Coordination of Care: Strategies, Lessons, & Implications

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Submitted to the Faculty of the Graduate School of Carlow University in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice

December 6, 2011

Approval Page

Carlow University IRB Approval Date: April 18, 2011

Location of Scholarly Inquiry Implementation: Veterans Health Administration
IRB Approval Date: May 25, 2011-None Required

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This work is dedicated to the memory of my mother, Rose B. Wall, who always called me crazy for pursing this self-promise yet supported my efforts in every way. Standing like a rock and epitomizing strength; it is her legacy of resilience and perseverance that benchmark my life. Ma, we did it!

"Me- that, which we know as a Rose, by any other name, will smell just as sweet"
-*Rose B. Wall 3/15/1974*

Acknowledgements

It is through my Lord and Savior Jesus Christ that all things are possible. For without him where would I be? This project culminates a long personal endeavor, nursing and educational journey. Along the way, I have encountered many great wise people, to include patients and colleagues, who have contributed to the success of this work in one way or another. I thank you.

Specifically concerning this work, I would like to extend a sincere thank you, full of admiration, to my scholarly project committee. It has been an honor to work with you and I greatly appreciate your personal support especially during the tough times. A special thank you is due to Dr. Kathleen M. Brown, chair of the DNP committee. Through adversity, she maintained the ability to be supportive and caring. Your guidance throughout the entire experience made a difference.

Also, I appreciate the time and interest of Dr. Shelley Waters, and Dr. Christine Elnitsky, whose questions and suggestions improved my work, and allowed me to grow as a scholar. Thank you to the DNP staff and faculty of Carlow University for accepting the challenge of not only starting a Doctor of Nursing Practice program, but achieving full accreditation. Your efforts created a supportive environment in which I was able to flourish, even from a distance.

Lastly, yet most important of all, I have succeeded with the love and support of my family and friends. It was the affection and cheerleading from my daughter, Maya A. Rivera (No more ignore!) and my first born, Samuel L. Burwell Jr., whose birth was the driving force behind much of my success (Thanks for keeping mommy going!). I am forever grateful!

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Abstract

Background: Care Coordination was identified as a fundamental process that can decrease care fragmentation. IOM and ANA identified Registered Nurses as capable of spearheading care coordination initiatives that will close the gap. It is well established that professional nurse environments positively affects nurse and patient outcomes, or conversely is a barrier when not present. A professional practice environment serves to facilitate care coordination (Duva, 2010). Expanding this work, using Donebedian's SPO Framework, this quality improvement project examined the relationship between the care coordinators work environment and the work processes of care coordination.

Methods: A descriptive correlational design was used to survey 329 RNs from Veterans Health Administration Geriatric and Extended Care Line using Lake's PES-NWI scale and Gittell's RCI instrument. Analyses included descriptive statistics, correlations, and multiple regression analysis (Stepwise Method).

Findings: Moderately positive significant correlations were found between the PES-NWI and RCI activities ($r = .30$, $p < .001$). Nurse participation in hospital affairs, staffing and resources adequacy, and Collegial Nurse-Physician relationship were significant predictors on overall perceptions of RCI, 24.8% of variance R^2.248; $F(3,110) = 12.11$, $p<0.001$.

Discussion/Implications:
Findings support the linkage between the RN, the practice environment, and activities of care coordination. Integrated service delivery systems require a RN workforce that is ready, trained, functioning at their highest level of performance, and available to meet the current and future needs of health care delivery. Findings provide an actionable profile of the RN Care Coordinator, their practice environment, and strategies to improve both. Future study is required.

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Chapter 1- Introduction

Background Knowledge

Across industrialized nations, chronically ill patients account for a disproportionate share of national health spending, placing them at the center of initiatives to improve health system performance (Schoen, Osborn, How, Doty, & Peugh, 2009; CDC, 2009; Teiman et al., 2007; Hofmarcher, Howard, & Oxley, 2007). By 2020, the number of Americans with chronic illnesses is expected to increase from 125 million to 157 million, and those with multiple chronic illnesses are expected to increase from 60 to 80 million (CDC, 2009). Both national and international communities are making significant advances in the treatment of chronic conditions and the expansion of supportive services to maintain the independence of people with functional limitations.

Despite these advances, navigating and accessing services has become more complex. Concerns remain over how to best serve people with chronic conditions continues to be on the agenda of practitioners, policymakers, healthcare organizations, and insurers. Stakeholders aim to make sense of dwindling budgets, ever-expanding deficits, and diminishing resources while increasing access to care, maintaining quality, safety, and ethical practices. Quality affordable healthcare has become a global concern (Lighter, 2011).

This is also true within the Veterans Health Administration (VHA). VHA is the largest integrated national delivery system of care within the United States that provides comprehensive healthcare for the nation's veterans and active duty military (VHA, 2010; Sutto, Knoell, Zucker, Finstuen, & Mangelsdorff, 2008; Francis & Perlin, 2006). This integrated network is comprised of medical centers, nursing homes, clinics, and other non-institutional care facilities. Review of

the Network's population noted 3% of veterans served were consuming 41% of the total resources. Identification of these veterans found them to be either medically complex, chronically ill elderly, or younger veterans with psychiatric illnesses (VHA, 2009). Besides being the largest integrated health care organization, research looking at processes of care consistently demonstrated that the VA performed better than non-VA comparison groups (Trivedi, 2011).

Care Coordination

Care Coordination has been identified as a fundamental process that can decrease care fragmentation, improve patient outcomes, and bridge health care teams (Johnson & Burik, 2010; Mollica & Gillespie, 2003). Care coordination interventions have the potential to improve both efficiency and quality in health care (Wooten, Gramotnev, & Hailey, 2009; Englelhardt et al., 2006). It is assumed that when care coordination is working, people are supported in all areas across the continuum of care (Palsbo, Mastal, & O'Donnell, 2006).

Key problems have been identified at the interface level of care coordination, especially during transitions from one provider to another or during inter-facility transfers (Hofmarcher, Howard, & Oxley, 2007 p. 20). Despite health-care professionals managing transitions into long-term care, these services do not appear adequate or appropriately formulated to meet the challenge of care coordination, despite global efforts to improve hand-off from hospital to community care (Hofmarcher, Howard, & Oxley, 2007 p. 20). Chronically ill patients require different care strategies than the usual care patients, experience more adverse events post-acute care discharge, such as falls, increased hospital re-admission rates, and medication errors (Improving Chronic Illness Care, 2007; Naylor, 2004, World Health Organization, 2002). IOM

(2004) recommends care coordination as one strategy that will address the concerns of chronically ill patients.

Role of the Registered Nurse

Nurses play a myriad of vital roles in health care settings to include caring for the ill, helping patients achieve their definition of health, prevent illness, and controlling the environment of care, much of which involves the coordination of care with other interdisciplinary team members (Lundmark, 2008). The Registered Nurse (RN) is a stakeholder and change agent of care coordination. Both the Institute of Medicine (IOM, 2011) and the American Nurses Association (ANA, 2010) identified the scope of the RN at the forefront of many of the care coordination models lauded to close the fragmentation gap.

Integrated service delivery systems require a RN workforce that is ready, trained, functioning at their highest level of performance, and available to meet the current and future needs of health care delivery. According to the IOM (2011), the RN workforce is not there yet. As the demand for non-institutional care continues to increase, so will the demand for nurses prepared to function in a variety of roles in various settings, although minimally studied. These trends are materializing within the VHA (Close, 2008).

Care coordination and Veterans Health Administration

Public Law 106-117 (The Millennium Act) establishes the care of Veterans by the VHA. The VHA has been and continues to be a leader in care coordination efforts, initially providing care coordination to older and disabled veterans since the 1970s. The Geriatric Evaluation and Management program (GEM) used interdisciplinary teams to coordinate care for patients with complex needs in both inpatient and outpatient settings. The overarching goal of the program was to help patients maintain or improve functional abilities and avoid nursing home placement.

The GEM program has proven effective in improving mental health, cost containment, and veteran functional decline (Social Work Leadership Institute, 2008; Cohen, 2002).

VHA has implemented various care coordination programs and initiatives to include the VHA Office of Telehealth Services, formerly the Office of Care Coordination, Patient Aligned Care Teams (PACT), and the Office of Geriatrics and Extended Care (DVA, 2010; Darkins, 2004). VHA went through a structural transformation over the past 10 years that reallocated care from inpatient facilities to ambulatory-care facilities and the home environment (Perlin et al., 2004). More than 90% of VHA's medical centers provide home and community-based outpatient long-term programs. In fiscal year 2003, 50% of the total extended care patient population received care in non-institutional settings (VHA, 2005).

In 2005, VHA began a system-wide initiative to integrate patient-centered care coordination, where the veteran is at the center of care coordination efforts, has the locust of control over his or her healthcare and moves care from the acute care setting to the veterans home (Chumbler, Vogel, Garel, Qin, Kobb, & Ryan, 2005; Perlin et al., 2006; Pogach, et al., 2004). This effort continues to date. The Office of Geriatrics and Extended Care provides policy direction for the development, coordination, and integration of geriatrics and long-term care clinical programs, and for the advancement of geriatrics and long-term care through research, education, and evaluation of new clinical models (DVA, 2010b).

Veterans of all ages may require long-term care services to include home care, rehabilitation in a skilled nursing facility, or care purchased by the VHA on their behalf. The continuum of care includes institutional, home-based, and community-based long-term care. All of VHA's 21 Veterans Integrated Service Networks (VISNs) offer a combination of VA-provided, VA-purchased, and VA-arranged home care services. Purchased Skilled Home Care

(PSHC) is provided to enhance or build the veteran's care across settings and payer sources. The goal of PSHC is to assure health care continuity for eligible veterans, which is expected to result in higher quality of life, and possibly a reduction in the cost of care (VHA, 2004).

RN workforce and GEC care coordination. RNs are responsible in part for the coordination of home care services. Additionally, these nurses play an integral role in overseeing the coordination of care and quality of care veterans receive under the VHA Contract Nursing Home Program. Their titles vary by program as well as educational level. Variation exists within the VHA in relation to the role of the RN Care Coordinator, functions, and departmental organization. An examination of care coordination activities utilized to achieve effective care coordination is needed.

Role of the Nurse's Practice Environment

The nurse practice environment is defined as the environment in which the nurse practices nursing and provides care (Lake, 2007; ANCC, 2002). The environment, in which the RN practices, has bearing on the way they perform in their role. Although, the evidence is mounting concerning what activities the RN performs to achieve care coordination and much evidence exists on the effect of the nurse practice environment on the role of the RN, not much evidence exists on the effect the nurse practice environment has on the activities of care coordination performed by the RN. Organizations with professional practice work environments are better for nurses, patients, and the organization as a whole (Kramer & Schmalenberg, 2008; Pearson et al., 2006; Aiken, Clarke, Sloan, Lake, Sochalski, & Weber, 1999).

Aiken, Clarke & Sloane (2008) found professional practice environments have higher nurse recruitment, retention, and satisfaction. Professional practice environments have been found to have lower Medicare mortality rates and lower morbidity associated with cancer

patients undergoing surgery (Aiken, Clarke, Sloan, Lake, Sochalski, & Weber, 1999; Freise, 2008). A hospital's organizational properties are related to the quality of care assessments performed by nurses, outcomes of job satisfaction and turnover intentions (Van Bogaert, Meulemans, Clark, Vermeyen, 2009).

Care coordination is a core nursing activity for the RN Care Coordinator. A professional practice environment enables nurses to perform core nursing activities in less time and reduce the time spent doing non-value added activities (Duva, 2010). Organizational design and human resources activities are expected to affect work processes that must maintain or improve quality outcomes while responding to cost pressures (Gittell, 2011).

Purpose of Intended Improvement

This project identifies the characteristics of the GEC RN Care Coordinator and examines the relationship between the nurse practice environment and the processes of care coordination. For the purpose of this project RN Care Coordinator is a Registered Professional Nurse, irrespective of educational attainment, working under the auspices of Geriatrics & Extended Care who is actively involved in care coordination. This knowledge will provide VHA leadership with an actionable profile of the RN Care Coordinator, and to identify strategies that support the nurses responsible for program implementation. The RN Care Coordinator has the opportunity to advocate for and manage their professional roles. The knowledge gained from this project may lead to the identification of modifiable factors that can be changed to improve the care and outcomes of Veterans.

The long-term goal of this quality improvement project is to gain an understanding of care coordination process and continue to develop an organizational culture where excellence in nursing is valued as essential for quality healthcare to those who served America (DVA, 2011). The results of this project are important as organizations like VHA are interested in care coordination, particularly as it relates to concerns about inefficiencies and suboptimal quality in the U.S. health care system. Morgan (2005) describes the VA system as a very large, staff model managed care organization. Mandates, regulations, policy, procedure, and guidelines are developed by VHA Policy and Planning Offices with the expectation that they will be applied throughout the integrated health care system. Coordination of care within organizations and between organizations remains a challenge (IOM, 2004).

Today's healthcare system is fragmented, costly, and in need of repair. Of significance, are the approaches and methods used by clinicians in the provision and linkage of care coordination. The interest in coordination of care increases as the demands on health systems increases with scarce resources. Sofaer, Kreling, & Carmel (2000) suggested:

> In an ideal health care delivery system, the care of all patients (indeed of everyone in the nation) would be coordinated. This would happen because the system was structured, financed and operated to achieve coordination as a matter of course, for everyone. (p.3)

This project will allow VHA leadership to monitor the nurse's perceptions of their work environment, assess the tools used to invoke care coordination, and develop strategies to continuously improve care provided to veterans. Continuous monitoring of nurses' perceptions should be used systematically as a tool for staffing decisions at the hospital level. (Hinno, Partanen, Vehvilainen-Julkunen, & Aaviksoo, 2009).

The VHA continues to recognize the need for a RN workforce that is efficient, effective, competent, and that is engaged in evidenced-based practice (VHA, 2009). This project will allow VHA leadership to continue to examine the whole while taking care of the important parts. The hallmark of VHA nursing is the keen attention given to the intersection of the important parts (ONS, 2010).

Project Questions

The specific aim of this project is to examine the relationship between characteristics comprising the RN Care Coordinator practice environment and the processes of care coordination within VHA's GEC service line. Obtaining answers to this question will begin the process of establishing evidence of care coordination and actionable factors for future improvements in care coordination in VHA.

The research questions to be answered by this project are:

Q1. What are the characteristics of the RN Care Coordinator in VHA GEC?

Q2. What is the relationship between the perceived professional practice environment (Lake's PES-NWI) and processes of work for care coordination (Gittell's Instrument) reported by the RN Care Coordinator?

Q3. Do the perception of the work environment and/or work processes of care coordination differ as the education/certification level changes? The educational/certification antecedents will be entered as covariates for each care coordination outcome measured.

Theoretical Framework

Care coordination necessarily involves multiple participants and activities (Agency for Healthcare Research and Quality [AHRQ], 2010). Care coordination is an iterative process. Like other dimensions in healthcare, it is a service. The quality of the service produced, delivered, and consumed is not only dependent upon the expectations and perceptions of the service providers and receivers, but also by contextual and timely issues (Svensson, 2006).

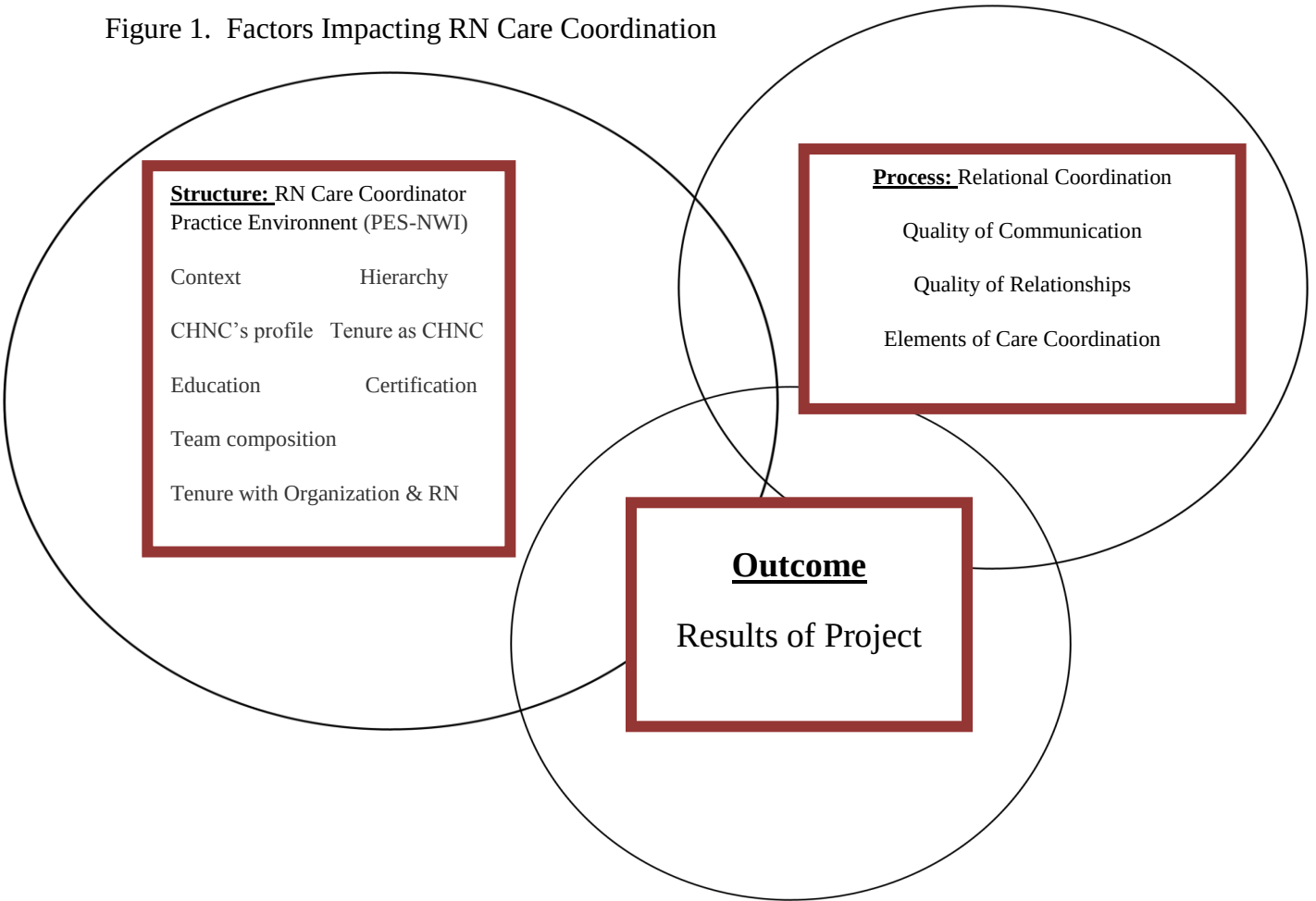
The RN workforce has been identified as the key to many actual and proposed health care initiatives involving care coordination. The mechanisms of care coordination include processes of care, potential approaches of care, and outcomes (AHRQ, 2010). Donebedian's Structure, Process, & Outcomes (SPO) Framework will be used to gain an understanding of the structure and process of care coordination and guide this quality improvement project. Program and patient outcomes are not the focus of this project.

The need for quality in healthcare is almost a universal truth, but the means of reaching and sustaining it requires additional study (Lighter, 2011; Glickman, Baggett, Krubert, Peterson, & Schulman, 2006). SPO framework provides a roadmap for assessing and thinking about quality improvement efforts. The SPO Framework originated as a model for evaluating medical care (Donebedian, 2003) and has evolved into the paradigm for quality measurement in healthcare (Seetharaman, & Prasanta, 2010; van Driel, Sutterl, Thierry, & De Maeseneer, 2005; McGlynn & Brook, 2001). Donabedian asserted a causal relationship between structure, process, and outcomes. Good structure should promote good process in turn should promote good outcome (Donabedian, 1988).

Performance monitoring and quality performance are continuous processes. Donebedian (2003) identified five steps in the quality monitoring process. Similar to the nursing process it begins with an assessment. This occurs by obtaining data on performance. Following an assessment, pattern analysis should occur to identify trends in the data. These should be interpreted, followed by preventative, corrective, or deliberate action. Subsequent performance monitoring should follow to determine the consequences of the action taken.

This quality improvement project is an assessment of the RN Care Coordinator's practice environment and work practices of care coordination. Hence, the structure and process of care coordination will be examined. An examination of care coordination outcomes is beyond the scope of this project. Glickman, Baggett, Krubert, Peterson, & Schulman, (2006) suggested that more research be conducted on structure as there is a plethora of information on process and structure using the SPO Framework. The linkages are depicted in Figure 1.

