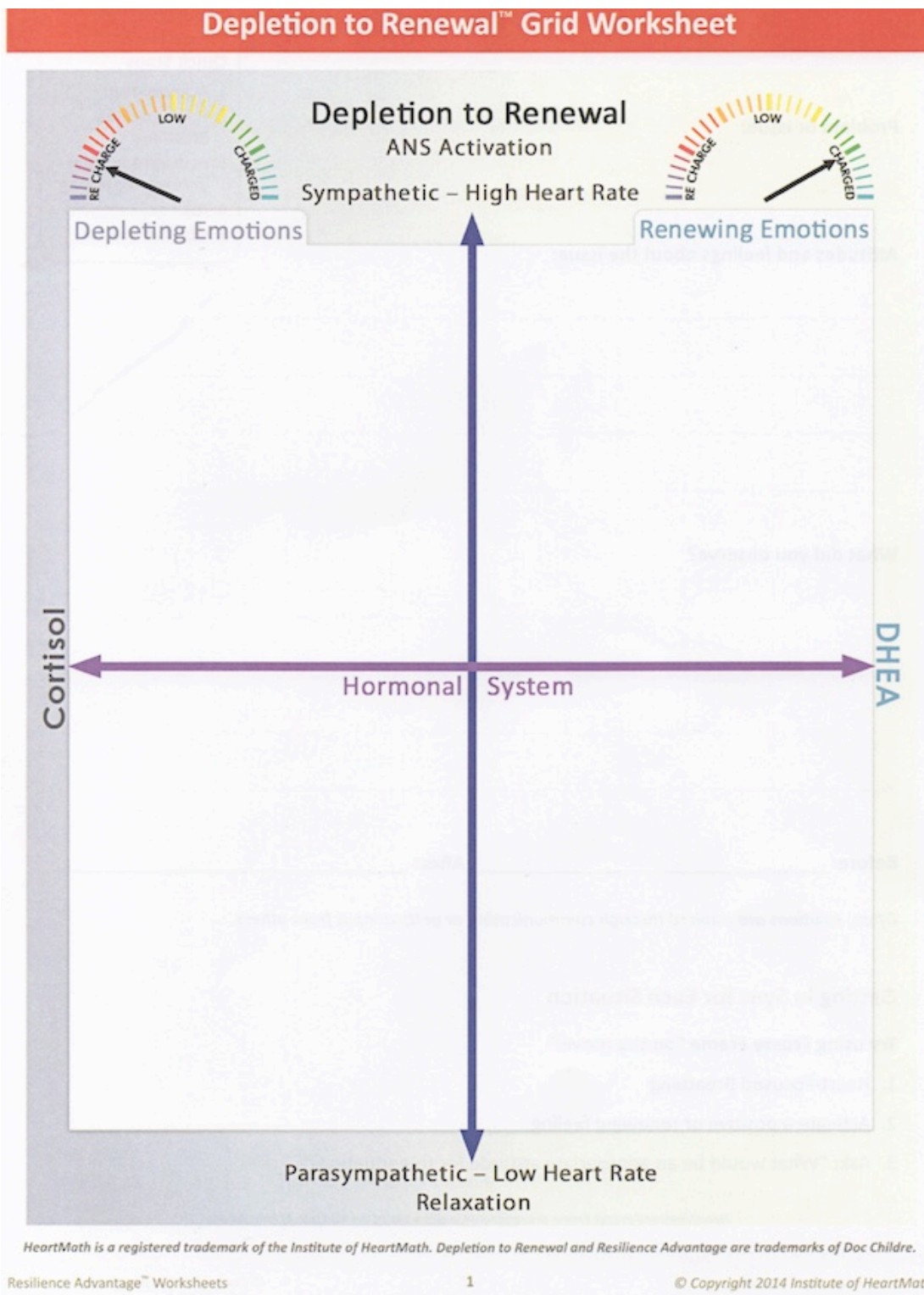
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Appendix M

Financial Analysis

Nurse Executive Program Budget and Cost Avoidance/ROI Analysis

Nurse Executive Leader: Caring Science – Heart Science Program Budget					
Number of Participants	Estimated Cost Per Participant	Units	Proposed Budget	Actual Program Expenses	Difference
30	600	30	18,000	17,350	650

Program Budget – Line Item					
Program Expenses:	Budget	Units	Proposed Budget	Actual Expense	Difference
Salary Costs	1,200	1	1,200	1,100	100
Faculty Honoraria	2,500	2	5,000	4,800	200
Travel	400	1	400	350	50
Shipping	200	1	200	250	(50)
Hotel Meeting Room	2,000	1	2,000	2,000	0
Lodging	300	6	1,800	1,650	150
Catering	1,500	1	1,500	1,500	0
Teaching Materials	30	30	900	900	0
Program Binders	45	30	1,350	1,200	150
InnerBalance® Devices	95	30	2,850	2,850	0
Survey Administration	500	1	500	500	0
Misc. Expenses	300	1	300	250	50
Total:			18,000	17,350	650