Figure 1. Factors Impacting RN Care Coordination



Structure. According to Donabedian (2003) structure is the system design. Structure is the conditions under which care is provided (p.46). It can include the physical and organizational properties to include characteristics, culture, number and make-up of professional and support staff, material and human resources. Also included are personnel certification, professional licenses, and recruitment. For the purposes of this project, structure is defined as the context in which the RN Care Coordinator practices care coordination, the characteristics of education level, certifications held, tenure as a RN, tenure as a RN Care Coordinator, tenure with the VHA, team composition, reporting structure, and the professional practice environment.

The professional practice environment. The professional practice environment is characterized by nursing autonomy, control over practice, and collaborative relationships. The professional practice environment was established in Kramer & Schmalenberg's (2008), "Magnet Hospitals" study. The authors found that organizations with nursing leadership at the highest level of the organization, nursing self-governance structures, supported professional autonomy, were decentralized, and had participatory management were able to recruit and retain nurses, had higher nurse job satisfaction and better patient outcomes to include a decrease in morbidity and mortality rates, and increased patient satisfaction (Friese, 2005; Upenieks, 2003; Lake 2002). The Magnet Model of Nursing Excellence identifies these salient points.

The importance of a professional nurse work environment has escalated over the years. The American Nurses Credentialing Center (ANCC), accrediting body for "Magnet" designation requires organizations applying for magnet status to have and document a professional practice environment (The American Nurses Credentialing Center, 2005). The evidence suggests that nurses who practice in professional practice environments have better communication with

physicians and are respected within the organization. This promotes effective relations amongst organizational teams (Freise, 2008; Kramer & Schmalenberg, 2005). Professional work environments are needed for RNs to practice to the fullest extent of their role.

Contexts in which evaluation relies on broad and multiple sources of evidence of effectiveness are more receptive to change (Rycroft-Malone, 2004 p. 299). According to AHRQ (2005) coordination needs are driven by the degree of fragmentation, the complexity of the patient, and the patient's capacity for self-management and coordination. Not only is the context important to evaluation, but its potential to propel or impede care coordination, depending on the specific circumstance to include the available resources, payment structure, patient complexity and capacity and local culture.

Process. It is the process of measuring that generates evidence that can be used to garner feedback on processes that need to be changed, are effective, and/or efficient. Donabedian (2005) describes process as the activities usually carried out by health care professionals that constitute healthcare to include diagnosis, treatment, rehabilitation, prevention, patient and education. It is the business of healthcare. Structure and process are linked in continuous interaction. The patient and family are an integral component in process.

For this project, process is the work process of care coordination. Care coordination requires a broad range of activities (AHRQ, 2010; NQF, 2010; Beringer et al., 2006). It is the purposeful organization of patient care activities between two or more participants involved in a patient's care to facilitate the appropriate delivery of health care services. The patient and their needs are the driving force and must be included in the decision making (AHRQ, 2010). It can

be a core function of team-based primary and community care that delivers systemic, responsive and supportive care to people with complex chronic care needs.

It includes coordination and management of health care services for an individual, a family, community, or population to create a comprehensive and continuous experience, coordination of providers to work as a team, encourage shared knowledge, and coordination of service delivery across organizations to create an integrated network (NQF, 2010; Johnson & Burik, 2010; Ehrlich, Kendall, Muenchberger, & Armstrong, 2009; O'Malley & Cunningham, 2009; VHA, 2009; Wootten, Gramotnev, & Hailey, 2009; Nyssen, 2007; Teiman et al., 2007; Institute of Medicine, 2001). Recent studies have shown that nurses spend much of their time coordinating care throughout a patient stay (Hendrich, Chow, Skiercyznski, & Lu, 2008; Lamb, Schmitt, Edwards, & Duva, 2007). If effective coordination is to occur, teams must also be connected by relationships of shared knowledge, shared goals, and mutual respect (Gittell, 2011).

Process involves the role of the RN as care coordinator, the tools used to effect care coordination, and the use of relational coordination. It includes frequent, timely, accurate, problem solving communication, and relationships of shared goals, knowledge, and mutual respect. These are the dimensions of relational coordination. Clear and adequate communication is important for good quality care (Gittell, 2010; van Driel, Sutter, Christiaens, & Maesseneer, 2005). Donabedian (2005) asserted the right process, combined with the right structure, yields desired organizational outcomes.

Relational coordination. The theory of relational coordination argues specifically that the effectiveness of coordination is determined by the quality of communication among participants in a work process (Gittell, 2006). The work process of coordination requires frequent

high quality communication and relationships. It can apply in any setting and is expected to be particularly important for achieving high performance under high levels of task interdependence, uncertainty, and time constraints.

According to Gittell (2002), quality of communication and relationships are dependent on relational coordination. They are interdependent. Relational coordination is a multi-level network construct developed and tested at the individual, group, and inter-organizational levels. The study of relational coordination spans across multiple disciplines and literary works to include social psychology, information technology, strategy, marketing, and health services research, but thus far is best represented in the organizational theory literature (Bechky, 2006; Samer & Sproull, 2000).

In a descriptive study, Gittell, Weinberg, Bennett & Miller (2008) found that physicians, nurse, case managers, and therapists were dysfunctional due to various professional identities, job design, functional specialization, and conflicts over autonomy. The authors also found that forging interdisciplinary teams with various specialties helped combat the aforementioned dysfunction. The end work product will improve if the quality of working relationships and communication between the people who perform the work process improves. Task interdependence becomes seamless, eliminating waste in the form of redundancy, lapses, errors, and delays (Gittell, 2011).

Duva (2010) used this instrument as a measure of concurrent validity of a nurse care coordination instrument which illustrated its applicability to staff nurse care coordination. The Relational Coordination Inventory (RCI) will be used in this project to measure the work processes of care coordination, the measure of the quality of relationships between team

members, and the role this plays in the coordination of highly interdependent work such as that performed by the RN Care Coordinator in VHA's GEC (Gittell, 2007, 2000).

Outcomes. Outcomes are the results of health care endeavors or actions. They can be intentional or unintentional and include changes in patient or family health status, behavior of activity, or satisfaction level (Donebedian, 2005). The end product of care coordination is perceived differently by the various stakeholders. Care coordination involves multiple parties. The patient and family, the health care professional, and the systems viewer will have varying perspectives of care coordination and the matrix used to measure them will vary. Multiple quality organizations are working to standardize these measures in accordance with the Affordable Care Act of 2010 and requisite Secretary of the Department of Health and Human Services Strategic Plan (DHHS, 2011).

This framework guides the writer in choosing metrics based on the effect to be measured and what participant is involved. It focuses on perspective as they relate to specific activities or approaches carried out, and products of care coordination. The outcome for this project is a measurable process of RN care coordination and the environment in which they practice. There is surmounting evidence of the benefits of effective care coordination which helps to create a comprehensive and continuous experience for patients, assists providers to work as a team, encourages shared knowledge, and coordination of service delivery across organizations to create an integrated network (Johnson & Burik, 2010; Ehrlich, Kendall, Muenchberger, & Armstrong, 2009; O'Malley & Cunningham, 2009; VHA, 2009; Weiss et al., 2007; Clark, 2006; Wootten, Gramotnev, & Hailey, 2009; Nyssen, 2007; Teiman et al., 2007; Institute of Medicine, 2001). Outcomes are the findings of this project. The linkages are represented in Figure 1 p. 11.

Terminology/Definitions

The terms integration, coordination, continuity of care, continuum of care, and multidisciplinary are used variously within the literature (Tieman et al., 2007). Care coordination, case management, disease management, and health promotion are used interchangeably, but have clear distinctions.

Care Coordination: The purposeful organization of patient care activities between two or more participants involved in a patient's care to facilitate the appropriate delivery of health care services. The patient and their needs are the driving force and must be included in the decision making (AHRQ, 2010; NQF, 2010). It is a core function of team-based primary and community care that delivers systemic, responsive and supportive care to people with complex chronic care needs. It includes coordination and management of health care services for an individual, a family, community, or population

Care Management: Is a process to assist patients and their families in managing their medical, social, mental health needs, as well as their support systems more efficiently and effectively. This includes case management and disease management (McDonald, 2010).

Case Management: The Case Management Society of America (2011) defines case management as a collaborative process of assessment, planning, facilitation and advocacy for options and services to meet an individual's health needs through communication and available resources to promote quality cost-effective outcomes. It is also defined as any system for coordinating diagnosis, treatment or ongoing patient management by a person or multidisciplinary team in collaboration with, or supplemental to, the primary care clinician (Shojania et al., 2006). Case management programs typically target complex care patients who constitute the highest cost

segment (i.e., the top 1-5 percent) of the member population. Case management historically has relied on a medical model framework focused on the health care needs of the patient only. It differs from care coordination as care coordination uses a broader social service model that considers the patient within a psychosocial context (Ehrlich, Kendall, Muenchberger, & Armstrong, 2009; VHA, 2009; Colorado Department of Public Health and Environment, 2006).

RN Care Coordinator: A registered professional nurse employed with the VHA who provides clinical expertise in home and community coordination, provision of the continuity of care, and referral of patients to community agencies, VA programs, including skilled home health, home hospice, nursing home (community living centers), homemaker health aide, and adult day health care. They also function as a liaison to community agencies, as well as monitor their services. Within VHA GEC variations of this title exist to include Community Health Nurse Coordinator (CHNC). CHNCs coordinate services for VA reimbursement (Fee Basis), as well as, manage contracted programs for home and community care services (Department of Veterans Affairs [DVA], 2010).

Continuity of Care: Continuity of care is considered an essential component of a high-quality health care system. It is implicit in primary care and an important component of chronic disease management (Gill, Mainous, Diamond, & Lenhard, 2003). The concept implies a sustained partnership between the patient and clinicians that transcends multiple episodes of illness and includes responsibility for preventive care and care coordination (American Academy of Family Physicians, 2011; Cree et al., 2006). Continuity of care encompasses a variety of ways in the delivery of care, the information available, and the goal of seamlessness transitions from one setting to another. Continuity of care is also known as continuum of care.

Fortney, Sullivan, Williams, Morton, & Koegel (2003) conceptualized continuity of care as a portrayal of an individual's use of outpatient services. These authors identified timeliness, intensity, comprehensiveness, stability and coordination of services as the conceptual dimensions of continuity of care which can be measured to evaluate systems of care and identify patients at risk.

Autonomy: The ability to act according to one's knowledge and judgment, providing nursing care within the full scope of practice as defined by existing professional, regulatory, and organizational rules (ANA, 2011; Weston, 2008). Studies show correlation to autonomy and healthy nurse work environments.

Advanced Practice Registered Nurse (APRN): A term used to capture registered professional nurses who meet advanced educational and clinical practice who are at a minimum master's prepared and provide some level of direct care to patients. Nurse practitioners (NP), Certified Nurse Midwife (CNM), clinical nurse specialist (CNS), and certified registered nurse anesthetists (CRNA) meet the established criteria and are recognized as APRNs (ANA, 2011).

Control of Practice: The nurses' ability to shape departmental and organizational policies and practices related to nursing care (Weston, 2008).

Coordinating capacity: Is the ability of a health care system to meet the coordinating needs. It is determined in part by the coordinating mechanism to include the coordinating activities and or implementing broad approaches (McDonald, 2010).

Disease Management: Early on disease management focused on one chronic condition and may have included case management. Expected results of disease management or case management

include better adherence to clinical guidelines, better patient education, frequent monitoring of a patient's condition, and coordination of care across different providers (Hofmarcher, Howard, & Oxley, 2007 p. 20). The Mayo Clinic first used the term in 1990, and its use grew in medical literature; by 1999 approximately 200 companies offered a form of disease management services (Taskforce for Community Preventive Services, 2002). The goal of disease management is to improve short- and long-term health or economic outcomes or both in the entire population with the disease.

Licensed Practical Nurse/Licensed Vocational Nurse (LPN): An individual who has graduated from a state-approved training program in practical nursing and has passed a state licensing examine called the National Council Licensure Examination (NCLEX-PN). Many practical training programs average one year, and are offered by vocational or technical schools (Bureau of Labor Statistics, 2011).

Nurse Practice Environment: The organizational characteristics of a work environment that assist or impede professional nurse practice (Lake, 2002).

Purchased Skilled Homecare: (Formerly known as fee basis home care) is a professional home care service that is purchased from private-sector providers at every VA medical center. The professional home care services cover mostly nursing services including medical, social services, occupational therapy, physical therapy, skilled nursing and speech and language pathology (DVA, 2010).

Relational Coordination: A theory which states that the coordination of work is most effective with frequent, high quality communication and through high quality relationships among participants. Gittell (2011) defines relational coordination "as a mutually reinforcing process of interaction between communication and relationships carried out for the purpose of task

integration."(p.4). Three dimensions must be present for effective coordination to occur: Shared knowledge or shared understanding, a connection by relationships based on shared goals and mutual respect. These dimensions culminate with collective action.

Registered Nurse: An individual who has attained the requisite education gained by completing an approved nursing program, to include a diploma, associates, bachelor's, or master's degree, and graduated from a state-approved school of nursing and has passed a state licensing examine called the National Council Licensure Examination (NCLEX-RN, ANA, 2011).

Transitional Care: Care that is required to achieve a seamless shift from one organization, place, or stage of care to another.

Chapter 2- Review of the Literature

A careful review of prior work on care coordination and its efficacy can guide future care coordination efforts and translate into seamless implementation. The IOM (2003) highlighted care coordination as a cross-cutting topic, meaning that it related to the other areas prioritized for national action. But what is care coordination? The purpose of this review is to answer this question, examine and identify the attributes of coordinated care to facilitate a shared definition of this concept, to identify the components required for effective care coordination, and best practices for implementation, and to identify links between the nurse practice environment and outcomes of care coordination.

The search terms care coordination, transitional care, discharge, continuity of care, challenges to care coordination, facilitators to care coordination, and barriers to care were entered into the multidisciplinary database EBSCOHOST, choosing the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, Cochrane Review, PsycArticles, Journals at Ovid, and Academic Search databases for search selection, resulting in 6064 research articles with no time limit. Of these, 3372 were scholarly peer-reviewed articles. Other search terms included nurse practice environment and relational coordination, which yielded 1,655 scholarly peer-reviewed articles.

Countless studies have been conducted on care coordination from various professional disciplines and government and professional organizations. Articles and white papers were examined from international sources as well. Following the application of inclusion and exclusionary criteria, acute care settings, long-term care, nursing, physician coordination of care, nurse practice environment, and relational coordination 82 articles were identified and reviewed

from nursing and non-nursing sources to gain a broad perspective on care coordination, its evolution, and use, as well as, the nurse practice environment.

Critique and Synthesis of Previous Research

A plethora of peer-reviewed scholarly research and evidence exists on care coordination, its antecedents, outcomes, and best implementation practices, both nationally and internationally from various health care disciplines and settings. Concepts like coordination of care are so familiar that they quickly become rhetoric and their underlying complexity can be overlooked, lending to false assumptions that fragmented health systems can be addressed with simple solutions (Ehrlich, Kendall, Muenchberger, & Armstrong, 2009). Care coordination provides a more general approach to managing chronic conditions across disciplines.

Bear, Suear, & Jenstch (2000) found that service coordination and cost sharing are less costly models for service delivery and allow for greater choice than the traditional community based case management that were funded by the Older American Act of 1965. A common misunderstanding of coordinated care is often implied, and despite its frequent use, the elements are not clearly understood (Ehrlich, Kendall, Muenchberger, & Armstrong, 2009). Some form of care coordination is present in all health care systems.

Theoretical frameworks, conceptual frameworks or models.

Three main care coordination frameworks or models were identified in the literature: The Anderson Behavioral Framework, Donabedian Model, and Organizational Design Model. They are commonly used in studying care coordination (ARHQ, 2010). The studies reviewed on care coordination did not specifically identify theoretical or conceptual frameworks, but did identify care coordination models or elements of models.

Models. Wolf & Boult (2005) identified nine components of care coordination: " Patient evaluation, individual care planning, evidence-based decision making, consumer empowering, promotion of health lifestyles, coordination across provider settings, coordination across multiple conditions, caregiver support and education, and accessing community resources" (p. 441). Many models exist within care coordination, ranging from the structural model of care to service-specific models of care. Social models assess and authorize institutional, residential, and in home and long-term care services. Medical models coordinate medical treatments for high-cost beneficiaries, disease management, and pharmacy management. Integrated models bridge the medical and long-term care systems.

In the Johns Hopkins Guided Care Model nurses work in the primary care setting to coordinate care for patients with chronic conditions and complex needs, working side by side with the primary care physician, and interact with other health care providers who treat their patients. The biopsychosocial model provides a general theoretical approach for integration of services across settings because this model emphasizes patient care within a social context (Weston, 2005). The family-centered care service delivery model provides a framework for effective care coordination for children with special health care needs and their families. Family-centered care emphasizes partnerships between parents and providers, recognizes parents as experts in their child's care, and highlights decision-making roles for families (Law et al., 2003; Rosenbaum, King, Law, King, & Evans, 1998).

Care coordination coordinates resources across the health care system and routinely addresses the psychological and social risks affecting patient outcomes, while monitoring patient progress. This is the collaborative approach model, designed to deliver quality care in a managed care cost-containment environment (Kadushan & Kuly, 1993). Rosenbach and Young

(2000) identified three care coordination models: Centralized team model, in which team members are located at a central office and coordinate services for all patients, a regional model that coordinates services only for patients identified within geographic boundaries, and, a provider-based model that coordinates care for all patients served by a specific provider entity.

Recently the VHA adopted the Patient Centered Medical Home Model, also known as, Medical Home Model. This model is being implemented in primary care. A patient-driven, team based approach that delivers efficient, comprehensive and continuous care through active communication and coordination of healthcare services. It is based on a set of seven principles and depends on a core and expanded team of healthcare personnel who work with the veteran to plan their overall health. This model originated in the 1960s in pediatrics as a way to coordinate care for pediatric patients with special needs. It has been endorsed from the American Academy of Family Physicians, the American College of Physicians, the American Academy of Pediatrics and the American Osteopathic Academy (Grumbach & Grundy, 2010; VHA, 2010; NCQA, 2005).

Few models of care coordination contain all nine elements. One model is not more successful than the other; the utility is determined by its application. Von Korff et al. (1997) found that successful coordination care programs typically targeted patient identification, contained collaborative problem definitions, goal setting and planning, information delivery, self-management training, and supportive services.

***Frameworks*.** Powell Davies et al (2006) developed a framework for understanding coordinated care and described the need for it at the micro level, meso-level, and macro-level with health care systems. There are two major levels of care coordination: Processes and

Structure. Those focused on processes include communication strategies, and support for providers or the individual patient. The structural level focuses on sharing information across systems, referrals, care plans, and decision support systems. These strategies are more inclusive of multidisciplinary members, and include systemic processes (Ehrlich, Kendall, Muenchberger, & Armstrong, 2009).

The Agency for Healthcare Research and Quality. The Agency for Healthcare Research and Quality's Care Coordination Measures Atlas and Framework was developed in 2010 as a result of a 2007 literature review and gap analysis which revealed a lack of consistency in the definition and measurement of care coordination (McDonald et al., 2010). According to the editors, "it is useful for evaluators of projects aimed at improving care coordination and for quality improvement practitioners and researchers studying care coordination" (p.4).

The framework defines care coordination as a means to help achieve care goals with the aim to meet patient needs and preferences and to facilitate delivery of high-quality, high-value care (p.12). The framework identifies mechanisms of care coordination, experiences or effects of care coordination, and the broad approaches related to care coordination. Mechanisms of care coordination include processes of care, potential processes of care, and outcomes. Effective care coordination requires the processes of care: Establish accountability or negotiate responsibility, communication on various levels, facilitate transitions, assess needs and goals, create a proactive plan of care, monitor, follow-up, and respond to change, support self-management goals, have a link to community resources, and align resources with patient and population needs.

Necessary broad approaches are also required to achieve affective healthcare. They include teamwork focused on coordination, health care home, care management, medication management, use of health information technology (IT), and the designation of a case manager are broad approaches potentially related to care coordination. The AHRQ framework identifies best practices in care coordination.

National Quality Forum. In 2006, the National Quality Forum (NQF) constructed a standardized definition and framework for care coordination. This framework consists of five essential domains, and four principles. Healthcare "home," proactive plan of care and follow-up, communication, information systems and transitions or "hand-offs" represent the five domains. The guiding principles concludes that care coordination is vital for everyone, uncoordinated care vulnerabilities exist in special populations such as children and the frail elderly, accountability of care coordination lies with the physician, group, and organizational level, and surveys that capture the experience of care coordination are essential to measuring care coordination. NQF developed this framework in collaboration with various stakeholders and by consensus.

Empirical literature.

Care coordination is used simultaneously and interchangeably to describe and conceptualize what care is provided and when, the process of care delivery, addresses why care is being delivered, and the interpersonal aspects of care delivery. In the United Stated, care coordination began in the 1970's as social programs implemented case management for communities (Colorado Department of Public Health and Environment, 2006). It peaked in the 1990's with the introduction and critique of managed care organizations.

Working definition of care coordination.

Care coordination is difficult to define. It like other health care terms is defined by the end user. Defining care coordination has been difficult as other words have been used interchangeably in succession, and closely resemble care coordination. The meanings of these terms overlap in their meaning rendering each unclear (Sofaer, Kreling, & Carmel, 2000). It is difficult to measure a phenomenon that cannot be defined. In addition, other terms are often used that appear to be close in meaning to "care coordination," but the extent or degree of overlap in the meaning of these terms is also unclear (Chen, Brown, Archibald, et al. 2000; Siegel & Habel 1996).

Forty-seven varying definitions have been identified in the literature. From these definitions, the author defines care coordination as the right care, at the right time, and at the right place. Care coordination must include the consumer (patient, family, and community). Consumers must be included in health care decisions as recipients of services and identified as major stakeholders responsible for their own care. The consumer's definition of care coordination, its acceptance, and utility are needed for system integration of care coordination (Harrison & Verhoef, 2002).

Measurement.

Care coordination is complex and critical to the provision of care (Werternberger et al., 2006). It offers a systemic and responsive approach to supporting people with chronic conditions (Bowler, 2006; Ingersoll, Valente, & Roper, 2005; Segal et al., 2004). Coordinated care provided real outcomes, clinically and organizationally to include reduced hospital admissions, decrease waste and duplication of services; supporting vulnerable populations across

the continuum, detecting disease exacerbation early, improved patient medication management, and increased access to care (Wegner, Antonelli, & Turchi, 2009; Engelhardt et al. 2006). Extending nurse care coordination services to chronically ill heart failure patients resulted in decreased adverse outcomes and longer periods between hospital readmissions (Naylor et al., 2005; Naylor, 2004).

Grumbach & Grundy (2010) found care coordination as the source of crisis aversion, health promotion, and meeting needs traditionally missed. Care coordination was provided by health care organizations, primary care providers, community agencies, and a variety of healthcare professionals in different settings. Ehrlich, Kendall, Muenchberger, & Armstrong (2009) identified core functions of team-based primary and community care: "Delivers systemic, responsive, and supportive care to people with chronic complex disease needs" (p. 624).

Other studies found either no benefit of care coordination in the traditional form or other form (Stille et al., 2005). Wooten, Gramotnev, Hailey (2009) suggested the application of care coordination using a random-control trial of veterans with congestive heart failure (CHF), were successful, but did not have advantages over the usual care coordination methods. Peikes, Chen, Schore & Brown (2009) conducted a review of 15 clinical trials of Medicare beneficiaries receiving care coordination, and found most care coordination programs did not reduce hospitalizations for Medicare beneficiaries.

Outcomes. One way that coordination of care is being measured is by outcomes. The government, employers, and private insurers recognize the potential of coordinated care to improve outcomes, and reduce costs. Additional driving forces include aging populations, emerging complex and chronic diseases, cost of healthcare, quality of care, and providing end of

life care (Tieman et al, et al., 2007). As such government systems, private, and public organizations are offering some form of payment for performance which includes care coordination.

Similar issues are driving the interest in care coordination in various countries. Powerful regulatory and market forces will demand that hospitals improve the coordination of post-acute care and healthcare reform legislation including measures that will penalize providers for avoidable readmissions while rewarding hospitals and physicians for better coordinating care from pre-admission to post-discharge (Johnson & Bulik, 2010; Rantz et. Al, 2010; Nyssen, 2007; Kadushan, 1993). Payment systems are being designed to reward providers that coordinate care.

The body of research continues to grow in terms of outcomes related to care coordination. NQF developed and defined 10 care coordination measures to improve quality of healthcare by way of accountability and public reporting (NQF, 2010, 2006). These measures relate to the essential domains, guiding principles, and enhance the measures that exist for continuity of care, communication, transitional care, information technology systems, and healthcare "home."

Care coordination positively impacts or improves cost savings, care experience, reduced hospital-bed days, and attrition rate, activities of daily living (ADLs) and patient satisfaction (Barnett, 2006; Cies, 2006; Claiboine, 2006; Engelhardt, 2006). Coleman et al. (2006) documented an annual return on investment of $3.98 for each dollar spent on a complex care program (11 chronic conditions targeted) that reduced re-hospitalization rates at 30, 90, and 180 days. End-of-life care coordination also showed positive outcomes with better management of disease, including increased awareness of resources, less acute disease symptoms, improved functioning, greater vitality, increased patient satisfaction, increased completion of advanced

directives, and substantial cost savings (Aiken et al., 2006; Engelhardt et al., 2006). Improved medical and cost outcomes were documented for such diverse conditions as surgical knee replacements, stroke and asthma when care coordination or continuity of care interventions were added to the usual care measures (Weinberg et al., 2007; Claiborne, 2006; Cree et al., 2006).

The Veterans Administration used Tele-health technology to promote care coordination for veterans with complex care requirements. They documented decreases in all-cause-related hospitalization rates by 25% and a decrease of diabetes-related hospitalizations of 6% (Barnett et al., 2006). In 2002, the Centers for Medicare & Medicaid Services (CMS) launched the Medicare Coordinated Care Demonstration (MCCD) across 15 demonstration programs in a randomized controlled study.

The purpose of the program was to improve health outcomes and reduce costs for chronically ill beneficiaries by encouraging adherence to self-care and medication regimens and improving communication with physicians. Two important developments surfaced relevant to care coordination: Specialization of medical sciences has increased the division and distribution of tasks among experts from different disciplines and economical and political pressures to better allocate resources and costs exist (Nyssen, 2007 p. 149).

The outcome studies presented in this section were experimental random controlled trials. The major advantage of experimental research over observational research is the strength of causal inference, which provides a fair conclusion of the effect of one variable on another (Crosby, DiClemente, & Salazar, 2006). It is also the best type of research for controlling potential confounding influences. The RCT is coined “the gold standard” for evaluating health

promotion programs and interventions (Burns & Grove, 2009; Crosby, DiClemente, & Salazar, 2006). These findings offer stronger evidence that care coordination improves outcomes.

Challenges of Care Coordination.

Key problems have been identified at the interface level of care coordination, especially at cross-over points like long-term care (Hofmarcher, Howard, & Oxley, 2007, p. 20). Despite health-care professionals managing these transitions into long-term care, these services do not appear adequate or appropriately formulated to meet the challenge of care coordination, this despite global efforts to improve hand-off from hospital to community care (Hofmarcher, Howard, & Oxley, 2007, p. 20). Care coordination was applied when the care needs of people were complicated and multiple ongoing interventions from various specialists (Branca & Lake, 2004).

When coordination was working, it was assumed people were supported in all areas across the spectrum (Palsbo et al., 2006). Poor care coordination may result in conflicting information to patients and caregivers and lead to a loss of confidence in providers (Gerteis, 1993). It may also produce confused, under informed or noncompliant patients (NQF, 2010; Ellers & Walker 1993). Additionally, coordination failures may produce patient dissatisfaction, which may have negative consequences for health care organizations in a competitive environment by reducing repeat business, generating negative word of mouth, or producing low patient care quality ratings (Cleary, 2003).

Chen, Brown, Archibald, Aliotta, & Fox (2000) examined care coordination in relation to best practice of Fee for Service coordinated care and identified best practices of successful programs. Programs should have a process that continually assesses and reassesses, have

expressed goals of prevention of health problems, crises, and be proactive in the early detection and intervention of problems. During the assessment-reassessment cycle, a written care plan is developed, and an ongoing care coordinator-patient relationship is established with patient education. Reassessing and adjusting involves periodically reviewing the patient progress.

Successful coordination programs should incorporate national evidence-based or consensus based guidelines into their interventions, and the care coordinators should be nurses with at least a bachelor's degree in nursing. Programs should have significant experience in care coordination and should have evidence of reduction of hospital use or total medical costs. The authors also found the demonstration projects had reasonable chance of being cost-effective.

Barriers.

Olivia (2010) identified increased documentation time as a barrier to effective care coordination. The author examined the role of the Nurse Case Manager (NCM). The documentation times of the NCM increased in relation to cross-setting information barriers including incompatible information systems, limited access, and exchange of information. The IOM (2011) identified not having one source for care coordination as a barrier, as well as, not having a care coordinator adequately trained or skilled in care coordination.

The call to integrate research and evidence into practice is overwhelming. This charge is being filled, but slowly. A moderate amount of nurses use research as a basis for practice (Leasure, 2008). A review of the literature reveals that despite health care organizations spending time, money, and energy to define what evidence-base practice is, not as many resources are being allocated for those involved in direct care to implement the findings (Leasure, 2008).

Barriers to timely use of research findings include a lack of knowledge, information written terms other than the practitioner's level, varying degrees of the proposed intervention, the context of the organizational setting, perceived or actual lack of organizational support, and the poor state of information itself (Leasure, 2008; Stetler et al., 2006). The inability to critically analyze the information serves as an additional barrier (Stetler et al., 2006). Leasure further identified resistance to implementation as the clinicians feel they are being asked to implement "cookbook care."

Sharp et al., (2004) identified the lack of manager, provider, and patient awareness, lack of leadership, time, and resources as barriers to evidence-based care integration with the VHA. These types of barriers allow the current practice to remain unchallenged, and unchanged. To improve care coordination and collaboration, it is vital to address key areas like financing, workforce, information technology, performance assessment, and research (Mauer & Druss, 2010). Ellis, Howard, Larson, & Robertson (2005) found nurses reported using more research in practice with better leadership, supportive organizational cultures, open evaluation systems which produced better patient outcomes. This information indicates an examination of the nurse practice environment.

Care coordination in organizations. Organizations such as the Robert Wood Johnson Foundation (RWJF) and IOM have encouraged leaders to examine the nurse practice environment as a way to improve the quality of care provided to patients (Robert Wood Johnson Foundation, 2006; IOM, 2004). The nurse's practice environment is defined as organizational characteristics of a work environment that assist or impede professional nurse practice (Lake, 2002). A professional practice of nursing is perceived by nurses to support higher quality of care (Pearson, et al., 2006; Lake, 2002). A nurse is supported as a professional in a professional work

environment, and is a preferred work environment by nurses (Gittell, 2002; Lake, 2002). Professional practice work areas have high levels of nurse autonomy, control over practice (COP), and positive nurse-physician relationships which promotes better communication between care team members (Kramer & Schmalenberg, 2003a, 2003b). Nurse autonomy and nurse control of practice environment lends to a healthy nurse work environment (Weston, 2008).

It is well established that professional nurse environments positively affect nurse and patient outcomes. IOM (2001) identified care coordination within acute care organizations and between them as a cutting edge cross-strategy necessary to close the quality gap. When done well, the process of care coordination is effective, helping organizations meet the needs of its patients across facilities and providers (Weinberg, et al., 2007; Petroski & Rantz, 2006; IOM, 2004). Components of care coordination to include collegiality, collaboration, and relational coordination have been linked to better patient outcomes such as decreased urinary tract infections, less post-operative pain, and higher functioning and decreased length of stay for patients receiving joint replacements (Gittell, 2000; Duva, 2010, Gittell, et al., 2000; Sovie & Jawad, 2001). To date, few studies have examined the link between the nurse's professional practice environment and the processes of care coordination.

Nurse Roles and Care Coordination

It is well documented that care coordination requires collaboration across professional disciplines and organizations. It is this transition time that creates the greatest challenge to care coordination (Coleman & Bereson, 2004). The RN workforce has the greatest potential to decrease the risks associated with transitions and meld the fragmented pieces of healthcare

(IOM, 2011). It is also documented that opportunities to prevent complications and ensure efficient and evidence-based care are often found from chart reviews conducted by those not involved in patient care, such as quality reviewers, or case managers. These opportunities present after the patient has been discharged (Leasure, 2008).

Many of these roles are held by RNs. O'Malley, Tynan, Cohen, Kemper, & Davis, (2009) found that care coordination by RNs was effective, but the associated cost of hiring them served as a barrier. Marek, Popejoy, Petroski, & Rantz (2006) found the addition of a nurse care coordination program to managed care organizations improved the clinical outcomes of patients. Care coordination is a component of transitional care. When management of this process is coordinated by advanced practice nurses in Congestive Heart Programs, Geriatrics, and in dealing with complex patients, re-hospitalization rates decrease (Coleman & Berenson, 2004).

According to Leasure, Stirlen, & Thompson (2008), nursing is the largest healthcare profession that utilizes the largest operational budget in most healthcare organizations. Their contributions are invaluable. Duva (2010) conducted a correlational study to examine the relationship between the staff nurse professional practice environment and the process of staff nurse care coordination. Duva's findings indicate "that a professional practice environment may enable nurses to perform core nursing activities, such as care coordination activities, in less time and reduce less valuable activities, such as backfilling." (p. 88). Duva further recommended this relationship be further explored to include specific processes of care coordination. The intent of this project is to examine similar relationships within the VHA's GEC.

Summary of Care Coordination

Care coordination programs take time to develop (Rosenbach &Young, 2000). Efforts to continue care coordination should continue across the continuum of care to ensure health promotion in one setting is not undermined when a patient transfers to another setting. Patient input is required to integrate care coordination across the continuum. In inpatient settings, there is growing evidence regarding the effective design of coordinating mechanisms such as cross-functional boundary spanners, protocols, and information systems (Gittell & Weiss 2004). Such coordinating mechanisms can be extended and adapted to facilitate the cross-organizational coordination of care (Gittell & Weiss 2004).

Care coordination does not occur in a silo. It requires mutual communication, action, and will not be successful if providers lack the time, resources, availability, or inclination not only to provide information but also to process it. Changes in the reward structure, in performance measures, and in the hiring and training of providers to support the use of coordinating mechanisms are necessary for success. When implemented successfully, social, medical, and hybrid models have the potential to increase significantly the quality of care for those with chronic conditions and to reduce costs (Mollica & Gillespie, 2003).

The future in healthcare delivery belongs to organizations that coordinate care to ensure patients receive evidence-based treatment, that have been proven to enhance quality of care and outcomes, and that have the potential to reduce costs. Healthcare activity will continue its shift from high-cost hospital settings to lower-cost, alternative settings. In this day of healthcare reform, health systems will grow by enhancing care coordination throughout the acute and post-acute care continuum (Johnson & Burik, 2010).

Capitol will flow to facilities and services that promote cost-effective care coordination. As countries grapple with redesigning their delivery systems from an acute, episodic orientation toward team approaches that integrate care over time and promote health for chronically ill patients, there is a unique opportunity for cross-national learning. It is also paramount to be able to identify the missing elements of coordinated care, establish the cause of absence, and rectify the gap (Schoen, Osborn, How, Doty, & Peugh, 2009; Haggerty, 2003). The RN is at the forefront of many care coordination programs. Patient's functional status is best achieved where nurse communication and informal coordination is effective (Doran, Sidani, Keatings, & Doidge, 2002). Organizations such as the VHA will meet the current and future healthcare demand by integrating care coordination; warranting an initial assessment of the current state of affairs, hence this project.

Rationale for Project

Gaps in current knowledge and future nursing research implications.

The effects and outcomes of care coordination are well documented. Care coordination metrics such as length of stay, visits to the emergency room, or acute care center are identified as measureable patient outcomes; however further knowledge is needed for calculating costs and savings associated with care coordination, the identification of best practices for care coordination, a consensus definition of care coordination, and the required elements like staffing ratios. Future nursing research should focus on the use of theoretical frameworks for implementing and evaluating care coordination, care coordination across institutions, and the effect of technology on care coordination.

Johnson & Burik (2010) asserted that post-acute care is the most fragmented, least noticed, and least coordinated component of the care chain, with care being coordinated to

personal and transitional care, rehabilitation, skilled nursing, and home healthcare where evidence-based treatment disintegrates lending to increased hospital return rates (Johnson & Burik, 2010). Care coordination as a core function of team-based primary and community care that delivers systematic, responsive and supportive care to people with complex chronic disease care needs. The charge to transform health care has been given. Transformation is complex.

Complexity can easily undermine responsibility, creativity, and result in feelings of helplessness and hopelessness for patients and staff (Zaccagnini, 2011 p.42). Zaccagnini further asserted the approach to any complex situation must begin with the deep insight that the problems and the hopes for improvement are inextricably tied to how the problem solvers think. The problem solvers in this case are the stakeholders involved in care coordination. The RN Care Coordinators coordinate care across organizations. Additional stakeholders include the organizational leaders involved in acquiring the resources for care coordination to occur, and ultimately the end-user of services, the veteran. These stakeholders are intertwined in the VHA health care system.

The aim of this project is to create a profile of the VHA GEC RN Care Coordinator, examine the relationships between their practice environment and work processes of care coordination. Conducting careful analysis on a small scale ultimately leads to redesign of the larger system, lending itself to new initiatives and efficiency. Successful organizations are learning organizations, who value the input, and the mental models of its employees; non-learning institutions have very poor performance (Lewis, 2001). Not involving the clinician at the outset costs institutions both financially and functionally.

The VHA GEC RN Care Coordinators are important stakeholders, who share or have a common ground before and whilst implementing, changing, or evaluating programs to meet

regulatory requirements. Stakeholders may see clearly how to effect change and adopt mechanisms that will successfully work on a larger scale, as they come to understand the mechanics within the system that facilitate or bar behaviors and patterns which may result in problems like poor outputs, throughputs, or inputs.

These RNs are responsible for the coordination of care for veterans receiving services from the one aspect of VHA coordinated care. The VHA has adopted the Patient-Centered Medical Home Model (PCMH) or Patient Aligned Centered Care Model (PACT) in primary care, which recognizes the RN care manager as a fundamental approach to this care coordination model (VHA, 2010). The implementation of care coordination or the improvement in practice is neither sustainable nor measurable without corresponding organizational and professional arrangements, organizational and professional culture, and resource allocation to support practice (Zaccagnini, 2011). The workplace environment, staffing shortages, increasing workloads, inefficient work and technology processes, and job satisfaction are factors that contribute to nurse attrition rate (Hayes et al 2006; Yin and Yang, 2002; Aiken, Clarke, Sloane, Sochalski, Silber, 2002).

The results of this study can potentiate best practices in other RN areas of care coordination, like PACT. The RN workforce equipped with the appropriate resources can be deployed to mesh the fragments of care within the VHA and other health care organizations. IOM (2003) declared patient-centered care, teamwork, collaboration, evidenced-based practice, and quality improvement strategies as the foundational competence needed for system redesign. Before change can be implemented an assessment is required to gain insight into the current state of affairs. “Then and only then, can consumers of the system provide feedback to validate the effectiveness of the changes.” (Zagganini, 2011, p.44).

Care coordination has been identified as one initiative that can repair the current fragmented health care delivery system. Current health reform legislature aims to lessen the state of fragmentation, the associated costs, and poor quality and outcomes. It is estimated that if facilitated correctly, by year end 2014, care coordination has the potential annual savings of $271 billion (IOM, 2011).

Chen, Brown, Archibald, Aliotta, & Fox (2000) identified five best practices to care coordination. AHRQ framework identifies key activities and program component that should occur for care coordination to be effective. The RN Care Coordinator may be a facilitator for evidence-based care coordination efforts. This inquiry will examine strategies used in the work processes of care coordination. The RN workforce has been identified as a population of health care providers who are able to delivery effective care coordination, yet unable to meet the demand imposed by new care coordination initiatives (IOM, 2011). An assessment is warranted. Effective care coordination and evidence based care coordination can only occur if constraints, barriers, outdated policy, practices, and regulation are identified and removed. When barriers and constraints are removed, nurses have the capacity and opportunity to practice to the fullest extent of their education and training (IOM, 2011).

Chapter 3- Methods

Design

A descriptive correlational design was used to examine the characteristics of the RN Care Coordinator (Q1), the association between the RN Care Coordinator's perceived professional practice environment and the work processes of care coordination in VHA's GEC (Q2). Care Coordinators belonging to three email groups were solicited for participation: Community Health Nurse Coordinators (CHNC), Community and Home-based Care (C&HBC), and the Contracted Nursing Home (CNH). The statistical analysis was modeled after Duva's (2010) dissertation on care coordination and the staff nurse work environment. Unlike Duva's dissertation, this project did not examine patient outcomes. Selected demographic covariates were examined for any relationship to the work environment and the care coordinator's perceptions of care coordination. Characteristics of the individual care coordinator's, team, and programs were explored for a relationship to nurses' perceptions of the work environment and the perceived level of relational care coordination.