Nurse Executive Leader: Cost Avoidance Calculation			
Nurse Exec Turnover	Avg. NE Salary*	Replacement Cost**	Potential Cost Avoidance***
1	239,000	358,500	119,500
2	478,000	717,000	239,000

Cost Avoidance Calculations***
Avg NE Salary **X** 1.5 = Replacement Cost
Replacement Cost – Avg NE Salary **X** Number of NE Turnover = Cost Avoidance

Cost Benefit - Cost Avoidance – ROI			
	2016	2017	2017
Program Costs	17,350	17,350	17,350
Cost Benefit	No Improvement in Retention or Turnover Increases	Retention Improves by 1 NE	Retention Improves by 2 NE
Cost Avoidance	0	**119,500**	**239,000**
Return On Investment (ROI)	(17,350) – Program Cost	119,500 – 17,350 = **102,150**	239,000 – 17,350 = **221,650**

*Average Nurse Executive Salary is estimated at 239,000: Source 2016 KP National Workforce Planning
**Nurse Exec Replacement Cost is a Calculation of 1.5X (150%) Base Salary: Source 2002, Kosel & Olivio @ VHA
***Cost Avoidance is a potential savings/avoidance in replacement costs, which is dependent on retention of Nurse Executives and not intended to reflect potential revenue.

Appendix N

Replacement Costs
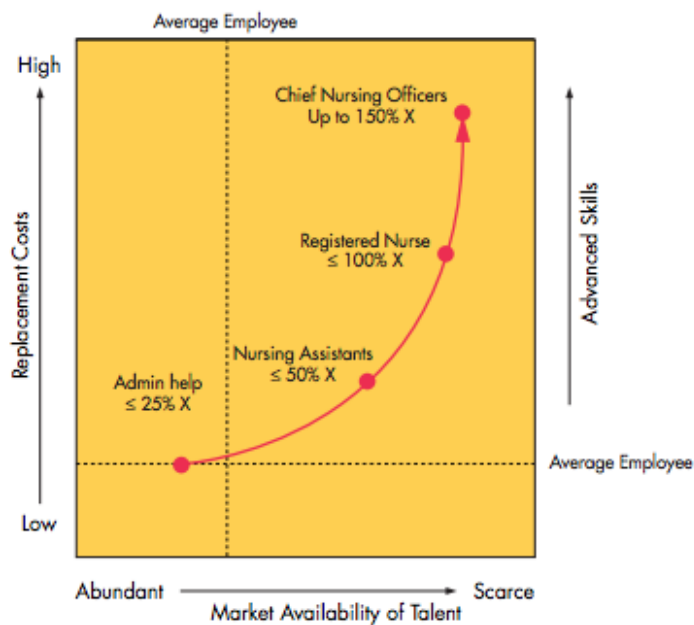
Replacement Cost (X) in Annual Percent of Compensation

Direct Recruiting Costs	**Indirect Recruiting Costs**	**Productivity and Training**	**Termination Costs**
Advertising	Interviewing costs (time)	Cost to fill in for lost employees	Exit interviewing costs (time)
Agency fees	Employee training (to interview)	Other employees time	Severance pay
Referral fees	Travel expenses	Training/orientation costs	Productivity losses
Signing bonuses		Seminars/conferences/e-learning	
Travel expenses		Travel expenses	
Testing/profiling costs		Critical project involvement	

Success Profiles, Inc., 2002

Appendix O

Statement of Determination

DNP Statement of Non-Research Determination Form

Student Name: James N. D'Alfonso, MSN, RN - Cohort 6, ELDNP

Title of Project:

Caring Science – Heart Science Integration: Aligning Nursing Theory and Stress Management Practices to Enhance Indicators of Human Flourishing in Nurse Executives

Brief Description of Project:

Health care reform and the Affordable Care Act (ACA) of 2010 has led to increased focus on the triple aim goals of improved quality/safety, affordability, and service. There is also a major shift in reimbursement, as consumerism and payers align expectations toward value-based versus volume-driven delivery care models. These changes result in enormous pressures on the nurse executive, as they must continually seek creative ways to reduce health care costs, develop and retain high performing teams, and consistently demonstrate measurable progress on a growing list of publically reported outcome measures. Stress abounds in environments where radical change is the norm and the literature identifies the adverse effect of this stress on mental clarity, work performance, interpersonal relationships, diet, and overall physical wellbeing. Studies also identify the risks associated with stressful environments on both groups and individuals, as well as the down-stream operational impact of stress on organizational efficiency, quality, safety, and service.