Population

Setting.

Responses were collected from care coordinators in their natural settings across the VHA. VHA operates a wide range of facilities and programs including 152 hospitals, 804 community-based outpatient clinics, 134 community living centers, 225 Readjustment Counseling Centers, and 90 domiciliary residential rehabilitation treatment programs (DVA, 2011b). The medical facilities are categorized according to complexity level of the patients served, clinical services offered, educational and research missions, and administration complexity. A level one facility is the most complex. Level two facilities are moderately complex, and level 3 facilities are the

least complex.

Sample.

A convenience sample of 329 VHA GEC care coordinators were recruited and surveyed. The name, title, institution, and e-mail address of the care coordinators were located and retrieved from the National Community Health Nurse Coordinator, Contract Nursing Home Program, and Community & Home-based Care Microsoft Office email groups of which the PI is a member. This information is also available to VHA employees and easily accessible. At the time of extraction, there were 550 members in these groups.

An initial review and cleaning to include the removal of duplicate email addresses yielded a sample of 329 members whose title contained Registered Nurse, Licensed Practical Nurse, or unknown. Only one email per participant was accessed. There is one independent variable (the professional practice work environment), one dependent variable (care coordination) and 4 covariates (RN or LPN Years of Experience, Years as GEC RN Care Coordinator, Highest Nursing education, and Tenure with Organization.

Survey response rates can range from 0-100%. A 50 percent survey response rate should be a representative sample and is good for analysis purpose, particularly when using an individual method of administration (Church, Waclawski, & Kraut, 2001; Verran, Gerber, & Milton, 1995). Similarly, response rates above 65 percent are considered good by most standards. Organizations like the VHA, routinely administer surveys to elicit employee opinions about work conditions, ethics, programs implementation, and various other feedback.

This may result in a lower response rate and act as a barrier due to cynicism, apathy from over-surveying, poor or inappropriate administration methods, communication, leadership, sponsorship, or a resistive organizational culture (Church, Waclawski, & Kraut, 2001). In

anticipation of a low response rate, a direct comparison of demographic data of the sample or total population will be conducted. Evidence suggests that responses may not be skewed in one direction or the other if the identified patterns are similar in respect to variables like tenure in organization, tenure as a care coordinator, education, and certification (Duva, 2010).

Inclusion/ Exclusion criteria.

Inclusion criteria for this quality improvement project included respondents who were a Registered Professional Nurse or Licensed Practical Nurse (LPN), a member of the National Community Health Nurse Coordinator group, Purchased Home & Community Based Care group, or Contract Nursing Home Coordinator group, identified as a Community Health Nurse Coordinator or function in this role, and be able to read and speak English. The responses from respondents identified as LPNs will be tabulated to assist program leadership in an assessment of the current use of LPNs in the role of care coordinator. Exclusion criteria for this quality improvement project are: Non-nursing disciplines, travel or agency RNs, and if a respondent is on a leave of absence.

Rationale for inclusion/exclusion criteria.

Questionnaires were disseminated in English. Participants must have been fluent in English in order to understand the contents of the questionnaire. Nurses hired within the VHA are required to be proficient in the English language. The Registered Nurse has been identified as a key stakeholder in the role of effective care coordination (IOM, 2011; ANA, 2010).

This project aimed to understand the unique features of excellence, background, and characteristics of the RN in the role of care coordinator, and the environment in which they practice. This focus is consistent with previous studies that examined the professional practice

environment of the RN (Duva, 2010; Warshawsky & Havens, 2010; Friese, 2008; Li et al., 2007; McGillis-Hall, 2003; Lake, 2002). Recent communication involving the use of LPNs in the role of care coordinator flourished in email discussions.

Information collected on LPN respondents was collected for program leadership, noting differences exist in performance, scopes, standards between the LPN and RN. By many state nurse practice acts, the LPN cannot be substituted for RNs in any situation that requires the skill level of a RN (Seago et al., 2004). It is not the intent of this project to negate the role or importance the LPN plays in healthcare today; the RN is the focus of this project.

Recruitment.

Care coordinators were recruited through email contact. The primary investigator (PI) sent an explanatory email 7 and 14 days before survey implementation (Appendix A) which described the purpose of the project, extended an invitation to participate, and provided the PI's contact information. The implementation email included an embedded link to the complete an on-line survey. Participation was voluntary, and respondents could withdraw at any time. Recruitment efforts and data collection spanned 10 weeks. The PI issued reminder emails (Appendix B) using Survey Monkey. Upon completing the survey, each respondent received a thank you email.

Procedures

Ethical issues.

This project is a human research quality improvement project which required review by Carlow University's Institutional Review Board (IRB), and the Orlando VA Medical Center Research & Development Officer (Appendix C). Prior to data collection, the quality

improvement project received approval from Carlow University's Institutional Review Board and the Orlando VA RDO's official determination that this project was a quality improvement project which does not necessitate VA Institutional Review Board approval. In accordance with VA policy and regulation this project and the results are the Intellectual Property of the Department of Veterans Affairs, cannot and will not be published or disseminated without permission.

All electronic data was stored on a VHA issued laptop, the PI's home computer, and an external memory device for back-up; no other persons had access to the data. The PI's home computer and commercial antivirus software met VHA security requirements. All costs associated with this project were paid by the PI. The direct costs associated with this project include the cost to purchase the online commercial survey software, statistical analysis software, biostatistician, printing, and binding of final project. Direct and indirect costs total$1000.

Resources/supports.

The initial planning for this quality improvement project anticipated receiving letters of support from VHA GEC leadership, as well as, from the CHNC Chairperson/liaison. Despite multiple telephone calls, email correspondence, sending project summary documents, sent to the Director of the Purchased and Long-term Care/GEC, and discussions with the CHNC Chair, the primary investigator was unable to secure letters of support. It was anticipated these letters would increase survey responses. Letters of support from formal and informal leadership can increase the survey response rate (Church, Waclawski, & Kraut, 2001). As a courtesy, the primary investigator copied both the director and CHNC chair on the initial email correspondence to the care coordinators.

Identified barriers. While the PI recently changed positions and is no longer part of the group, she has established relationships with care coordinators over the past 3 years and her knowledge of the role lends credibility to potential respondents. Care coordinators may have had concerns about the time required to complete surveys; they were informed the response burden was 20 minutes. Moreover, the PI will use the Dillman method to encourage participation by pointing out the benefits of participation in terms of improving their practice environment.

Reminder emails were sent to encourage and remind participants to complete the surveys. Additional data collection challenges may have included a lack of time to complete the questionnaires, passive resistance secondary to the overuse of surveys in the organization, low organizational morale, and the organizational culture. Not securing letters of support or endorsement from key stakeholders may have hindered respondent participation.

Instruments

Several instruments were combined for respondent appearance purposes in Survey Monkey, however, three separate instruments were used to collect data. The Practice Environment Scale of the Nursing Work Index (PES-NWI) was used to examine the work environment of the care coordinator (Appendix E). Gittell's Relational Coordination Instrument (RCI) was used to examine the relational dynamics of coordinating care (Appendix F). Instrument reliability and validity of both instruments have been reported in previous studies as valid, consistent, and reliable (Duva, 2010; Gittell, 2010, 2002, 2000a, 2000b; Van Bogaert, Clarke, Roelant, Meulemans, & Van de Hyrins, 2009; Lake 2007; 2002).

Reliability of an instrument is defined as "the consistency with which it measures the target attribute" (Polit & Beck, 2008, p. 452). Consistency is the goal of instrument choice (Creswell, 2009). Polit & Beck (2008) defined validity as the "degree to which an instrument measures what it is supposed to" (p. 457). Validity exists in several forms; the more evidence that can be located in relation to validity, the stronger the support for making conclusions (Creswell, 2009).

The Care Coordinator Demographic Form (Appendix G) is a PI developed instrument to capture the individual characteristics of the respondent and the organization in which they practice. This list was developed based on the PI's previous experience as a Community Health Nurse Coordinator (CHNC), a clinical manager of a group of CHNC's, and the literature. Personal identifying information was not collected beyond the aforementioned demographics. Table 1 describes each project variable, the measurement and analysis level, and the instrument used to measure the variable.

Care coordinator demographics.

Care coordinator demographic information was collected as part of the initial query when respondents agreed to participant in the survey. This data included tenure with the organization, tenure as a RN, tenure as a care coordinator, the highest level of education obtained/certification(s) held, supervisory capacity, and team composition to include the number of care coordinators in their program, respective titles, and functions.

Organizational demographics.

The care coordinator completed organizational questions that depict the characteristics of the organization specifically related to care coordination. These questions include: Team make-up and structure, nursing and leadership design (hierarchy), type of facility (medical center,

skilled nursing facility, dormitory, community-based outpatient center, ambulatory care, or specialty clinic), facility designation, and tools used to coordinate care (VHA handbooks, CMS.gov, CNH website, Community Partners, electronic waitlists, Purchased Home & Community Care Group or National Community Health Nurse Coordinator group). Medical Center designation levels were defined by VHA. Certifications were defined and matched to the American Nurse Credentialing Center (ANCC) designations.

The Practice Environment Scale (PES - NWI).

The PES-NWI is a questionnaire used to measure the quality of nursing practice environments, nursing care as a performance measure of structure at the facility level, is used as a screening indicator for hospital staff effectiveness, and its implementation is an annual requirement that hospitals must complete to gain and maintain Magnet designation status (Warshwaky & Havens, 2010; The Joint Commission, 2009; Duva, 2010; Lake & Freise, 2006a,b; The National Quality Forum, 2004; American Nurses Credentialing Center, 2005; Lake, 2002). It is the most widely reported measure used to gauge the state of nursing practice environments (Warshwaky & Havens, 2010). The tool was developed from the Nursing Work Index (Kramer & Hafner, 1989) and the Nursing Work Index-Revised (Aiken & Patrician, 2000; Lake 2002).

The VHA Office of Nursing Services uses a modified version of the PES-NWI to conduct annual surveys of the RN perception of the work environment (VA Nurse Outcomes Database [VANOD], 2010). For the purposes of this project, it provided a global measure of the care coordinator's practice environment. The questionnaires were used on a group level. The PES-NWI is a 31 item tool with five subscales derived from factor analysis of the 48 NWI-R items and 16 of the original Magnet hospitals (Lake 2002, pg 181).

The five subscales are as follows: Nurse Participation in Hospital Affairs measures the staff nurse's involvement in the governance of the organization. Staffing and Resource Adequacy examines the tools used to get the job done. Nursing Foundations for Quality of Care examines the nurses' perception of quality in the organization. Nurse Manager Ability, Leadership, and Support of Nurses examine the perception of the nurse leader, and Collegial Nurse/Physicians Relations measures the perception of nurse-physician relationship.

The subscale score is an average of the subscale item responses. Scores can range from 1-4 with higher scores indicating more agreement that the item is present in the current work environment. Higher scores reflect better professional practice environments, and increased relational coordination (Lake, 2002; Duva, 2010; Gittell, 2010). Scores above 2.5 indicate general agreement, and scores below 2.5 indicate disagreement. Responses were analyzed at the individual, unit, or organizational level. Care coordinators were asked to indicate their concurrence on a 4-point scale that ranged from strongly agrees to strongly disagree with statements that characterized their current work environment.

This tool was endorsed by professional organizations promoting quality, used across clinical and non-clinical settings, and internationally to include examining the practice environment at the staff nurse, administrative, and organizational leadership levels.
There is considerable evidence supporting the validity and reliability of the PES-NWI.
The original tool was tested on subjects from 16 magnet institutions (Lake, 2002).
Subscale internal consistency was measured resulting in Cronbach's alpha range from 0.71 to 0.84. One scale measured >0.80. In the same project, the average of the inter-item correlations among hospital-level reliability ranged from 0.64 to .91.

Duva (2010) reported reliability as a total instrument with Cronbach's alpha of 0.95 at the

individual level. Duva's findings are consistent with other studies illustrating variability of subscales which reinforces the use of this tool as a single scale for a thorough assessment of the practice environment. Construct validity was established within group agreement at 0.98. Moorer, Meterko, Alt-White, & Sullivan (2010) crafted a Nursing Information Technology subscale to the PES-NWI and found strong inter-item correlations 0.47- 0.61 with corrected mean item –to-scale correlation of 0.72.

The internal consistency reliability reported for the composite measure and the five subscales are consistently high at the individual registered nurse level. The Cronbach's alpha for the composite was originally reported to be 0.82 (Lake, 2002). Subscale reliabilities were high in the original testing: Nurse Participation in hospital affairs = 0.83, nursing foundations for quality care = 0.80, nurse manager ability, leadership and support = 0.84, staffing and resource adequacy = 0.80 and collegial nurse-physician relations = 0.71.

Lake (2006) conducted analysis of data from 156 Pennsylvania hospitals producing subscale and composite measure alphas ranging from 0.88 to 0.98. In 2007, Lake re-assessed the scales and concluded the PES-NWI, was the most useful measure of practice environment with content, length, and performance being just as good or if not better than other existing tools. She further recommended shortening the tool to decrease respondent burden. Li et al (2007) found similar findings when comparing the derivation and psychometric performance using new data of three related tools to measure the practice environment.

The authors compared the PES-NWI with its antecedents with 6,623 RNs in the VHA and found strong correlation coefficients (0.93-0.97) among the Nurse Manager Ability, Leadership and Support of Nurses, and Nurse Participation in Hospital Affairs subscales. The authors also recommend shortening the survey to decrease respondent burden and increase

response rate without using incentives. Questions remained concerning the instruments validity when using scoring subscales on independent dimensions (Li et al., 2007; Slater & McCormack, 2007; Cummings, Hayduk, & Estabrooks, 2006).

Lake advises clarifying the level the question items refer to when administering the questionnaire to the RN (Lake, 2002). The PES-NWI will be used in its entirety to assess the nurse practice environment as suggested by the literature (Warshawky & Havens, 2010; Moorer, Meterko, Alt-White, & Sullivan, 2010; Duva, 2010; The Joint Commission, 2009; National Quality Forum, 2004; Lake, 2002). Use of this total score has been found to be more stable than the use of subscales (Duva, 2010; Estabrookes, et al., 2002; Li, et al., 2007).

Gittell's Relational Coordination Instrument (RCI).

The theory of relational coordination argues specifically that the effectiveness of coordination is determined by the quality of communication among participants in a work process (Gittell, 2006). The RCI tool measures seven dimensions of coordination using seven items in a Likert-type scale. The seven dimensions are timeliness of communication, frequency of communication, accuracy of communication, problem solving communication, shared goals, shared knowledge, and mutual respect. This tool was originally developed in the airline industry and transitioned into healthcare.

Gittell et al. (2000) found the Cronbach's alpha for the total scale as 0.80 and higher, with significant differences across groups. In examining high performance organizations, Gittell, Seidner, & Wimbush (2010) established high construct level reliability at Cronbach's alpha of 0.86. Gittell's (2007, 2000) studies support high construct validity of these seven dimensions with hypothesized organizational control mechanisms such as cross functional accountability and supervisory span of control.

Correlations between the RCI and organizational control mechanisms ranged from 0.63 and 0.96 (Gittell, 2000b, 2007). Duva (2010) reported high reliability, acceptable correlation, and construct validity when at the individual level examining the relational correlation and the nurse practice environment. Unit level analysis, Intra-class correlation coefficient (ICC-2), resulted at 0.05, leaving questions about unit level reliability.

The RCI is a questionnaire developed and tested in previous research on the individual, group, and inter-organizational levels (Gittell, Seidner, & Wimbush, 2010; Carmeli, & Gittell, 2009; Gittell, Weinberg, Pfefferle, & Bishop, 2008; Gittell, 2002). The care coordinator rated their experience with other members of the care team on each of these dimensions. Based on previous studies, relational coordination was expected to have index reliability scores between 0.80 and 0.90. This tool will be used to measure the work processes of care coordination.

Table 1

Overview of Data Collection, Variable Measured, & Instrumentation

Variable	Type of Measure	Instrument
CHNC Demographic Education/Certification Tenure with Organization Tenure as CHNC Tenure as RN	Individual-aggregate to group Covariate Covariate Covariate Covariate	Demographic Form
Organizational Demographic Profile	Individual-aggregate to group	CHNC Demographic Form
Practice Environment Score	Individual – aggregate to group	Lake‘s (2002) Practice Environment Scale of the Nursing Work Inventory (PES - NWI)
Relational Care Coordination	Individual-aggregate group	Gittell’s (2002) Relational Coordination Inventory

Data Analysis Plan-collection

Permission to use the Practice Environment Scale of the Nursing Work Index (PES-NWI) instrument, the Relational Coordination Instrument (RCI), and Duva's (2010) dissertation were obtained from the authors (Appendix H). The PI adhered to the administration and usage directions of each instruments. Respondents granted informed consent by selecting yes at the beginning of the survey. Participation in the project was voluntary and no reward or incentives were provided for participation. Depending on their responses, respondents would answer a maximum of 48 questions. Respondent burden ranged between 10 and 20 minutes. All collected data remained anonymous and was reported in aggregate form. To increase participation reminder emails were sent. Data was stored by the PI on password protected computers in compliance with VHA and Carlow University requirements.

Data was collected using Survey Monkey which met VHA security requirements (Appendix L). Survey Monkey assigned a unique identification number to each participant to prevent duplicate survey entries. It collected, summarized response data, and monitored the consistency of responses. To prevent missing key data, respondents were unable to enter incomplete responses to critical questions. Questions that were identified as critical were made required fields. Respondents were not allowed to advance to the next question without providing a response. Predictive Analysis Software (PASW) 18.0, statistical analysis software, was used for further data analysis.

Chapter 4

Results

The aim of this project was to describe the characteristics of RN Care Coordinators working in Purchased Long-Term Care in the Geriatric and Extended Care Service Line of VHA, to explore the relationship between the perceived professional practice environment and processes of care coordination, and examine if the perception of the work environment and/or processes of care coordination differ as the education and certification level changes. This chapter describes the sample characteristics and analyzes the research questions. Results of descriptive and inferential statistical analysis are presented. Statistical analyses were conducted using Microsoft Excel and imported into PASW 18.0 (SPSS Inc., 2010) for analysis.

Analysis of Data

Email invitations were distributed to 329 Care Coordinators in the Geriatrics and Extended Care Line to include Purchased Skilled Home care, Community & Home based Care, and the Contract Nursing Home Program email groups. Four opted out of receiving email correspondence from Survey Monkey and 156 did not respond. A total of 178 Care Coordinators started the online survey and 15 declined implied consent. Individual demographic responses were examined for completeness and the data was cleaned. Initial data analysis included descriptive statistics on the individual level. An analysis of the frequencies of each value of every variable was conducted as a secondary check. Baseline descriptive data of the respondent samples were analyzed.

Responses from social workers and physicians were excluded as they did not meet inclusion criteria of being a registered nurse, however were compiled and presented here. This information may be helpful to GEC leadership in depicting a profile of non-nursing professionals

in the care coordinator role. The PI met with an accredited statistician to determine the accuracy of the analysis and if further outliers should be examined or removed. Additional outliers, skews, and missing data were identified through the use of frequency tables and histograms.

Composite of Excluded Respondents.

Doctor of Medicine or Doctor of Osteopathy.

Two survey respondents reported being physicians: A doctor of medicine (M.D.) and a doctor of osteopathy (D.O.). Respondents were over age 40, worked in administrative and direct care roles, and have been employed for more than 20 years. It should be noted that although nursing as a profession has been identified as the professional group at the forefront of many of the care coordination efforts, it is the physician with ultimate accountability of care coordination efforts (AHRQ, 2010). Collaboration and communication between physicians and nurses are positively related to the nurse's perception of the practice environment, patient outcomes, and processes of care coordination (Van Bogaert, Clarke, Roelant, Meulemans, & Hyenig, 2010; Gittell, 2010; Lake, 2010).

Social Workers.

A total of 17 social workers consented to complete the survey, however, were not the focus of this project. Of these respondents, 53% were over age 50, 82% were female, 90% work in a hospital setting, and 53% have been employed in VHA between 11 and 20 years. Social workers are leading many of VHA care coordination programs, and regularly collaborate with nurses. According to VHA (2011) over 7,000 social workers are dispersed nationwide assigned to all patient treatment programs, including community-based outpatient clinics. Although they did not meet inclusion criteria over 90% reported a willingness to participate in future projects.