Since the implementation of the Affordable Care Act, a large twenty-one hospital integrated health care system in Northern California has experienced an estimated 80% turnover in Chief Nurse Executives (CNE). The impact of this extraordinary turnover has resulted in significant leadership gaps, instability and internal churn, operational inefficiencies, as well as underperformance in key metrics at several facilities. CNE turnover has been further aggravated by forced attrition programs; early retirement options; labor disruptions; changes in top level regional leadership, including the replacement of several key positions by external senior executives new to the system. A time of great uncertainty coupled with incredible opportunity, but unequivocally a time of extreme stress for those remaining in the Chief Nurse Executive (CNE) role and even more so for new nurse executives coming into the organization during this time of major change, disruption, chaos, and complexity.

The intent of this DNP project is to implement a program for nurse executives grounded in caring science and heart science best practices for managing stress, including training on the use of a biofeedback technology to help visualize and manage the stress response

in real time. Effective stress management, as outlined in the literature and measured through enhanced indicators of human flourishing has been linked to increased leadership engagement, mental clarity, improved sleep patterns, a sense of calm, appreciation, gratitude, and optimism. A goal of the program includes offering this education and training as part of future CNE orientations, and building upon the anticipated successes of this program to support further program spread to CNE direct report groups that include patient care directors, managers, and care teams across the system.

A) Aim Statement: Implement a Caring Science – Heart Science program for a group of nurse executives. This program will align core concepts of nursing theory defined by Dr. Jean Watson with defined breathing techniques and an iPhone app developed by HeartMath™. The program and base-line assessment will be conducted in Kaiser Permanente NCAL region in early 2016, followed by a post implementation assessment at six months. The intervention is intended to improve CNE personal perceptions of human flourishing, which indicate enhanced stress management and resilience.

B) Description of Intervention: A literature review revealed two articles and several unpublished studies on programs teaching nurse managers and clinical nurses the concepts of caring theory along with either a single 8-hour or a multi-day HeartMath program. Each program demonstrated measurable improvements over a three to six-month follow-up period in comparing pre/post program indicators of human flourishing which were deemed indicative of improved stress management techniques and resilience.   Over a six-month period in 2016, this project will evaluate the impact of a new four-hour educational program that includes the introduction of a biofeedback technology to a defined group of Chief Nurse Executives (CNE) within a large integrated non-profit health care system in Northern California. Integrating adult learning concepts, this intervention will include active participation in a four-hour face-to-face educational program to teach core concepts of Watson's Theory of Human Caring (Caring Science) in conjunction with evidence-based HeartMath™ techniques (Heart Science). Training will incorporate personalized demonstration and return demonstration on the use of a biofeedback device (InnerBalance™) to support the measurement of heart coherence during practice sessions and ensure competence in using the device following the program. Each participant will be given their own InnerBalance™ biofeedback device and a copy of the program materials. Post program assessment will be conducted at six months.

C) How will this intervention change practice?

O'Grady and Malloch (2016) identify emotional maturity and self-management skills as key leadership competencies for the 21st century. The pace of health care reform and continuous demand for improved outcomes requires a new framework that stresses emotional awareness as well as evidence-based self-management techniques to help nurse executives and others navigate and ensure clinical and operational excellence even in the most stressful environments. Nurse executives must learn, adopt, and model evidence-based self-care practices among care teams and across the

organization. This program will provide nurse executives with new knowledge and techniques they can adopt and spread, as they build a common language among teams and support cultures accountable for creating and sustaining healthy work and care environments for all. The goal of this program is to help the nurse executive on their personal journey, while enhancing their ability to sustain peak performance and thrive in their role. Enhanced indicators of human flourishing should also be reflected in improved nurse executive and direct report nurse leader retention rates. Stability in the nurse executive and direct report nurse leader roles should also demonstrate incremental improvements in global nurse leader performance metrics (e.g., quality, safety, affordability, and service scores) over time.

D) Outcome measurements:

- Baseline nurse executive turnover rates region-wide for calendar year (Q1 thru Q4) 2015 will be compared to calendar year (Q1 thru Q4) 2016 nurse executive turnover rates.

- Baseline nurse executive perceptions of indicators of human flourishing will be compared to six-month post implementation data utilizing a reliable and valid 52-question survey known as the Personal and Organizational Quality Assessment – Revised (POQA-R4).

- Baseline direct report nurse leader turnover rates region-wide for calendar year (Q1 thru Q4) 2015 will be compared to calendar year (Q1 thru Q4) 2016 direct report nurse leader turnover rates.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (http://answers.hhs.gov/ohrp/categories/1569)

X This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments: Approved 5/2016

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

Project Title:	YES	NO
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	X	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	X	
The project is **NOT** designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does **NOT** follow a protocol that overrides clinical decision-making.	X	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	X	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	X	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	X	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	X	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	X	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: *"This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."*	X	
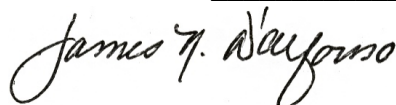
ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print):

James N. D'Alfonso, ELDNP – Cohort 6_____
Signature of Student:

James N. D'Alfonso

_____**DATE___04/25/16___**

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):

KT Waxman, Chair -Advisor
Signature of Supervising Faculty Member (Chair):

                                   DATE

Appendix P

Invitation and Disclosure Statement

Thank you for joining this special holiday learning event today. This program is designed as part of a comprehensive DNP Project and participation in the survey is both voluntary and confidential. If you wish to participate, we ask that you sign the roster next to your name and include the last 4 digits of your social security number as a way of matching your pre-and post-survey. Your name and other demographic information is confidential and de-identified. At no time will anyone have access to your individual survey scores and compilation of survey results are completed by the Institute of HeartMath (IHM) in Boulder Creek, at no time will the employer see the raw data or completed surveys.