Secondary Analysis.

Data was analyzed using descriptive and inferential statistics. When appropriate, the data was re-coded into categories to enable meaningful comparison of groups obtained from the demographic data. Trend analysis for missing data was conducted. If >10% (5) of an individual's responses were missing from a single instrument only (depending on the instrument), that instrument was removed from the group level analysis but the respondents' responses on the completed instruments remained for use during analysis. If less than or equal to 10% of total responses are missing, those missing variables were removed from analysis.

The data were next analyzed for normality, either supporting or negating the assumptions for statistical tests. A profile of the care coordinator was compiled based on the following demographic attributes a) years of experience in professional role, b) years employed with the Veterans Health Administration, c) highest nursing degree attained, d) highest non-nursing degree attained, e) certifications, f) race, gender, and age, and g) the resources used in the processes of care coordination (**Q1**). An assessment of the psychometric properties of the project instruments were performed before aggregation of data, correlation, and model testing.

The internal consistency of the instruments were assessed at the individual level for a Cronbach's alpha > 0.8. The PES-NWI had a Cronbach's alpha of 0.951 and the RCI was 0.940. The professional practice and relational coordination instruments were scored in accordance with the instruments' scoring directions. The PES-NWI was reverse scored so that it and the RCI would both be positively scored. Higher scores indicate a better professional practice environment and better care coordination occurs. Descriptive statistics of the variables, as well as, frequency distributions of the PES-NWI and RCI scores were computed.

Final analysis.

Final analysis continued to address the remainder of the project's questions (**Q2).** What is the relationship between the perceived professional practice environment (PES-NWI) and processes of care coordination (RCI) reported by the RN Care Coordinator? Multiple Linear Regression (Stepwise Method) was used to determine the relative strength of the PES-NWI scales (independent variables) as predictors of RCI (dependent variable). Correlations between the PES- NWI and the RCI were run using Pearson's r. The PES-NWI subscales were regressed onto the overall RCI score, and each of the RCI subscales. Next, the PES-NWI subscales were regressed upon each of the RCI dimension and RCI function subscales.

The correlation matrix was examined for correlation coefficients above 0.800 testing for multicollinearity. Significant predictors were identified. Responses were re-coded into three educational groups: Associates/diploma, BSN, and MSN/DNP. Analysis of variance (ANOVA) was used to test if the care coordinator's perception of the work environment and/or processes of care coordination differed by education. The Bonferonni post-hoc test was run to show the significance of the differences (**Q3).**

Descriptive Statistics

One hundred thirty-one RNs to include advanced practice registered nurses (APN) started the online survey; 118 completed it. For the purposes of this project, completed refers to the process of reaching the end of the survey, it does not mean respondents answered all questions. The final sample for analysis consisted of data collected from 118 RN Care Coordinators and two LPN Care Coordinators from 74 VHA hospitals and 10 Community-Based Outpatient Clinics or Outpatient Clinics. Results of this analysis will be presented in findings section as this data specifically answer project question one.

These respondents met inclusion criteria and completed the survey, resulting in a final response rate of 36%. A 50% response rate was targeted as it provides for a more representative sample and is good for analysis purposes, particularly when using an individual method of administration (Church, Waclawski, & Kraut, 2001; Verran, Gerber, & Milton, 1995). However, the sample did not meet the target and required reevaluation. Studies of a similar nature used responses ranging from 35-44%.

Duva (2010) conducted a study examining the relationships among the nurse practice environment, patient and hospital characteristics, and staff nurse care coordination activities in the hospital with a 44% response rate. Gittell et al. (2000) analyzed individual provider response rates between 38% and 75% in a study looking at factors impacting unit level patient satisfaction. Brennan (2009) used a nurse response rate of 44% in examining the changing meaning for the nurse role and attributes.

Cook, Heath, & Thompson (2000) found the mean response rate of electronic surveys with no missing data was 34.6%. Asch, Jedrziewski, Christakes (1997) further asserts although there are more opportunities for non-response bias when response rates are low than high, there is no necessary relationship between response rates and bias. Survey with very low response rates may provide a representative sample of the population of interest and surveys with high response rates. As the aim of this project is to compile a profile of the GEC VHA RN Care Coordinator a 36% response rate is acceptable.

Over 90% of respondents completed the demographic profile portion of the survey and responses met the criteria for data inclusion. Their responses were analyzed and presented with the demographic information. This allows a more representative profile of the RN Care Coordinator. The following table shows survey response by care coordinator category.

Table 2.

VHA GEC Care Coordinator Response Matrix

Nurse Category	Started	Completed	Incomplete	Survey Completion Rate
RN	120	105	15	88%
CNS	3	2	1	67%
APRN	6	5	1	67%
LPN	2	2	0	100%

Addressing the Research Questions

Descriptive statistics were used to compile the following information. Demographic attributes to include a) years of experience in professional role, b) years employed with the VHA, c) highest nursing degree attained, d) highest non-nursing degree attained, e) certifications, f) race, gender, and age, and g) the resources used in the processes of care coordination were collected (**Q1**). Additional data includes organization and leadership composition, as well as, team dynamics.

Q1. Demographic Summary by Professional Role

***Individual RN*.** The majority of nurses comprising this sample were female (94%), Baccalaureate (BSN) prepared (63%), with just over 10% of the sample reporting a bachelors degree outside of nursing. Sixty percent (*M* 1.73, *SD* 0.95) of the care coordinators reported additional certifications. Gerontological Nursing (17%), Community Health Nursing (15%), Case Management (10%), and Medical-Surgical Nursing (13%) represented the top four certifications achieved as depicted in Table 4 (p. 65). Fifty-six percent of respondents have more than 20 years of experience in nursing. The majority (98%) worked full time, days shift. The largest percentages of reported race were: White (65%), African-American (17%), Hispanic (6.5%) and Asian (6%).

Almost 50% were between ages 50-59. Thirty-four percent have worked in the VHA for more than 20 years. The care coordinators identified their work setting as a hospital. An analysis of open-ended comments revealed over 80% conducted care coordination in an office setting. The care coordinators (65%) reported Community Health Nurse Coordinator (CHNC) as their current title. The care coordinators (33%) reported being in there current roles between one and three years. Sixty-three percent do not have supervisory responsibilities, 16% report serving in a team lead role, and 12% serve in a managerial capacity. Nurses who supervise report supervising other nurses, program support, and other disciplines. Complete care coordinator demographics are illustrated in Table 3.

Table 3.

RN Care Coordinator Demographics

Variable	Selection:	%	(N=129)*
Tenure in VHA	Less than six months	0.8%	1
	Six months to one year	1.6%	2
	One to three years	17.8%	23
	Four to five years	12.4%	16
	Six to ten years	13.2%	17
	11 to 20 years	20.2%	26
	More than 20 years	34.1%	44
Age	Less than 20 years	0.0%	0
	20-29	1.6%	2
	30-39	6.2%	8
	40-49	21.7%	28
	50-59	48.8%	63
	60 years or older	21.7%	28
Sex	Male	6.3%	8
	Female	93.7%	119
	Missing Responses 2		

Race	White	65.3%	80
	Non-Hispanic	0.8%	1
	Hispanic	6.5%	8
	Native American	1.7%	2
	Black/African American	16.5%	20
	Asian	5.8%	7
	Native Hawaiian or other Pacific Islander	1.7%	2
	From Multiple Races	1.7%	2
	Missing Responses (8)		
Current Professional Role	Licensed Practical (LPN)	0.0%	0
	Registered Professional Nurse (RN)	93.0%	120
	Clinical Nurse Specialist (CNS)	2.3%	3
	Nurse Practitioner (APRN, NP, NP-BC)	4.7%	6
Tenure as RN	Less than six months	0	0
	Six months to one year	0	0
	One to three years	0.8%	1
	Four to five years	2.5%	3
	Six to ten years	7.6%	9
	11 to 20 years	28.6%	34
	More than 20 years	60.5%	72
	Missing responses 10		10
		n=126	

Employment Status	Full-time	97.6%	124
	Part-time	2.4%	3
	Per Diem	0	0
	Missing responses 3		
Highest Nursing Education	Diploma	4.2%	5
	LPN	0.0%	0
	AAS	6.7%	8
	BSN	61.3%	73
	MSN	26.1%	31
	DNP	0.8%	1
	PhD	0.8%	1
	Missing Responses 10		
Highest Non-nursing Degree	AD	6.2%	7
	BS/BA	9.7%	11
	MS/MA	10.6%	12
	PhD	0.0%	0
	Other	7.1%	8
	Not Applicable	67.3%	76
	Missing Responses 15		

Care Coordinator Title			
	Community Health Nurse Coordinator	65%	82
	Care Coordinator/Case Management	6%	7
	Contract Nursing Home Coordinator	4%	5
	Staff Nurse	13%	17
	Other Coordinator	8%	10
	Manager/Leadership	4%	5
	Missing Responses 5		
Tenure in Care Coordinator Role	Less than six months	1.6%	2
	Six months to one year	7.1%	9
	One to three years	31.7%	40
	Four to five years	14.3%	18
	Six to ten years	23.8%	30
	11 to 20 years	16.7%	21
	More than 20 years	4.8%	6

Advance Practice Registered Nurses. Education for RNs can range from certificate or diploma to doctorate preparation. The advanced practice registered nurse is a registered nurse who meets advanced educational and clinical practice, at a minimum are master's prepared, and provide some level of direct care to patients. The following titles are considered advanced practice nurses: Nurse Practitioners (NP), Certified Nurse Midwife (CNM), Clinical Nurse Specialist (CNS), and Certified Registered Nurse Anesthetists (ANA, 2011). Both CNS and APRN responded to the online survey.

Clinical Nurse Specialist.

The individual CNS demographic survey collected information on demographic information, information related to tenure as a CNS, VHA employee and care coordinator within GEC, as well as, educational attainment to include nursing and non-nursing degrees, and certifications. To protect anonymity only specific demographic information will be provided in this section. The remainder will be aggregated, analyzed, and presented with the RN responses.

CNS comprised 2.3% of the respondents. All were white, female, and master's prepared nurses with 50% practicing 20 years or more as a CNS. Over 50% are 60 years or older, have been VHA employees more than 11 years, possess non-nursing degrees and certifications and work in hospitals. All are full-time employees with 50% practicing in the hospital environment. Their current titles include Community Health Nurse Coordinator and Nurse Manager. They have held these titles for 1- 5 years. Those who supervise report supervising RN's. Collectively they use VHA handbooks, professional organizations, attend conferences, and access the GEC intranet as tools to succeed in their current roles.

Nurse Practitioner.

To protect anonymity only specific demographic information will be provided in this section. The remainder will be aggregated, analyzed, and presented with the RN responses. NPs comprised 4.7% of the respondents. All were over age 50, 80% white and 20% were Hispanic. The NP educational attainment varies as 60% were master's prepared nurses and 20% have a doctoral degree. The NPs had non-nursing undergraduate and graduate degrees, and achieved board certification in nursing, family practice, and gerontological nursing. Fifty percent have been NPs for 20 years or more. All are full-time employees, 75% practice in the hospital setting and have been VHA employees more than 20 years.

Two NPs use Community Health Nurse Coordinator as their current title and have worked as such for 6-10 years. Forty percent were in management or executive leadership positions, and report supervising RN's, other NPs, CNS, unlicensed assistive personnel, and other program support. Collectively, the NPs report using VHA handbooks, professional websites, attend conferences and the GEC intranet as tools to be effective care coordinators.

***Licensed Practical Nurses*.**

The individual LPN demographic survey collected information on general demographic information, information related to tenure as a LPN, VHA employee and care coordinator within GEC, as well as, educational attainment to include nursing and non-nursing degrees, and certifications. To protect anonymity only specific demographic information will be provided in this section. The remainder will be aggregated, analyzed, and presented with the RN responses as analysis reveals the LPN, while working under the supervision of a Registered Nurse, has similar care coordination responsibilities and "perform expanded clinical leadership roles in

some long term care and specialty programs. Their professional contributions are pivotal to the health care delivery team" (DVA ONS, 2010a).

LPNs completed the survey comprised <1% of the respondents. The nurses reported being LPNs over six years, achieving LPN status was their highest level of nursing attainment, however possessed non-nursing undergraduate degrees. The respondents did not possess additional nursing certification. The nurses were employed within VHA for over 6 years, are full-time Community Health Nurse Coordinators (CHNC) in hospital and community based-outpatient clinic settings. The nurses have been in this care coordinator role between 1-3 years and have no supervisory responsibility.

Table 4.

RN Care Coordination Nursing Certifications

Specialty	*(n=120)*	*%*
Addiction	1	1
Ambulatory Care Nursing	4	3
Advanced Practice Certification	7	6
AIDS Certified Registered Nurse	1	1
Cardiac Vascular Nursing	1	1
Case Management Nursing	13	10
Certification in Continuity of Care	1	1
CNOR	1	1
Community Health Nursing	19	15
Continuity of Care	1	1
Critical Care	1	1
Gerontological Nursing	21	17
Home Health Nursing	8	6
Hospice/Palliative Care	3	2
MDS_RAI Certified	1	1
Medical-Surgical Nursing/General Practice	13	10
Nephrology	1	1
Nurse Executive	4	3
Nursing Professional Development	1	1
Oncology	2	2
Pain Management	2	2
Psychiatric/Mental Health Nursing	3	2
Public Health Nursing	3	2
Quality	2	2
Rehabilitation/Spinal Cord Injury	3	2
School Nursing/College Health Nursing	4	3
Transfer Nurse	1	1
Wound Care	4	3
Utilization Review	2	2

Team and Program Demographics.

Organizational complexity. Responses were received from 131Care Coordinators across the VHA enterprise to include 74 hospitals and 10 Community-based Outpatient Clinics (CBOC) or Outpatient Clinics (OP). The VHA Facility Complexity Model has existed since 1989. Hospitals are classified at levels 1a, 1b, 1c, 2, or 3. Level 1a facilities are the most complex, and level 3 being least complex (DVA, 2008). Almost 44% of the respondents reported working at a Level 1 facility. Table 5 illustrates the remainder of responses.

Table 5

Respondent Facility Complexity Matrix

Level	Responses (n=130)	%
0*	7	5.4
1a	57	43.8
1b	9	6.9
1c	16	12.3
2	26	20.0
3	15	11.5

Note. Zero signifies responses from Veteran Integrated Service Networks which are not assigned a complexity level, however, are left in for representativeness. *

Analysis of variance (ANOVA) and Post-hoc Bonferonni test were run for all PES-NWI and RCI scales, according to complexity level. PES-NWI Subscale 3, Nurse Manager Ability, Leadership, and Support of Nurses, the overall mean PES-NWI score, and relational coordination with residents were significantly different.

Table 6.

ANOVA PES-NWI and RCI Scales Results

		Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
PES SUBSCALE 3: Nurse Manager Ability, Leadership, and Support of Nurses	Between Groups	7.223	5	1.445	3.241	.009
	Within Groups	45.905	103	.446		
	Total	53.128	108			
Overall PES-NWI	Between Groups	2.760	5	.552	2.611	.029
	Within Groups	21.777	103	.211		
	Total	24.537	108			
RC with Residents	Between Groups	19.982	5	3.996	3.596	.005
	Within Groups	110.036	99	1.111		
	Total	130.019	104			

Team and Program Composition.

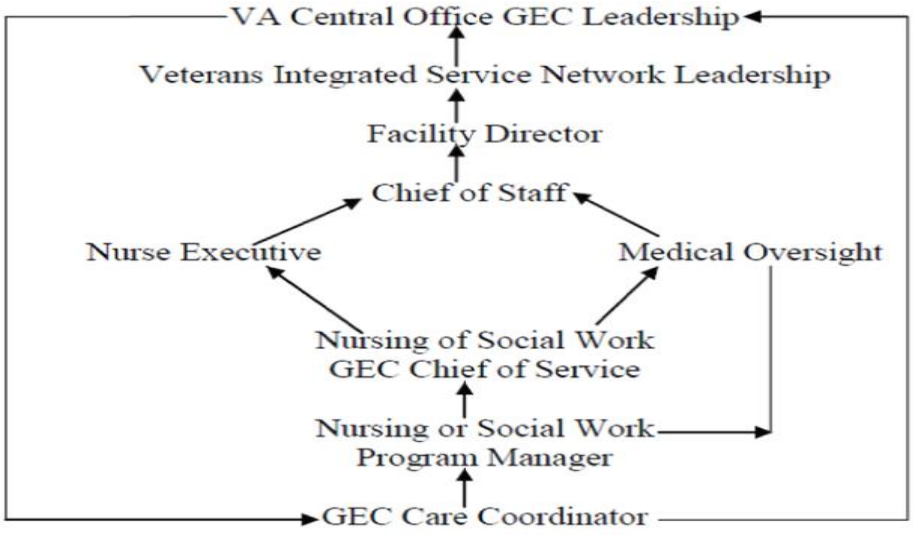
Seven questions on the demographic tool assessed the care coordinator's team and leadership structure. Respondents were asked to select a number from one to ten to represent the number of care coordinators in their program. One hundred nineteen care coordinators responded to this question and 10 skipped it. On average, each care coordination program had three care coordinators. Congruent with results previously presented the majority (86%) work days, no respondent reporting working flex shifts, one care coordinator reported Tele-working.

Sixty-five percent of the care coordinators report having administrative support for their program in the form of a clerical or secretarial support, 63% reported having dedicated medical professionals who are responsible for program oversight, only 40% report having medical leadership that are resourceful. A physician was identified as the type of medical provider responsible for program oversight by 75% of the respondents. No respondents provided a response to the question that pertained to dedicated nursing leadership for program oversight, 102 respondents did not provide a response to having nursing leadership or administration as a resource.

Nine respondents reported having nursing leadership as a resource to the program. When asked to describe program hierarchy, 65% agreed that Figure 2 represents their program's leadership. Thirty-five percent of the nurses said that it did not represent their program composition. Analysis of descriptions provided by those respondents reveal program composition varies from one program to another at the first line of supervision to Chief of Staff of the facility. No congruent alternative structure could be compiled.

Figure 2.

Care Coordination Program Structure



Tools and resources.

The care coordinators identified various tools and resources they use to succeed at care coordination. VHA Handbooks; the Centers for Medicare & Medicaid Website to include Home Health and Nursing Home Compare, Online tutorials and listservs; literature reviews; professional organizational websites; and attending educational conferences were the top five items reported. Table 7 displays the remainder of the results.

Table 7

Resources Used for Successful Care Coordination

Tool	%	
VHA Handbooks	94.4%	117
Centers for Medicare & Medicaid Website (Home Health Compare, Nursing Home Compare)	73.4%	91
Centers for Medicare & Medicaid Online Tutorials, Listservs	18.5%	23
Literature Review (Journals, Professional Organizations)	51.6%	64
Professional Organization Website	30.6%	38
Attend educational conferences	60.5%	75
Attend VHA sponsored educational conferences	57.3%	71
Fee Basis Program Intranet	15.3%	19
Geriatric & Extended Care Intranet	34.7%	43
Purchased Care Email Group(s)	49.2%	61
Home Health Care Agencies	75.0%	93
Contract Nursing Homes	53.2%	66
VHA Online Tutorials	28.2%	35
VHA Training Webinars	37.9%	47
VHA Support Service Center (VSSC)	13.7%	17
Quality Reports	35.5%	44
VISN Reports	33.1%	41
ProClarity	5.6%	7

Remaining Research Questions

The remaining results are representative of the RNs who completed the survey (n=118).

Q2. What is the relationship between the professional practice environment (Lake's PES-NWI and the work processes of care coordination (Gittell's RCI) as reported by VHA GEC RN Care Coordinators?

PES-NWI.

The PES-NWI has 31 questions that measures the nurse work environment, scores are compiled into five subscales a) Nurse Participation in Hospital affairs {Q5-6, 11,15,17,21,23,27,28}, b) Nursing Foundation for Quality of Care {Q1,14,18-19,22 ,25-26, 29-31}, c) Nurse Manager Ability, Leadership, and Support for Nurses {Q3,7,10,13,20}, d) Staffing and Resource Adequacy {1,8,9,12}, and e) Collegial Nurse-Physician Relations {Q2, 16, 24}. The subscale is the average of the item response.

The Care Coordinator rates items on a scale of 1 (strongly disagree) to 4 (strongly agree) to indicate whether the feature is present in the current job. The presence of an item is considered favorable. A single composite score was calculated as the mean of the subscale scores ranging from 1 to 4. Values above 2.5 indicate general agreement and values below 2.5 indicate disagreement.