A pre-program survey will be offered today and a post-program will be administered at 6-months. Everyone in the NEL peer group is welcome to participate in the surveys, but it is not required to participate in today's program.

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Appendix Q

Personal and Organizational Quality Assessment – Revised

POQA-R4 Personal and Organizational Quality Assessment-Revised

This survey is voluntary and confidential.
Only summary, anonymous data will be provided to your organization.

INSTRUCTIONS: Please fill in the boxes below with the requested dates and ID number. For the remaining items, FILL IN THE NUMBER of the response that describes you.

TODAY'S DATE
Month Day Year

UNIQUE ID NUMBER

Please enter the last four digits of your social security number. This number is used for matching your responses over time.

SAMPLE

1. What is your GENDER?
- ① Male
- ② Female

2. What is your MARITAL STATUS? (fill in one only)
- ① Single
- ② Partnered
- ③ Divorced
- ② Married
- ④ Separated
- ⑥ Widowed

3. Roughly how old are you?
- ① Under 21
- ③ 31-40
- ⑤ 51-60
- ⑦ Over 70
- ② 21-30
- ④ 41-50
- ⑥ 61-70

4. What is your approximate salary range?
- ① Under $20,000
- ⑦ $70,000 - 79,999
- ② $20,000 - 29,999
- ⑧ $80,000 - 89,999
- ③ $30,000 - 39,999
- ⑨ $90,000 - 99,999
- ④ $40,000 - 49,999
- ⑩ $100,000 - 149,999
- ⑤ $50,000 - 59,999
- ⑪ $150,000 or more
- ⑥ $60,000 - 69,999

5. What is your highest level of EDUCATION? (fill in one only)
- ① Elementary
- ⑥ Bachelor's Degree
- ② Junior/Middle School
- ⑦ Some Graduate
- ③ High School
- ⑧ Master's Degree
- ④ Technical School
- ⑨ Doctorate Degree
- ⑤ Some College/Associate's Degree

6. Which of the following best describes your EMPLOYMENT STATUS? (fill in one only)
- ① Student
- ⑥ Executive
- ② Laborer
- ⑦ Engineer/Technical
- ③ Skilled or Clerical
- ⑧ Retired
- ④ Management
- ⑨ Unemployed
- ⑤ Professional
- ⑩ Other

7. How many HOURS PER WEEK do you usually work?
- ① Less than 25 hours
- ④ 41-50 hours
- ② 26-35 hours
- ⑤ 51-59 hours
- ③ 36-40 hours
- ⑥ 60 or more hours

8. How long have you been with this COMPANY or ORGANIZATION?
- ① 0 - 6 MONTHS
- ⑤ 5 YEARS - 10 YEARS
- ② 6 MONTHS - 1 YEAR
- ⑥ 10 YEARS - 20 YEARS
- ③ 1 YEAR - 2 YEARS
- ⑦ 20 YEARS OR MORE
- ④ 2 YEARS - 5 YEARS

9. How long have you been in your CURRENT JOB or POSITION?
- ① 0 - 6 MONTHS
- ④ 2 YEARS - 5 YEARS
- ② 6 MONTHS - 1 YEAR
- ⑤ 5 YEARS - 10 YEARS
- ③ 1 YEAR - 2 YEARS
- ⑥ 10 YEARS OR MORE

Please turn to the next page

PLEASE DO NOT WRITE IN THIS AREA

65208

POQA-R4 Personal and Organizational Quality Assessment-Revised

INSTRUCTIONS:

Following is a list of words that describe feelings people sometimes have. Please FILL IN THE NUMBER which reflects how frequently you have felt the following during the LAST MONTH.

	NOT AT ALL	ONCE IN A WHILE	SOMETIMES	FAIRLY OFTEN	OFTEN	VERY OFTEN	ALWAYS
1. Resentful	①	②	③	④	⑤	⑥	⑦
2. Fatigued	①	②	③	④	⑤	⑥	⑦
3. Annoyed	①	②	③	④	⑤	⑥	⑦
4. Sad	①	②	③	④	⑤	⑥	⑦
5. Body aches (Joint Pain, Backaches, etc.)	①	②	③	④	⑤	⑥	⑦
6. Headaches	①	②	③	④	⑤	⑥	⑦
7. Rapid Heartbeats	①	②	③	④	⑤	⑥	⑦
8. Depressed	①	②	③	④	⑤	⑥	⑦
9. Exhausted	①	②	③	④	⑤	⑥	⑦
10. Blue	①	②	③	④	⑤	⑥	⑦
11. Appreciative	①	②	③	④	⑤	⑥	⑦
12. Relaxed	①	②	③	④	⑤	⑥	⑦
13. Anxious	①	②	③	④	⑤	⑥	⑦
14. Tired	①	②	③	④	⑤	⑥	⑦
15. My sleep is inadequate	①	②	③	④	⑤	⑥	⑦
16. Thankful	①	②	③	④	⑤	⑥	⑦
17. Indigestion, heartburn or stomach upset	①	②	③	④	⑤	⑥	⑦
18. Calm	①	②	③	④	⑤	⑥	⑦
19. Cynical	①	②	③	④	⑤	⑥	⑦
20. Muscle Tension	①	②	③	④	⑤	⑥	⑦
21. Grateful	①	②	③	④	⑤	⑥	⑦
22. Worried	①	②	③	④	⑤	⑥	⑦
23. Unhappy	①	②	③	④	⑤	⑥	⑦
24. Uneasy	①	②	③	④	⑤	⑥	⑦
25. Angry	①	②	③	④	⑤	⑥	⑦
26. Peaceful	①	②	③	④	⑤	⑥	⑦

27. Over the last month my health has been:

Excellent	Good	Average	Fair	Poor
①	②	③	④	⑤

28. Fill in the bubble on the line below that indicates how stressed you have been in the past month:

Most Calm I've Ever Been ○—○—○—○—○—○—○—○—○—○—○ Most Stressed I've Ever Been

Please turn to the next page

Following is a list of statements that describe the way people sometimes feel or think about themselves. Please FILL IN THE NUMBER which reflects how frequently you have felt or thought the following during the LAST MONTH.

	NOT AT ALL	ONCE IN A WHILE	SOMETIMES	FAIRLY OFTEN	OFTEN	VERY OFTEN	ALWAYS
29. My life is deeply fulfilling	①	②	③	④	⑤	⑥	⑦
30. Dynamic	①	②	③	④	⑤	⑥	⑦
31. I get upset easily	①	②	③	④	⑤	⑥	⑦
32. I find it difficult to calm down after I've been upset	①	②	③	④	⑤	⑥	⑦
33. I feel loved by my spouse/partner	①	②	③	④	⑤	⑥	⑦
34. I feel optimistic about the future	①	②	③	④	⑤	⑥	⑦
35. I wake up and look forward to each day	①	②	③	④	⑤	⑥	⑦
36. Motivated	①	②	③	④	⑤	⑥	⑦
37. I am pleased with my life	①	②	③	④	⑤	⑥	⑦
38. I sometimes have urges to break, throw or smash things	①	②	③	④	⑤	⑥	⑦
39. I sometimes have a short fuse	①	②	③	④	⑤	⑥	⑦
40. Enthusiastic	①	②	③	④	⑤	⑥	⑦

We are asking about your feelings and experiences over the LAST MONTH. Please FILL IN THE NUMBER which reflects how much you AGREE or DISAGREE with the following statements as they apply to you, your job and place of employment during the LAST MONTH.

SAMPLE

|	STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEUTRAL	SLIGHTLY AGREE	AGREE	STRONGLY AGREE
41. I am satisfied with my life	①	②	③	④	⑤	⑥	⑦
42. I am satisfied with my job	①	②	③	④	⑤	⑥	⑦
43. There is tension between management and staff	①	②	③	④	⑤	⑥	⑦
44. I feel there is never enough time	①	②	③	④	⑤	⑥	⑦
45. I feel pressed for time	①	②	③	④	⑤	⑥	⑦
46. The pace of life is too fast and I can't keep up	①	②	③	④	⑤	⑥	⑦
47. I feel like leaving this organization	①	②	③	④	⑤	⑥	⑦
48. I feel conflict between work and personal priorities	①	②	③	④	⑤	⑥	⑦
49. It takes a lot of effort to sustain my performance level	①	②	③	④	⑤	⑥	⑦
50. I feel like quitting my job	①	②	③	④	⑤	⑥	⑦
51. I work with people who don't get along with each other	①	②	③	④	⑤	⑥	⑦
52. I'm aware of power struggles between co-workers that damage morale	①	②	③	④	⑤	⑥	⑦