The internal consistency reliability for the 313-item PES-NWI was supported by Cronbach's alpha of 0.940. PES-NWI subscale and composite means by sample are depicted in Table 8. On average, the VHA GEC Care Coordinators agreed that these key organizational features were present in their current work environment. The nurse's particularly report the presence of collegial nurse/physician relations, nurse manager ability, leadership, and support of

nurses, nursing foundations for quality of care are present in their environment. These results are indicative a positive nurse work environment (Warshawsky & Havens, 2010).

Table 8

PES-NWI Composite Scores (n=118)

Subscale	*M*	*SD*	*Min*	*Max*
Nurse participation in hospital affairs	2.67	0.62	1.44	4.00
Nursing foundations for quality of care	2.97	0.44	1.70	4.00
Nurse Manager ability, leadership, and support of nurses	2.84	0.71	1.00	4.00
Staff and resource adequacy	2.55	0.715	1.00	4.00
Collegial nurse/physician relations	3.07	0.571	1.00	4.00
Composite	2.82	0.481	1.422	4.000

Relational Coordination (RCI).

Seven questions reflected the dimensions of relational coordination to include a) the frequency of communication among care providers, b) the timeliness and accuracy of communication, c) the problem-solving nature of communication, d) and the degree to which relationships are characterized by e), shared goals, d) shared knowledge, and e) mutual respect. RC examines the coordination between roles and not that of the individuals (Gittell, 2010, p. 30). Responses are recorded on a five-point Likert-type scale to report the behaviors of others as opposed to the respondents own behavior. Scores range from 1-5 with one being the lowest and five being the highest. The higher the score the better coordination occurs (Gittell, 2010). The internal consistency reliability for the 313-item PES-NWI was supported by Cronbach's alpha of 0.951. The responses were aggregated and results are presented in Table 9.

Table 9

Asymmetrical Care Coordinator Subset RC Composite Scores (n=114)

Subscale	*M*	*SD*	*Min*	Max
Frequent communication	3.57	0.68	1.33	5.00
Timely communication	3.49	0.71	1.33	5.00
Accurate communication	3.60	0.74	1.33	5.00
Problem-solving communication	3.52	0.91	1.33	5.00
Shared knowledge	3.12	0.74	1.33	5.00
Mutual respect	3.40	0.83	1.17	5.00
Shared goals	3.50	0.83	1.17	5.00
RC with Surgeons	2.72	0.98	1.00	5.00
RC with Residents	2.91	1.09	1.00	5.00
RC with Nurses	3.52	0.82	1.00	5.00
RC with Case/Care Managers	3.84	0.85	1.00	5.00
RC with Physical Therapists	3.50	0.93	1.00	5.00
RC with Social Workers	4.25	0.50	2.86	5.00
Composite RCI	3.46	0.63	1.36	5.00

As reported by the care coordinators, relational interactions occurs best between care coordinators and social workers, while it occurs the least between care coordinators and residents, as well as, care coordinators and surgeons. The composite RCI indicates overall good processes of care coordination (Gittell, 2010). Correlations between the PES- NWI and the RCI were run using Pearson's r. The overall PES-NWI and RCI were moderately correlated, $r = .30$, $p < 0.001$. These results indicate a moderate correlation between the care coordinator practice environment and the work processes of care coordination.

Multiple linear regressions were used to determine the relative strength of the PES scales (independent variables) as predictors of RCI (dependent variable). Stepwise variable selection was used to build the model. Regressions make use of the correlation between variables to develop a prediction equation (Munro, 2005, p. 259). Regression analysis produces a

prediction equation. "The final outcome of a regression analysis is a model from which values of the independent variables can be used to predict values of the dependent variable in the population" (Burns & Grove, 2009, p. 506). A correlation matrix of model variables showed no evidence of multicollinearity *(r*≤ 0.800) in the multiple regression equations. The overall model was significant as demonstrated in the following tables. The tables are grouped by predictor variable (s).

The results of the regression indicated three predictors explained 24.8% of the variance R^2.248; F (3,110) = 12.11, p<0.001. It was found that Nurse Participation in Hospital Affairs (1) Staffing & Resources Adequacy (4), and Collegial Nurse-Physician Relations (5) significantly predicted overall relational coordination as shown in Table 10. Of particular significance is the inverse relationship that exists between Staffing & Resources Adequacy (4).

Table 10

Stepwise Multiple Regression Analyses Predicting RCI Score from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 3	0.498	0.248		
PES 1			0.350	0.001
PES 4			-0.315	0.001
PES 5			0.304	0.003

The results of the regression indicated three predictors explained 18.6% of the variance R^2.186; F (3,110) = 8.38, p<0.001. It was found that Nurse Participation in Hospital Affairs (1), Staffing & Resources Adequacy (4), and Collegial Nurse-Physician Relations (5) significantly predicted RCI frequency of communication as shown in Table 11.

Table 11

Stepwise Multiple Regression Analyses Predicting RCI FREQ from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 3	0.431	0.186		
PES 1			0.328	0.003
PES 4			-0.355	0.001
PES 5			0.215	0.039

The results of the regression indicated three predictors explained 14.7% of the variance R^2.147; F *(*3,110) = 6.3, p<0.001. It was found that Nurse Participation in Hospital Affairs (1), Staffing & Resources Adequacy (4), and Collegial Nurse-Physician Relations (5) significantly predicted RCI timeliness of communication as shown in Table 12.

Table 12

Stepwise Multiple Regression Analyses Predicting RCI TIME from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 3	0.384	0.147		
PES 5			0.245	0.022
PES 4			-0.317	0.002
PES 1			0.238	0.031

The results of the regression indicated three predictors explained 20.4% of the variance R^2 .204; F *(*3,110) =9.37 p<0.01. It was found that Nurse Participation in Hospital Affairs (1), Staffing & Resources Adequacy (4), and Collegial Nurse-Physician Relations (5) significantly predicted RCI relational coordination with surgeons as shown Table 13.

Table 13

Stepwise Multiple Regression Analyses Predicting RCI SURG from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 3	0.451	0.204		
PES 1			0.334	0.002
PES 4			-0.315	0.002
PES 5			0.254	0.014

The results of the regression indicated three predictors explained 16.4 % of the variance R^2 .164; F *(*3,110) =7.18 p<0.01. It was found that Nurse Participation in Hospital Affairs (1), Staffing & Resources Adequacy (4), and Collegial Nurse-Physician Relations (5) significantly predicted RCI relational coordination with residents as shown 14.

Table 14

Stepwise Multiple Regression Analyses Predicting RCI RES from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 3	0.405	0.164		
PES 5			0.283	0.008
PES 4			-0.324	0.002
PES 1			0.228	0.037

The results of the regression indicated two predictors explained 21.8 % of the variance R2 .218; F *(*2,111) =15.44 p<0.01. It was found that Nurse Participation in Hospital Affairs (1) and Staffing and Resource Adequacy (4) significantly predicted RCI relational coordination accuracy of communication as depicted in Table 15.

Table 15

Stepwise Multiple Regression Analyses Predicting RCI ACCU from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 2	0.466	0.218		
PES 1			0.504	<.001
PES 4			-0.368	<.001

The results of the regression indicated one predictor explained 6% of the variance R^2 .060; F *(*1,112) = 7.21p<0.01. It was found that Nurse Participation in Hospital Affairs (1) predicted RCI problem-solving score, shared goals, 11% of the variance R^2 .107;F(1,112)= 13.48p<0.01, and relational coordination with other nurses,11% of the variance R^2 .120; F *(*1,112) = 15.33p<0.01 as depicted in the corresponding tables below.

Table 16

Stepwise Multiple Regression Analyses Predicting RCI PROB from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.246	0.060		
PES 1			0.246	0.008

Table 17

Stepwise Multiple Regression Analyses Predicting RCI GOAL from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.328	0.107		
PES 1			0.328	<.001

Table 18

Stepwise Multiple Regression Analyses Predicting RCI NURS from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.347	0.120		
PES 1			0.347	<.001

The results of the regression indicated two predictors explained 18.7% of the variance R^2 .187; F *(*2,111) = 12.77<0.01. It was found that Collegial Nurse-Physician Relations (5) and Nurse Participation in Hospital Affairs (1) predicted RCI shared knowledge as depicted in the table below.

Table 19

Stepwise Multiple Regression Analyses Predicting RCI KNOW from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.391	0.153		
PES 5			0.391	<.001
Step 2	0.433	0.187		
PES 5			0.277	0.007
PES 1			0.217	0.033

The results of the regression indicated one predictor explained 16.5% of the variance R^2 .165; F *(*1,112) = 22.19<0.01. It was found that Nurse Participation in Hospital Affairs (1) predicted RCI mutual respect as indicated in Table 20.

Table 20
Stepwise Multiple Regression Analyses Predicting RCI RESP from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.407	0.165		
PES 1			0.407	<.001

The results of the regression indicated one predictor explained 6% of the variance R^2 .065; F *(*1,112) = 7.758<0.01. It was found that Collegial Nurse-Physician Relations (5) predicted relational coordination with physical therapists as indicated below.

Table 21
Stepwise Multiple Regression Analyses Predicting RCI PT from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.255	0.065		
PES 5			0.255	0.006

The results of the regression indicated two predictors explained 8.6% of the variance R^2.-206; F *(*2,111) = 5.248<0.01. It was found that Nursing Foundations for Quality of Care (2) and Staffing and Resource Adequacy (4) predicted relational coordination with other care/case managers as indicated below.

Table 22

Stepwise Multiple Regression Analyses Predicting RCI CASE from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.229	0.052		
PES 2			0.229	0.014
Step 2	0.294	0.086		
PES 2			0.32	0.002
PES 4			-0.206	0.044

The results of the regression indicated two predictors explained 9.4% of the variance (R^2 .094; F *(*1,112) = 11.635<0.01. It was found that Nursing Foundations for Quality of Care (2) predicted relational coordination with social workers as indicated below.

Table 23

Stepwise Multiple Regression Analyses Predicting RCI SW from PES-NWI Subscales

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.307	0.094		
PES 2			0.307	0.001

RCI dimensions and functions were analyzed separately to examine the specific qualities and functions that make a difference in the model. The results of the regression indicated one predictor explained 11.3% of the variance (R^2 113; F *(*1,112) = 14.259<0.01. It was found that The Care Coordinator Work Environment is affected by RCI Shared Knowledge. The RCI dimension of shared knowledge is the predictor of the overall PES-NWI.

Table 24

Stepwise Multiple Regression Analyses Predicting PES-NWI from RCI Dimensions

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.336	0.113		
RCI KNOW			0.336	<.001

The results of the regression indicated one predictor explained 6.0% of the variance R^2 .262; F *(*1,112) = 7.21p<0.01. It was found that Nurse Participation in Hospital Affairs (1) predicted RCI problem-solving score, shared goals, 10% of the variance R^2 .107;F*(*1,112) = 8.272 p<0.01. The overall PES-NWI is affected by the RC function of communication with social workers as indicated below.

Table 25

Stepwise Multiple Regression Analyses Predicting PES-NWI from RCI Functions

Predictor	*R*	*R-Square*	*β*	*p*
Step 1	0.262	0.069		
RCI SW			0.262	0.005

The overall RCI score was not impacted by the NWI subscales 2 or 3.

Q3. Do the perception of the work environment and/or work processes of care coordination differ as the education/certification level changes? The educational and certifications responses were regrouped into three educational groups: Associates/diploma, BSN, and MSN/DNP. Means for each group were calculated.

Analysis of variance (ANOVA) was used to compare the means of the PES-NWI and RCI across highest educational level. ANOVA uses an *F* statistic and its P-value to evaluate the null hypothesis that all of several population means are equal (Moore & McCabe, 2003). No significance was found by the number of certifications held. The effect of education level was

found significant for PES-NWI Subscale 5: Collegial Nurse-Physician Relations, F (2,107) =3.64, $p<.050$. Associates degree care coordinators (M=2.58, SD= .88) reported less Collegial Nurse-Physician Relations than either their Bachelors (M=3.08, SD=.55) or Masters/DNP prepared care coordinators colleagues (M=3.18, SD=.48). The Bonferonni post-hoc test was run to show the significance of the differences.

Summary

One hundred thirty-one RNs to include advanced practice registered nurses (APN) started the online survey; the final sample for analysis consisted of data collected from 118 RN Care Coordinators from 74 VHA hospitals and 10 Community-Based Outpatient Clinics or Outpatient Clinics. Analysis was completed on the results of this project using various tests: Pearson's R, ANOVA, and Stepwise Regression Analysis. Demographic data was analyzed and compiled to present a profile of the RN Care Coordinator.

The majority of nurses comprising this sample were female (94%), BSN prepared (63%), with just over 10% of the sample reporting a bachelors degree outside of nursing. Sixty percent of the reported obtaining additional nursing certification. Fifty-six percent of respondents have more than 20 years of experience in nursing, and 98% of the participating nurses worked full time, days shift. The majority report working in an office setting within a VHA hospital. Thirty-four percent of the nurses have worked in the VHA for more than 20 years.

Sixty-five percent were titled Community Health Nurse Coordinators (CHNC), 33% report being in this role between one and three years. The following represents the racial composition of care coordinators: White (65%), African-American (17%), Hispanic (6.5%) and Asian (6%). Almost 50% of nurses were between ages 50-59. Organizational, program, and team demographics were analyzed.

The relationship between the care coordinators' perception of their work environment (PES-NWI) and the work processes of care coordination (RCI) were examined. The care coordinators reported a professional nursing work environment (*M*=2.82), as well as the presence of relational coordination (*M*=3.46). The PES-NWI and RCI were moderately correlated (*r*=.30). Stepwise Regression Analysis identified Nurse Participation in Hospital Affairs, Staffing and Resource Adequacy, and Collegial Nurse-Physician Relations were significant predictors of overall work processes of care coordination (Relational Coordination). Significant other predictors were revealed. Significant differences were found between the associates/diploma prepared coordinator's perception of Collegial Nurse-Physician Relations and that of the bachelors and graduate prepared care coordinators. Additional discussion and implications of these findings are presented in Chapter 5.

Chapter 5-Discussion and Conclusion

The primary purpose of this quality improvement project was to describe the VHA GEC RN Care Coordinator. The second purpose was to discover the relationship between the perception of care coordinators professional practice environment and the activities of care coordination. Lastly, the project aimed to identify if the aforementioned relationship differed with educational attainment. Instruments used in this project included a demographic instrument developed by the researcher, PES-NWI, and the RCI. The project design employed methods that are commonly used in the Veterans Health Administration All Employee Survey (AES), and the VA National RN Satisfaction Survey.

Donebedian's Structure, Process, & Outcomes (SPO) Framework was used to gain an understanding of the structure and processes of care coordination and guide this quality improvement project. For the purposes of this project, structure is defined as the context in which the RN Care Coordinator practices care coordination, the characteristics of education level, certifications held, tenure as a RN, tenure as a RN Care Coordinator, tenure with the VHA, team composition, reporting structure, and the professional practice environment. Although many studies have focused on the nurse practice environment and others have focused on care coordination, not many have focused on the relationship of both, especially within VHA. The intent of this project was to gain a better understanding while providing information and knowledge which can be used within VHA in future.

Descriptive statistics, Pearson correlations, one-way analysis of variance, and step-wise multiple regression were used in statistical analysis. Main findings from this study

include a profile of the VHA RN Care Coordinator, the identification of significant relationships between the professional practice environment, as perceived by the VHA RN GEC Care Coordinator and the work processes of care coordination, specifically those of relational coordination.

"Nursing has been identified as having the potential for making the biggest impact on a transformation of healthcare delivery to a safer, higher quality, and more cost-effective system" (AACN, 2008). These questions are pivotal steps in assessing if the VHA GEC RN workforce is ready for the Institute of Medicine's (IOM), ANA's, and VHA's charge to lead the many care coordination initiatives aimed at defragmenting our current healthcare system and ultimately reduce health care costs. It is also important in promoting best practices in nursing care, improving patient outcomes, and ultimately keeping veterans safe by transforming the nurse work environment (Duva, 2010; IOM, 2004). The following discusses the findings related to the research questions, implications for practice, limitations of this project, and recommendations.

Discussion

Demographic Findings

The GEC VHA RN Care Coordinator.

Demographic data revealed that the sample in the project was similar in education, gender, and certification to national representation of the United States population of registered nurses (DHHS, 2010), as well as, the general RN population within the Veterans Health Administration (VHA). Our sample comprised Registered Nurses, Clinical Nurse Specialists, Nurse Practitioners, and Licensed Practical Nurses. The majority of care coordinators worked

full-time. The following represents the racial composition: White (65%), African-American (17%), Hispanic (6.5%) and Asian (6%).

The majority of nurses comprising this sample were female and baccalaureate prepared (BSN). Respondents also held non-nursing bachelor's degrees and 60% achieved additional nursing certifications. The top four nursing certifications were: Gerontological nursing (17%), Community Health Nursing (15%), Case Management (10%), and Medical-Surgical Nursing (13%). These findings may be reflective of the care coordinators practice setting, age, and the result of recent initiatives to become certified.

The care coordinators were aligned under the Geriatric and Extended Care line. The Community Health Nursing certification was first administered in 1980 and has since been retired by ANCC. As long as candidates meet eligibility for recertification, their certification remains valid. The American Public Health Association (2004) endorsed this certification as a necessity for all levels of nurses involved in health promotion, health maintenance, health education, case management, and the coordination and continuity of care.

In 2008, the Office of Nursing Service started the, "*The Let's Get Certified Campaign*" to increase the number of nurses with specialty certification. This initiative serves as a performance and pay reward system, improved nurse satisfaction, opportunities for professional growth and development, and nurse retention (DVA, 2010a). Certification validates and verifies a nurses skills, knowledge and abilities, as well as, empowers nurses within their profession (ANCC, 2010, ANA, 2010). The need for this campaign continues to exist as only 15.3% of all RNs in VHA achieved additional nursing certification; only 10.9% were in direct care roles. Certification affirms advanced knowledge, skill, and practice to meet the challenges of modern nursing. ANCC board certification and recognition empowers nurses within their professional

sphere of activity and contributes to better patient outcomes (ANCC, 2011). The latest push is case management certification.

VHA Registered Nurse.

According to Veteran Affairs Nursing Outcomes Database [VANOD] and the Office of Nursing Service (2010), 45% of RNs were BSN prepared, 7% possess a non-nursing bachelor's degree, and 31% have more than 20 years of experience in nursing. A majority (95%) of the participating nurses worked full time. Human resources data retrieved from VANOD identified the largest percentages of RN race were: White (66%), African-American (16%), Hispanic (6%) and Asian (11%).

National Registered Nurse.

Data from the National Sample Survey of Registered Nurses (NSSRN) is presented as follows, 54% of RNs work in the hospital, and 63% are employed full-time. Eighty-three percent are white, 5% Black, 6% are Asian, and 4% are Hispanic (DHHS, 2010). Almost half of Registered Nurses were BSN prepared, and 60% have achieved additional nursing certification.

The sample of care coordinators differ in age from the national statistics. Almost 50% of the RN Care Coordinators were between ages 50-59, and 22% were over age 60. The median age of registered nurses in the national workforce was 46 (DHHS, 2010). Year 2008 marked the first time in three decades that the rate of aging in the nurse workforce slowed (DHHS, 2010). This may be a result of the many initiatives aimed at recruiting individuals into the nursing profession, nurses retiring, or entering nursing as a second career. More than two-thirds of RNs (67.2 %) reported working in a health occupation prior to their initial nursing education (DHHS, 2010).

Care Coordinator Practice Environment

The majority of the nurses worked full-time in the office setting aligned with a VHA hospital; 65% identify themselves as Community Health Nurse Coordinators. Thirty-four percent of the nurses worked in VHA for more than 20 years; however, 33% report only being in their current role between 1 and 3 years. These statistics vary from the VHA RN population as 19% have worked in the VHA for more than 20 years with 37% reporting having worked in their current roles between 3 and 5 years. This difference may be attributed to the progression in the nursing profession as it ages, retirement, or attrition rates; often they move from direct care positions to indirect care positions as well as advance in leadership roles (Bender, 2005).

The nursing shortage has been identified as a priority in the literature for the last 10 years and is well documented. Factors for the decline included a decrease in the number of nursing school graduates, an aging RN workforce, decline in earning potential, and alternative options for employment (Beurhaus, Donelan, Ulrich, Des Roches, & Dittus, 2007; HRSA, 2007). These factors also contributed to the nursing demand, as well as, an increase in need per capita for nursing care. As previously mentioned 22% of the care coordinators were over age 60, and 50% were between ages 50 and 59. Of interest, 13% are eligible for retirement, and 25% who have worked in the VHA between 11-20 years have potential to follow. These findings warrant a discussion about succession planning.