Thank You Very Much For Your Participation!
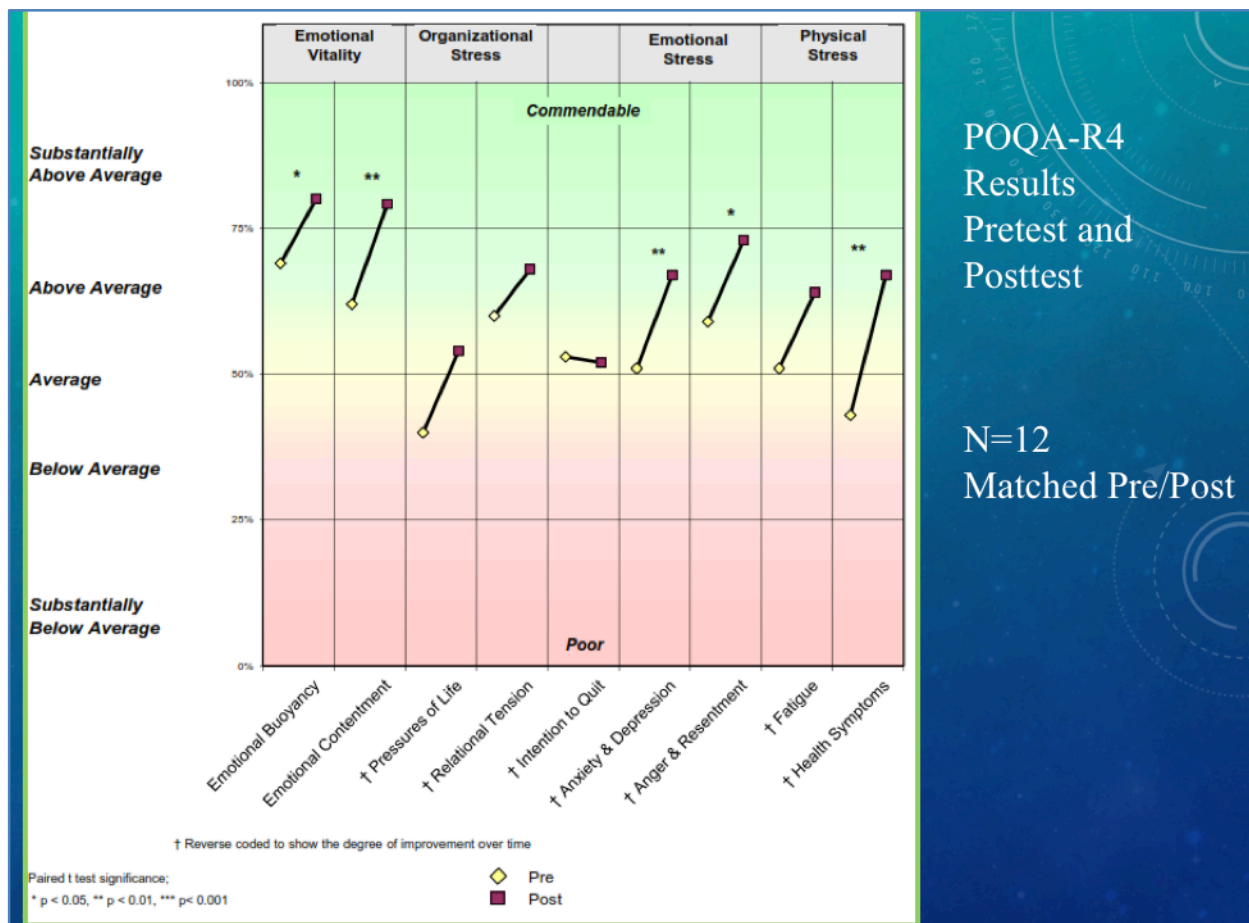
Appendix R

POQA-R4 Baseline Data
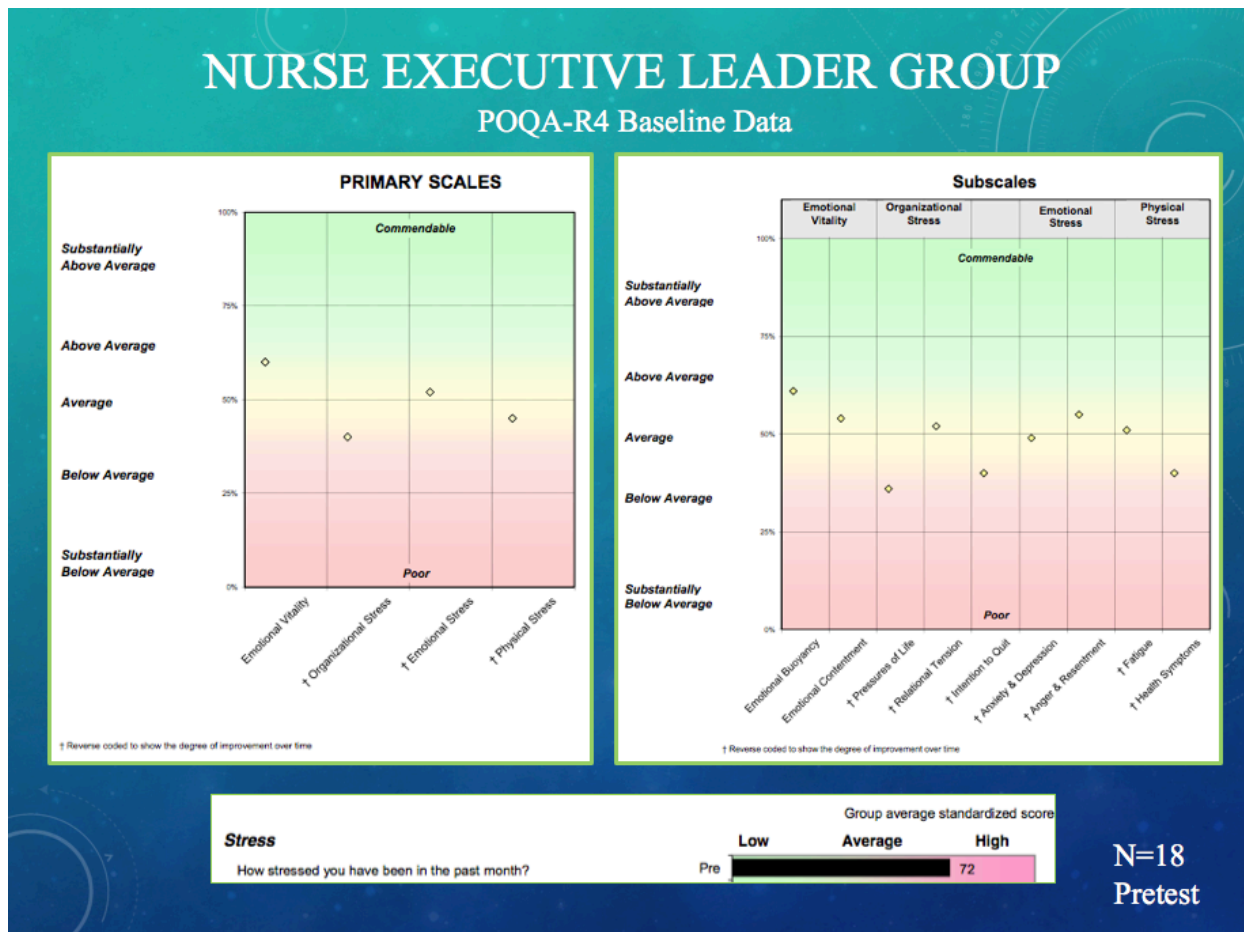
Appendix S

Primary Scales
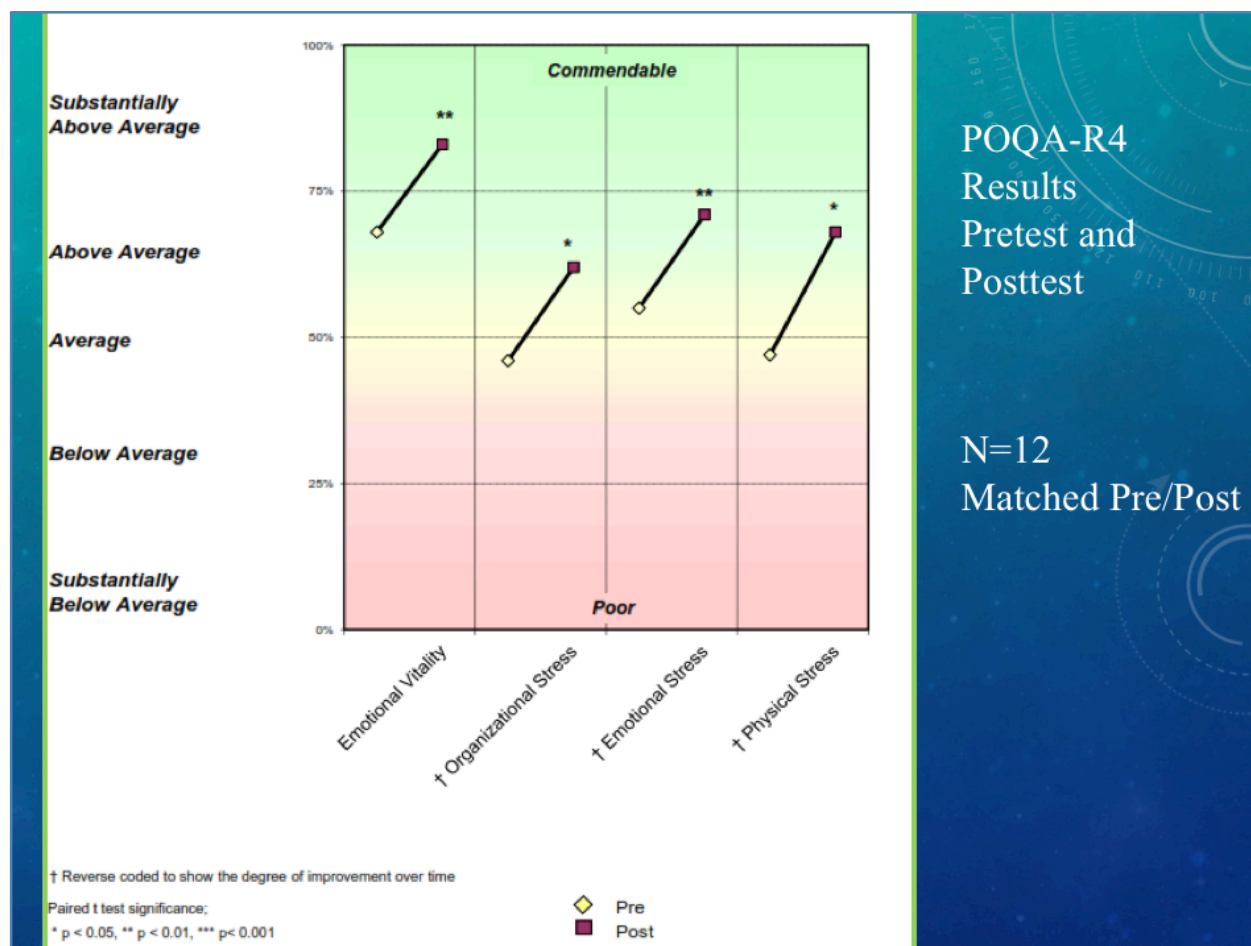
Appendix T

Pre-and Post-Subscales

POQA-R4
Results
Pretest and
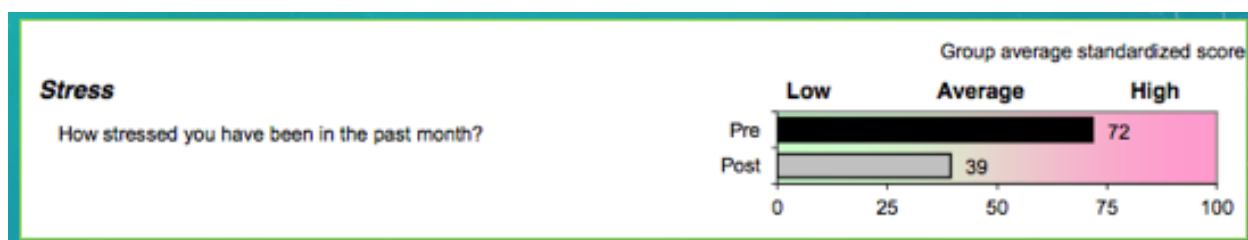Posttest

N=12
Matched Pre/Post

Appendix U

t-Test Raw Scores

	Pre	Post	% Change	Significance
Organizational Stress	4.54	3.93	-13%	0.05
Pressures of Life	4.95	4.28	-14%	ns
Relational Tension	3.81	3.44	-10%	ns
Stress	10.91	8.17	-25%	ns
Emotional Vitality	5.16	5.71	11%	0.01
Emotional Buoyancy	5.46	5.85	7%	0.05
Emotional Contentment	4.75	5.53	16%	0.01
Emotional Stress	2.53	2.04	-19%	0.01
Anxiety & Depression	2.79	2.19	-22%	0.01
Anger & Resentment	2.30	1.91	-17%	0.05
Physical Stress	3.39	2.66	-22%	0.05
Fatigue	3.83	3.24	-15%	ns
Health Symptoms	3.07	2.27	-26%	0.01

Paired t-test   N=12 Matched Pre/Post

Appendix V

Stress – Group Standardized Score

Stress

How stressed you have been in the past month?

Group average standardized score

	Low	Average	High
Pre			72
Post	39		

0   25   50   75   100

Appendix W

Subscale Questions