Rothwell (2005) describes succession planning as the planning for the right number and type of people to meet the organization's needs over time. Succession planning is inherent within many doctrine and initiatives within VHA. In 2008, to meet the challenge of impending baby-boomer retirements, recruiting in a highly competitive labor market, and to ensure VHA

has a highly qualified, trained, and diverse workforce to meet, the agency developed a comprehensive workforce and succession planning process. These initiatives included recruitment, retention, leadership development, supervisory training, employee morale and satisfaction programs, and workforce diversity (Government Accounting Office, 2005). Fiscal year 2010, the total nurse attrition rate was 7% and trend analysis reveals a steady decline since 2006 (DVA, 2009).

These findings indicate a need for succession planning to continue. Previously, succession planning typically targeted only key leadership positions in an organization. The VHA has offices, programs, and incentives to recruit and retain nurses; over 50% of the nurses in this sample will be eligible for retirement within 10 years, which could potentially impact the program. The supply and demand of nursing affects the organizations decision-making capacity, as well as, the quality and safety of patient care.

The supply of care coordinators is part of the structure of the organization. To be successful, organizations must invest in and maintain the workforce just as they invest in and maintain the capital infrastructure (Gittell, Seidner, & Wimbush, 2009).

> "With good succession planning, employees are ready for new leadership roles as the need arises. When someone leaves, a current employee is ready to step up to the plate. Succession planning can help develop a diverse workforce by enabling decision makers to look at the future make-up of the organization as a whole." (Roth, 2008, p. 2).

These findings have identified that VHA GEC RN Care Coordinators are comprised of nurses at varying stages in life, age, education, tenure as a nurse and with the organization, and in their current role. In today's highly competitive health care market, organizations and leaders that

effectively manage their age-diverse workforce will enjoy a competitive edge (Dominguez, 2003). Continued succession planning, and training of newer care coordinators is paramount.

Team and Program Findings

Facility complexity.

Organizational climate and culture are increasingly recognized as important variables in the success or failure of change initiatives including quality improvement and warrants examination (McGillis, 2003). The findings of this project revealed the RN Care Coordinators report better working environments in Level 1b, and 1c facilities. In the VHA Facility Complexity Model, the lower the facility designation, the more complex it is designated.

The complexity formula is based on a set of standardized criteria: Patient population by volume and risk, clinical services complexity, and education and research. Each criterion is comprised of variables and weighted. Every three years the formula is readjusted which may change a facilities designation. Operational reporting, performance measurement, research studies, management, and pay performance systems are linked to this model (DVA, 2008). Close to 44% of the respondents were from Level 1 facilities. This finding may be a result of the resources available in Level 1b, and 1c facilities or overrepresentation of respondents from Level 1 facilities.

Team and leadership structure.

Seven questions on the demographic tool assessed the care coordinator's team and leadership structure. On average, each program had three care coordinators. The majority of their team worked days. Programs have medical and nursing oversight or accountability, as well as, administrative support. A physician was identified as the type of professional responsible for

program oversight by 75% of the respondents. However, only 40% find their program leadership resourceful.

The nurse-physician relationship has been found to impact patient care, quality, team dynamics, and collaborative efforts. It is a vital component in team functions (McGillis, 2008; Grant, Colello, Riehle, & Dende, 2010). The VHA RN Care Coordinator has access to and utilizes various tools and resources in the activities of care coordination. They include VHA handbooks and directives, the Centers for Medicare & Medicaid websites, publications, online tutorials, and facility or agency comparison sites; literature reviews; professional organizational websites; and attend educational conferences. Sixty-five percent of respondents agreed that Figure 2 (p. 71) represented their program composition.

Variation and care coordination. Variation exists in team and program composition at the facility level. This finding may be the result of the different organizational needs within each VHA medical center and the available resources. Variation is expected; how variation is handled makes the difference. Considerable attention has been afforded to high reliability organizations and organizational environment. The environment has been described as one of the factors that influence nursing practice (Lake & Friese, 2005). High reliability organizations (HRO) are organizations with systems in place that are exceptionally consistent in accomplishing their goals and avoiding potentially catastrophic errors (Heins, 2008). These organizations consistently acknowledge the complexity of their situation, accept the variation, and standardize to consistently provide high quality service.

Care coordination is dynamic and has been lauded by quality improvement, government, and private industry as one potential answer to defragmenting the costly healthcare system. Best

practices, measurements of outcomes, and systemic processes are needed. The literature is rich with the benefits of care coordination and case management from cost savings to extending quality of life (Johnson & Burik, 2010; Mollica & Gillespie, 2003). Not much exists on how the demand for care coordination has affected those responsible for care coordination or the overall impact on quality.

Care coordinators work in a variety of settings and have consistently complained of inconsistent and inappropriate case management caseloads. Benchmarking and identifying generic best practices have been difficult as healthcare is dynamic (Case Management Society of America [CMSA], 2008). CMSA has identified elements that impact a care manager's caseload: The context and situation of care management, regulatory and legal requirements, clinical practice setting, the skill of the individual, type of medical management services and model, technological support, roles and responsibilities associated with direct or indirect care, patient complexity, the type of interventions needed by the care coordinator, and outcomes. Several best models of care coordination have been previously been identified in this project.

These findings have practical significance as they provide a link to further understand the environment in which the care coordinator accomplishes care coordination and affords VHA leadership the opportunity to further incorporate HRO methodology. Structure and processes amount to outcomes (Donebiadian, 2003). Variation may exist as VHA is composed of many different facilities, each with specific needs, differing resources, and veteran demographics. An array of roles, functions, activities, interventions, encounters, and titles serves as barriers when trying to define, measure, or track program implementation (Underwood; 2007, Wilson et al, 2005).

The presence of administrative support in a program allows the RN Care Coordinator the ability to concentrate on nursing functions and perform to the fullest extent of their scope. This allows the organization to realize the benefit of hiring a Registered Nurse (GOA, 2007). IOM identified the nursing professions inability to perform to their fullest capacity and lack of training as potential barriers inhibiting it to answer the call to lead and implement many of the proposed care coordination initiatives (IOM, 2011).

Community Health Nurse Coordinator (CHNC) was the title held by 65% of the nurses. According to DVA (2009), these care coordinators are primarily registered nurses responsible for the coordination of home care services under the auspices of the Geriatric and Extended Care service care line (GEC). They are integral in overseeing the coordination of care and quality of care provided to veterans in skilled nursing facilities under the VHA Contract Nursing Home Program (DVA, 2010). Our findings support this assertion, as we found LPNs, RNs, CNS, and NPs used the same title.

A clear distinction of roles and responsibilities are paramount for professional identity and effective teamwork. Each of the nurses previously identified has a scope of practice, functional statement, and job description that promulgates his or her level of practice, and responsibilities. Organizations realize that, “a nurse-is-a-nurse-is-a nurse” is a fallacy when they have developed patient acuity systems, improved human working factors, offer extensive educational programs, and publish research to address the relationship between staffing and patient outcomes. The following identifies what the RN Care Coordinator perceives to exist.

Q2. The Professional Practice Environment and Work Processes of Care Coordination

The professional practice environment facilitates the professional practice of nursing. It exists when nurses are allowed to practice to the full extent of their education, have documented competencies, scope of practice, control over their nursing practice, and autonomy in the workplace (ANA, 2011). Care coordination is the purposeful organization of patient care activities between two or more participants to facilitate the appropriate delivery of health care services (AHRQ, 2010; NQF, 2010). Effective care coordination is a priority.

Findings indicate care coordinators perceive a professional work environment, as well as, having high levels of communication with other health care providers. A possible explanation of these findings may be related to generational differences among the nurses. The majority of the respondents were Baby Boomers. Typically Baby Boomers are known for their strong work ethic, satisfaction with careers, and have increased commitment to remain in the profession (Sherman, 2006; Green & Ottoson, 1999). These findings are consistent with previous VHA workplace assessment survey results. In fiscal year 2011, 56.7% of RNs report overall job satisfaction (VONAD, 2010). Nationally, the majority of all RNs were moderately or extremely satisfied with their jobs. Satisfaction was higher amongst older RNs (DHHS, 2010).

Every year VHA surveys its employees and Registered Nurses specifically. This is a requirement for ANCCs magnet status. Responses from both surveys can be sorted and analyzed by workgroups, physical facilities, or by occupation; which is how the data was aggregated and analyzed for this project. VHA RNs were mostly satisfied with Information Technology support and most dissatisfied with staffing. It should be noted that the rate of overall satisfaction rate has steadily declined at the rate of 4% since 2008 (VONAD, 2011). Mean response scores of RN Care Coordinators and Overall VHA RNs are compared in Table 11.

Table 11.

PES-NWI Composite Scores Compared	(n=118)	
Subscale	Project	VHA
	Mean	
Nurse participation in hospital affairs	2.67	2.6
Nursing foundations for quality of care	2.97	2.9
Nurse Manager ability, leadership, and support of nurses	2.84	2.7
Staff and resource adequacy	2.55	2.6
Collegial nurse/physician relations	3.07	2.9
Composite	2.82	2.74*

*Note. This composite score was calculated from the five subscales to complete the table. To assess RN satisfaction, the VHA compiles satisfaction levels based a Satisfaction Likert-scale**

Findings from this project demonstrated that care coordinator's professional work environment was moderately and positively correlated with work processes of care coordination occurring. Care coordinators who perceive a higher level of professional practice in the work environment report higher levels of relational coordination. Boltz et al. (2008) found accounting for hospital and nurse characteristics was associated with positive care delivery.

Relational coordination focuses on relationships between roles not individuals which are integral to the work of coordination (Gittell, 2011). It is the process of care coordination. A statistically significant relationship was found between the PES-NWI and RCI total scale scores. These findings are consistent with previous research.

Duva (2010) conducted a descriptive correlational study sampling 337 Registered Nurses across 32 medical surgical units in four urban hospitals and found significant correlations between the professional work environment and the staff nurse general processes of care

coordination. Findings from this project are also consistent with exiting literature that recognized the importance of the nurse professional work environment on nurse autonomy, quality of care, safety, communication, and the credibility of magnet status hospitals (Grant, Colello, Riehle, & Dende, 2010; Warshawsky & Havens, 2010; Lake2007, 2002).

Similarity, high relational coordination supports communication, respect, knowledge, and relationships necessary for task integration or for this project the work processes of care coordination (Gittell, 2007; Aiken, 1999). One of the major challenges organizations face today is providing an organizational environment that is conducive to career satisfaction to recruit and retain qualified nursing professionals. According to Mariani (2007), career satisfaction refers to the feelings of fulfillment that a nurse experiences from a nursing career.

The RN Care Coordinator is the link between structure, process, and outcomes. The care coordinators perceive a professional work environment that promotes the functions (frequent, timely, accurate, problem solving communication), and dimensions (relationships of shared goals, knowledge, and mutual respect) of relational coordination. Both the presence of PES-NWI and RCI were linked to job satisfaction and to patient outcomes to include decreasing morbidity and increased satisfaction with care (Seago, 2008; Gittell, 2011). It is anticipated that program outcomes are good as the first two criteria are met; this requires further inquiry.

The RN Care Coordinator's professional practice represents structure. The RN Care Coordinators in this project report better working environments in Level 1b and 1c facilities. This may be as a result of 44% of the sample working in Level 1 facilities. The activities of care coordination represent process. An evaluation of program outcomes is beyond the scope of this project; the results of the project serve as the outcome. Implications for program evaluation are discussed later in this chapter.

Multiple Linear Regression Analysis.

To further understand the moderate liner relationship, multiple regression analysis was used to identify if the professional practice environment significantly predicted the RN Care Coordinator's perception of relational coordination. Findings from this project identified several predictive relationships between the practice environment and overall activities of care coordination. Significant predictors (overall r=.498, $r^{2=}$.248, p>.001) were also found between the activities of care coordination and each of the predictor variables of the practice environment subscales: Nurse participation (β =0.350, p<.001), staffing and resource adequacy (β =.0.315, p<.001), and collegial nurse-physician relationships (β =0.304, p<.003) accounted for 24.8% of the variance and moderately affected the overall activities of care coordination.

These three subscales were significant in relation to the functions and dimensions of relational coordination accounting from 14.7% to 24.8 % of the variance. Shared governance predicted the majority of variables to include the aforementioned, as well as, commonality in setting goals, knowledge, and effective interdependent problem solving. IOM (2004) asserted to improve leadership, management, and organizational support practices increased participation of employees in work design, problem-solving, and organizational decision-making are the key ingredients to successful organizational change. These factors have were previously studied in relation to nurses and concluded the same (Rondeau & Wagar, 2006; Friese, 2005).

From these findings, it is concluded that when care coordinators perceive high participation in hospital affairs, adequate staffing and resources, and strong collegial relationships with physicians, especially surgeons and residents, frequent timely communication occurs. A possible explanation of these findings may be related to the perceived ease or difficulty in reaching a physician or provider for follow-up orders, homecare or skilled nursing

facility concerns, or the process required to perform activities of care coordination. Van Bogart, Meulmans, Clarke, & Vermeyen (2009) found that nurse-physician relations are related to quality of care assessments, outcomes of job satisfaction, and turn over and burn-out dimensions.

The regression coefficients suggests, that, all things being equal, when staffing and resources are perceived as inadequate, RN Care Coordinators perceive that frequent timely communication occurs less often, is inaccurate, as well as, diminishes the overall activities of care coordination by 31.5%. These findings give confirmation for contention that as RN Care Coordinators perceive resources as scarce, they may engage in a processes found in the literature as nursing rationing. In essence nurse rationing involves leaving nursing tasks undone due to scarce or limited resources (Schubert et al., 2008; Kalisch et al. 2009). This is counterproductive to the quality of care that is associated with the nurse professional practice environment. Rochefort & Clarke (2010) found higher work environment ratings were related to lower reports of nurse rationing.

Examining the inverse.

As previously discussed, relational coordination consists of four communication and three relationship dimensions. Effective coordination depends on interdisciplinary professionals having a high degree of shared knowledge regarding each other's tasks (Gittell, 2011 p. 19). The findings indicate it is this shared knowledge and communication with social workers that had the most impact on the RN Care Coordinator's perception of the professional environment. The RN Care Coordinators reported frequent, timely and accurate communication, effective problem-solving, shared goals, shared knowledge, and mutual respect highest with social workers, followed by case managers, other nurses, physical therapists, residents, and surgeons.

Nodalski (2006) surveyed 268 third year medical students and 175 nurses and found the poorest most ineffective communication occurred between residents and nurses. The authors also found that medical students interacted best with residents, and nurses interacted best with other nurses indicating a need for improved collegial relationships. Our findings are similar.

Literature surrounding social work and nurse relations varies. Robbins & Birmingham (2005) asserted a gap exists between nurses and social workers in the field of case management and the authority over ownership is depleting these professionals of collegial models of practice. Conversely, other studies have identified that health communication openness with social workers, problem solving between nurses and physicians, and collaboration with social workers were important to discharge planning communication (Hansen, Bull, & Gross, 1998; Field, 1955).

Findings from this project are a good validation of the core knowledge that the relationship between the VHA RN Coordinators and Social Worker are interdependent and critical to the processes of care coordination. As previously reported 80% of the care coordinators practice in level 1 facilities, however, it was reported to be in an office setting. RN Care Coordinators may are external to the direct patient care. They may depend on social workers for critical information to coordinating services external to their facility with community partners.

A recent study conducted by ANCC found that 68% of case managers were not involved in direct patient care (ANCC, 2011). Carr (2009) found that professional partnerships between RNs and Social Workers with shared goals and commitment were the foundation for improved patient care outcomes on intensive care units. Higher levels of a professional practice environment were associated with a greater presence of mutually reinforcing process of

interactions between communication and relationships carried out for the purpose of task integration (Gittell, 2002 p. 301). These findings require further inquiry.

Q3. Do the perception of the work environment and/or work processes of care coordination differ as the education/certification level changes?

VHA RN Care Coordinators possess diplomas, certifications, and various nursing degrees: Associates (AAS), Baccalaureate (BSN), Masters (MSN), and Doctorate (DNP, PhD). Neither their perception of the work environment nor activities of care coordination differ by certification. Associate and diploma prepared RN Care Coordinators perceive less collegial nurse-physician relations than their BSN, MSN, or doctoral prepared counterparts.

In comparison, VHA found no significant differences in RN perception of their work environment by educational attainment (VONAD, 2010). However, the literature supports finding of this project. Ingersoll et al. (2001) examined the contribution of individual and organizational variables to differences in levels of job satisfaction, organizational commitment, and turnover at 1 and 5 years. The authors found that age and education, role, employment settings and specialty area, and levels of support, influenced respondent perception of the work environment. This finding may be from underrepresentation in the sample, age differences, and length of time in VHA.

The majority of the care coordinators were older tenured VHA employees. Rambur et al., (2005) examined job satisfaction and career satisfaction in two cohorts of nurses; those with an Associate's degree and those with a BSN. They found that nurses holding a BSN reported higher satisfaction in areas such as opportunities for growth and autonomy in the workplace.

Project Limitations

This project has several limitations that warrant discussion. Survey research constitutes a field of scientific inquiry in its own right that helps the researcher understand the characteristic of a population (Crosby, Di Clemente, & Salazar, 2006). The low response rates may threaten the validity of these findings. A larger sample size may have produced more generalizable findings and understanding of the variables related to the practice environment and activities of care coordination. Reminder emails were sent to elicit more responses, the effect of these emails are unknown.

As noted in the data collection plan, the primary investigator requested letters of support from key GEC VHA leadership to endorse this project, as well as, increase RN response rates. The primary investigator did not receive letters of support. Due to organizational processes beyond the control of the PI, the aim of this project was limited to collecting the data excluding formative applications and publication. According to Davidoff et al. (2008),

> "Failure to publish is potentially a serious barrier to the development of improvement in health and medical care and improvement science generally, since public sharing of concepts, methods and findings is essential to the progress of all scientific work, both theoretical and applied" (p. i3).

Despite these limitations the results of this project will be availed to the respective VHA GEC and Office of Nursing Service (ONS) leadership as the findings have significant and practical implications.

Methodological limitations.

Using a convenience sample increases the chances of selection and respondent bias. The sample population is of significance with survey research. The primary intent of this quality improvement project was to collect data on the VHA RN Care Coordinator which requires an account from the perspective of the coordinator. Missing data management, benchmarking against VHA, national, and research literature was employed to mitigate selection and respondent bias. The tools used for this project have proven both reliable and valid in multiple research studies which provides stronger validity to the results.

The RCI was found reliable in this project. Surveying one group of professionals with the RCI tool does not allow the findings to represent relational coordination between any two functional groups or to measure of strength of the ties between functional groups (Gittell, 2010). Findings represent the perceived connections of the VHA RN Care Coordinator. Future projects should concomitantly survey two or more interdisciplinary professional groups responsible for care coordination to gain knowledge between the groups.

Another limitation was the lack of diversity amongst the care coordinators and facilities. Only care coordinators who subscribed to the email groups had access to participate in this project. Although each VHA facility belongs to the integrated network, each has unique characteristics that may or may not influence the results to the same extent as those presented in the project. In future, a richer description and in-depth analysis should ensue to examine the potential effects that facility complexity designation has on the practice environment or activities of care coordination. Despite the aforementioned limitations, the findings of this project are strongly supported by empirical generalizations accumulated from the literature.

Implications

Performance monitoring and quality performance are continuous processes. There are five steps involved in monitoring quality. The initial step is an assessment. With growing concerns over quality of care and nursing shortages, information must be available about the factors that contribute to the professional practice environment, activities of care coordination, and the nurses responsible for program implementation.

In addition to providing the RN Care Coordinator with a voice specific to their program and roles, the purpose of this project was to learn more about them, their environment, and their activities. Nurses with a voice in macro-allocation, and micro-allocation of scarce resources will help organizations balance benefits and drawbacks of various decisions and provide quality care to a greater number of patients in a way that is ethically justifiable (Institute of Medicine, 1995). Respect to expertise entails recognizing the knowledge available from each person and deferring to whoever's expertise is most relevant to the choices being made. Who knows more about the care coordinator but the person doing the job?

This project provided new knowledge specific to a) the RN Care Coordinator under the auspices of Geriatric and Extended Care to include the structural features of facility complexity, team and program composition, tools used by the RCC to facilitate care coordination, b) the relationship between the practice environment and the processes of care coordination, and c) differences in perception by educational attainment. The SPO framework guided the examination of structure and process of care coordination. Findings from this project have implications for nursing practice, administration, and science.