Subscale	Question - % of responses often – always:	Pre	Post (6 months)
Emotional Buoyancy	I wake up and look forward to each day	58%	83%
	Motivated	83%	100%
Emotional Contentment	Thankful	75%	100%
	Calm	45%	92%
	Peaceful	25%	58%
	Relaxed	33%	58%
Anxiety & Depression	Anxious	25%	8%
	Depressed	8%	0%
	Unhappy	8%	0%
Anger & Resentment	Resentful	25%	0%
	Cynical	25%	0%
Fatigue	Fatigued	50%	25%
	Exhausted	42%	8%

N=12 Matched Pre/Post

Subscale	Question - % of responses often – always:	Pre	Post (6-months)
Health Symptoms	Indigestion, heartburn, stomach upset	27%	8%
	Body aches (joint pain, backaches, etc.)	36%	17%
	Muscle Tension	42%	17%
	Headaches	17%	8%
	Rapid heartbeats	8%	0%
Subscale	Question - % who agree or strongly agree:	Pre	Post (6-months)
Relational Tension	I'm aware of power struggles that damage morale	42%	25%
Pressures of Life	I feel pressed for time	75%	42%
	I feel conflict between work and personal priorities	55%	25%
	It takes a lot of effort to sustain my performance	42%	25%
Intention to Quit	I feel like leaving this organization	8%	0%

N=12 Matched Pre/Post

Appendix X

HCAHPS Scores