The RN Care Coordinator resembles the demographic characteristics of the private sector RN workforce and those employed in Magnet Organizations. VHA continues to recognize the need for a RN workforce that is efficient, effective, competent, and that is engaged in evidenced-based practice (VHA, 2009). These findings afford VHA leadership the continued opportunity to examine the whole while taking care of the important parts.

On average, there were three care coordinators per care coordination team, with variation in reporting structures. Finding the appropriate staffing levels or care coordination matrix and succession plan is just as important as understanding of the implications of the facility designation level, practice environment, and activities of coordination. Systemic processes reduce variation and waste. The hallmark of VHA nursing is the keen attention given to the intersection of the important parts (ONS, 2010). Subsets of RN Care Coordinators were eligible for retirement while others were in care coordinator role between 1and 3 years.

Continuous monitoring of nurses' perceptions should be used systematically as a tool for staffing decisions at the hospital level (Hinno, Partanen, Vehvilainen-Julkunen, & Aaviksoo, 2009). Overall, these findings increase our understanding that the professional nurse practice environment, a structural factor, impacts the process of care coordination, an essential process of safe patient care and quality care. These findings are corroborated by existing literature that found nurse professional practice environments were imperative to quality within organizations; requires investment to improve it, nursing professionals, and effective models of care coordination (IOM, 2011; AHRQ, 2010; ANA, 2010; NQF, 2008).

Nursing is an autonomous profession, and if given the tools, is prepared to take on decision-making responsibility at all levels within organizations. This continues to be proven.

The individual nurse has responsibility to contribute to the profession and continuously better themselves and each other through education, mentoring, advocacy, and collaboration. Prepared nurses are able to allocate resources and influence policy administratively, ultimately strengthening healthcare (Zaccagnini & White, 2011; Falk, 2008). The eventual intent of this project is to serve as a platform for evidence-based intervention development. This work is important as organizations like VHA are interested in care coordination, particularly as it relates to concerns about inefficiencies, increased demands on scarce resources, and suboptimal quality in the U.S. health care system.

Duva (2010) first studied the relationship between the nurse practice environment and staff nurse coordination. The author found a mediating role of staff nurse care coordination on patient outcomes. Structural features such as the professional practice environment, RN-physician collaboration, and access to resources served to facilitate staff nurse care coordination by decreasing the amount of time nurses spent performing care activities.

Findings from this project identify facility level and unit-level phenomena serve as predictors of relational coordination. Internal governance, allocation of resources, and teamwork between nurses and physicians were found to positively and moderately impact the activities of care coordination. When present, care coordination occurs. Although associate degree and diploma nurses perceive collaborative relations with physicians, it is to a lesser degree than care coordinators who are baccalaureate, masters or doctoral prepared. Continued mentoring, development, and fostering of collegial relationships are required.

In relation to process, the findings indicate the overall perception of the care coordinator's work environment was most impacted by the degree of shared knowledge of interdependency and communication (relational coordination), especially with social workers.

Evidence supports this as a significant finding (Gittell, 2011; Carr, 2009). It should be noted that both RNs and Social Workers serve as coordinators of care and case managers having shared responsibilities as previously defined (p. 16).

However, they have distinct professional roles, scopes of care, and standards of practice. Case management is not a professional role unto itself, but rather a function within a profession (Robbins & Birmingham, 2005 p. 123). Similar to nursing, the work of the social worker is influenced by the setting, perception of knowledge and expertise, and power dynamics. Young (2009) found that the strength of relationships affects the social worker's ability to advocate. These commonalities are the bridges that collegial relationships should be built upon.

This project is important to prepare for the eventual; increasingly patients will be cared for on an outpatient basis requiring care coordination supportive of safe transitions. It is essential to supporting the RN in this capacity, provide the necessary resources and tools, and implement best practices and evidenced-based models of care. This project provides significant information to serve as a catalyst for future endeavors as other studies have demonstrated that veterans, young and old, are electing treatment at home (Mader et al., 2008).

According to the SPO Framework, the next steps include pattern analysis to identify trends. This is followed by preventative, corrective, or deliberate action. Subsequent performance monitoring should follow to determine the consequences of the action taken.

Recommendations

History reveals that VHA continuously engages in process and quality improvement. The organization is grounded in innovation and is lauded by many as an exemplar of best practices in healthcare. These successes did not come easy or overnight. It is that continued

pursuit of excellence that is one hallmark of high reliability organizations. It is in this spirit that the following is presented.

Studies of the VHA care coordination efforts have proven to have substantial outcomes to include reducing emergency room visits and nursing home placements (Trivedi, 2010; Longman, 2010; Cadiz, 2005). Although VHA has implemented successful care coordination efforts, there is opportunity for improvement. The General Accountability Office (GAO) investigated a collaborative care coordination initiative between the Department of Defense (DOD) and VHA. The aim of the program was care coordination of clinical and nonclinical services for severely wounded, ill, and injured military members and veterans. Findings revealed challenges in accountability, the determination of staffing needs and caseloads, a lack of systemic documented practice that would sustain a change in leadership, overall variation in program implementation, and duplication of care coordinator services (GAO, 2011).

GAO made several recommendations of which VHA concurred and implemented. Nurse staffing presented additional opportunity for improvement. Both the GAO and Department of Veterans Affairs Office of Inspector General (OIG) have examined and recommended strategies to improve VHA nurse staffing methodology (GAO, 2008; OIG, 2004). This information continues to be important as evidence demonstrated low RN staffing ratios result in adverse patient outcomes (Center for Health Workforce Studies, 2007).

Although these examples are distinct from the current program, lessons can be learned. Throughout this project, several opportunities were provided for future research. It is recommended that research be initiated to expand the dearth of the investigation, determine care coordination capacity, reporting structures, staffing plans and matrices, documentation practices, tools used to effect care coordination, training and competencies, and clarify and delineate role

distinctions. Additional inquiry should examine the outcomes of care coordination efforts. It is further recommended that if collaboration has not occurred with the Office of Nursing services, it should. ONS provides guidance for all of nursing-related practice, workforce, research, academics, and technology issues, and such guidance drives change throughout VA (DVA ONS, 2011 p.11).

A national nurse staffing plan is being developed by the Office of Nursing Service. The goal is to achieve standardized, automated staffing methodology that is simple, reliable, and evidenced-based (ONS, 2011). By 2012, ONS aims to disseminate national directives with core data sets and outcome measures of effectiveness, implement automated data extraction systems, and implement a systemic mechanism to collect data across the integrated healthcare systems to allow for trend analysis and outcomes of related to staffing.

To effectively address the staffing needs of the RN Care Coordinators, it is recommended for leadership to examine the Consulting Management Innovators (CMI) Case Load Capacity Calculator. In collaboration with the Case Management Society of America and the National Association of Social Workers, CMI developed software to aid case managers and organizations in predicting staffing based on factors that affect care coordination caseloads in a variety of health care setting. The formula used to predict the ratios is based on evidence from the literature. As of the writing of this project, the software was free.

The success of evidence-based practice in nursing is determined by all involved including health care agencies, administrators, nurses, physicians, and other health care professionals (Burns & Grove, 2009). As part of the Patient Care Aligned Team Initiative, ONS is in collaboration with key stakeholders offering monthly RN Care Manager Education. Resources such as these should be required for RN Care Coordinator, as well as, establish a measure related

to competency. For reasons previously discussed, continued support for obtaining specialty certification should continue.

Before new RN Care Models are implemented, an assessment of what programs exists, capacity, and how best to align processes to prevent duplication of services and reduce waste should ensue. As healthcare professionals, care coordinators must be enabled through their roles, functions, activities, and interventions to promote and attain optimal levels of client and caregiver advocacy, education, safety, and self-care ability. These recommendations addresses the need for VHA RN Care Coordinator to be prepared to lead care coordination initiatives, provide data of effectiveness, and have continued success. Most importantly repeatable systemic processes across the continuum will be in place so that veterans receive safe quality care by receiving the right care, at the right time.

Conclusion

For decades, extensive research has been conducted about the nurse practice environment. From this research it is determined that the nurse professional practice environment is needed for nurses to exhibit autonomy, feel career satisfaction, professional identity, and achieve quality safe patient outcomes. The professional practice environment affects organizational bottom line and quality of care rendered to patients (ANCC, 2011; Duva, 2010; ANA, 2009; Lake 2006). Research on relational coordination found when high relational coordination exists; complex work processes occur (Gitell, 2011, 2010, McEvoy, Escot, Bee, 2010). Care coordination is complex and critical to the provision of safe quality healthcare.

The aim of this project was to examine the relationship between characteristics comprising the RN Care Coordinator practice environment and the processes of care coordination within VHA's GEC service line, as well as, develop a profile of the RN Care

Coordinator. One hundred thirty-one RNs to include advanced practice registered nurses (APN) started the online survey; the final sample for analysis was collected from 118 RN Care Coordinators from 74 VHA hospitals and 10 Community-Based Outpatient Clinics or Outpatient Clinics. Psychometric testing was performed on the individual level data on the PES-NWI and RCI instruments. Analysis was completed using various tests: Pearson's R, ANOVA, and Stepwise Regression Analysis.

This project identified the characteristics of the GEC RN Care Coordinator. The majority of nurses were female (94%), BSN prepared (63%). Sixty percent have additional certifications. Fifty-six percent of respondents have more than 20 years of experience in nursing, and 98% of the participating nurses worked full time, days shift. The majority report working in an office setting within a VHA hospital. Thirty-four percent of the nurses have worked in the VHA for more than 20 years. The majority were titled Community Health Nurse Coordinator. The racial composition is as follows: White (65%), African-American (17%), Hispanic (6.5%) and Asian (6%). Almost half of nurses' were between ages 50-59. Organizational, program, and team demographics were analyzed and compiled. The RN Care Coordinator under the auspices of GEC varies in education, age, gender, tenure as a nurse, tenure with VHA which is congruent with both national and VHA RN population demographics.

A moderately significant positive relationship existed between the care coordinators perception of the practice environment and the activities of care coordination. Various subscales significantly predicted the overall relational coordinator score. A difference was noted in how the diploma and associates prepared nurse perceived collegial relationships with physicians.

The findings of this project are congruent with existing literature. From this project, VHA leadership has an actionable profile of the RN Care Coordinator, and strategies that support a professional practice environment and care coordination activities. The power of professional nursing is evident as RN Care Coordinators chose to respond to the request to complete this survey in hopes that their action will make a difference in their current work environment. By participating in this project, the RN Care Coordinator advocated for their professional roles at the unit level. ANA (2011, 2005) calls for organizational policy that promotes and reflects an organizational climate that values registered nurses as strategic assets, have human resources policies that reflect the agency's concern for employee's needs and interests. The RN Care Coordinators report a professional practice environment exists. The findings from this project identify specific areas for future inquiry.

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Appendix A

Letter of Explanation

You are being asked to participate in a quality improvement project to examine factors in the work environment that may impact work processes of care coordination. The purpose of this survey is to explore the relationship between the RN Care Coordinators' practice environment and work processes of care coordination. We hope that this project will help senior leadership to understand who the RN Care Coordinator is and what makes your care coordination efforts successful. Your participation is critical to improve leadership's understanding of the role in care coordination, believed to be critical work of nurses in the VHA.

You have been invited to participate because you are a registered nurse regularly working as a coordinator of care in the Geriatrics and Extended Care Service Line, Community Care Programs, Community & Home-Based Care, or Purchased Skilled Care. Nurses in this role are being recruited throughout the VHA.

Please complete the survey by clicking the link contained in this email and using the following pass code for your unique access XXXXX.. It will take approximately 15-20 minutes to complete.

Survey responses will be confidential; identifying only the type and level of facility you practice in. A summary of the findings will be shared with leadership and you. Risks to you as a participant in this study are minimal. They include the inconvenience and time of completing the surveys. While you may not benefit personally from the survey, only you can tell us about the experiences you have had in the role of coordinator and improve our understanding of the important work coordinators do. .

You may choose not to participate at any time without consequences to you or your tenure at your hospital. Only I, as the Investigator will have access to the data and the data will not identify you.

If you have questions about this study, please contact me, Danette Y. Wall, Principal Investigator, at [redacted].

If you have questions about your rights as a participant or if you have questions, concerns or complaints about the project, you may contact the Orlando VA Medical Center Research & Development Officer at ([redacted].

Appendix B

Reminder Emails

To: [Email]

From: [redacted] via surveymonkey.com"

Subject: *****Care Coordination Quality Improvement Project*****DYWall

Body:

Happy Monday [FirstName],

As previously emailed, my name is Danette Y. Wall, former Clinical Manager of Community Health Nursing (ANMM) at the James A. Haley Veterans Hospital in Tampa, FL. I respectfully request your assistance in completing the embedded survey. It is a quality improvement and doctoral project aimed at examining factors in your work environment that may influence work processes of care coordination.

You were selected to participate in this survey because you regularly work as a Coordinator of Care (irrespective of title) in the Geriatrics and Extended Care Service Line (Community Care Programs, Community & Home-Based Care, or Purchased Skilled Care).

Your participation is critical to the success of this quality improvement project; your responses will be kept anonymous.

Here is a link to the survey:
https://www.surveymonkey.com/s.aspx

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

DYWall
Danette Y. Wall, ACRN, MSN, MBA/HCM
Regional Nurse- Region III
Veterans Health Administration
Office of the ADUSH for Quality, Safety and Value-Office of Clinical Consultation and Compliance (10A4C3)
Blackberry: [redacted]

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
https://www.surveymonkey.com/optout.aspx

To: [Email]

From: Redacted via surveymonkey.com"

Subject: Care Coordination Quality Improvement Project

Body: We are conducting a survey, and your response would be appreciated.

Here is a link to the survey:
https://www.surveymonkey.com/s.aspx

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
https://www.surveymonkey.com/optout.aspx

To: [Email]

From: [redacted] via surveymonkey.com"

Subject: Care Coordination Quality Improvement Project-Your Help is Needed!

Body:

Time is a priceless resource. I understand you are extremely busy, however, I would greatly appreciate your assistance in completing the following survey.

My name is Danette Y. Wall, former Clinical Manager of Community Health Nursing (ANMM) at the James A. Haley Veterans Hospital in Tampa, FL. I respectfully request your assistance in completing the embedded survey. It is a quality improvement and doctoral project aimed at examining factors in your work environment that may influence work processes of care coordination.

You were selected to participate in this survey because you regularly work as a Coordinator of Care (irrespective of title) in the Geriatrics and Extended Care Service Line (Community Care Programs, Community & Home-Based Care, or Purchased Skilled Care).

Your participation is critical to the success of this quality improvement project; your responses will be kept anonymous.

Here is a link to the survey:
https://www.surveymonkey.com/s.aspx

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thank you in advance for your participation!

Please note: If you do not wish to receive further emails from, please click the link below, and you will be automatically removed from our mailing list.
https://www.surveymonkey.com/optout.aspx

To: [Email]

From: Redacted via surveymonkey.com"

Subject: Care Coordination Quality Improvement Project-Don't Miss this Opportunity!

Body:

Good Morning,

There are only two more weeks until data collection ends. Please take this time to give your input by completing the survey.

Click this link to begin the survey:
https://www.surveymonkey.com/s.aspx

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thanks for your participation!

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
https://www.surveymonkey.com/optout.aspx

To: [Email]

From: [redacted] via surveymonkey.com"

Subject: Care Coordination: Quality Improvement Project

Body:

Time is a priceless resource. I understand you are extremely busy, however, I would greatly appreciate your assistance in completing the following survey.

My name is Danette Y. Wall, former Clinical Manager of Community Health Nursing (ANMM) at the James A. Haley Veterans Hospital in Tampa, FL. I respectfully request your assistance in completing the embedded survey. It is a quality improvement and doctoral project aimed at examining factors in your work environment that may influence work processes of care coordination.

You were selected to participate in this survey because you regularly work as a Coordinator of Care (irrespective of title) in the Geriatrics and Extended Care Service Line (Community Care Programs, Community & Home-Based Care, or Purchased Skilled Care).

Your participation is critical to the success of this quality improvement project; your responses will be kept anonymous.

Here is a link to the survey:
https://www.surveymonkey.com/s.aspx

This link is uniquely tied to this survey and your email address. Please do not forward this message.

Thank you in advance for your participation!

Please note: If you do not wish to receive further emails from, please click the link below, and you will be automatically removed from our mailing list.
https://www.surveymonkey.com/optout.aspx

Appendix C

Carlow University Institutional Review Board

To: Danette Wall

Dr. Kathleen Brown

From: Robert A. Reed, Psy.D.
Co-chair, Institutional Review Board

Date: April 18, 2011

Re: *Coordination of care by community health coordinators: Strategies, lessons and implications*

The above project was reviewed and approved by the Co-chair of Carlow's Institutional Review Board. The project is approved for a period of up to one year.

APPROVAL WILL END BY: April 18, 2012

If any untoward incidents or unanticipated adverse reactions should develop in the course of your research with human subjects, you must notify the Institutional Review Board Office at Redacted **immediately.**

Appendix D

Orlando VHA R & D Approval

-----Original Message-----
From: Fite, William H.
Sent: Wednesday, May 25, 2011 2:17 PM
To: Wall, Danette Y.
Subject: RE: R&D/ IRB Process

Danette,

So long as you label this project clearly and unambiguously as performance improvement and not as research, and so long as you have no plans to publish or present the work outside of the venue in which you collect the data, this will not require IRB review. However, if your committee or university insists on considering it research and/or if you plan to publish or present it, then it requires IRB review.

Think carefully about this. I've had people do elaborate PI projects and then curse and lament because they cannot get their results into print or on posters at professional meetings.

Needless to say, the penalty for doing research in VA without requisite approvals from IRB and R&D are severe.

William H. Fite, DSN
Research Officer
Orlando VA Medical Center
Ofc: Redacted
Cell: Redacted
Fax: Redacted

Appendix E

The Practice Environment Scale of the Nursing Work Index

For each item, please indicate the extent to which you agree that the item is PRESENT IN YOUR CURRENT JOB. Indicate your degree of agreement by circling the appropriate number.

		Strongly Agree	Agree	Disagree	Strongly Disagree
1	Adequate support services allow me to spend time with my patients.	1	2	3	4
2	Physicians and nurses have good working relationships	1	2	3	4
3	A supervisory staff that is supportive of the nurses.	1	2	3	4
4	Active staff development or continuing education programs for nurses.	1	2	3	4
5	Career development/clinical ladder opportunity.	1	2	3	4
6	Opportunity for staff nurses to participate in policy decisions.	1	2	3	4
7	Supervisors use mistakes as learning opportunities, not criticism.	1	2	3	4
8	Enough time and opportunity to discuss patient care problems with other nurses	1	2	3	4
9	Enough registered nurses to provide quality patient care.	1	2	3	4
10	A nurse manager who is a good manager and leader.	1	2	3	4
11	A chief nursing officer who is highly visible and accessible to staff	1	2	3	4

12	Enough staff to get the work done	1	2	3	4
13	Praise and recognition for a job well done.	1	2	3	4
14	High standards of nursing care are expected by the administration	1	2	3	4
15	A chief nursing officer equal in power and authority to other top-level hospital executives	1	2	3	4
16	A lot of team work between nurses and physicians.	1	2	3	4
17	Opportunities for advancement.	1	2	3	4
18	A clear philosophy of nursing that pervades the patient care environment.	1	2	3	4
19	Working with nurses who are clinically competent.	1	2	3	4
20	A nurse manager who backs up the nursing staff in decision making, even if the conflict is with a physician.	1	2	3	4
21	Administration that listens and responds to employee concerns.	1	2	3	4
22	An active quality assurance program.	1	2	3	4
23	Staff nurses are involved in the internal governance of the hospital (e.g., practice and policy committees).	1	2	3	4
24	Collaboration (joint practice) between nurses and physicians.	1	2	3	4
25	A preceptor program for newly hired RNs	1	2	3	4
26	Nursing care is based on a nursing, rather than a medical, model.	1	2	3	4
27	Staff nurses have the opportunity to serve on hospital and nursing committees.	1	2	3	4
28	Nursing administrators consult with staff on daily	1	2	3	4

	problems and procedures				
29	Written, up-to-date nursing care plans for all patients.	1	2	3	4
30	Patient care assignments that foster continuity of care, i.e., the same nurse cares for the patient from one day to the next.	1	2	3	4
31	Use of nursing diagnoses.	1	2	3	4

Appendix F

Relational Coordination Instrument

1. How *frequently* do you communicate with care providers in these groups about your patients?

Surgeons	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Constantly ☐
Residents	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Constantly ☐
Nurses (nursing unit)	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Constantly ☐
Case managers	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Constantly ☐
Physical therapists	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Constantly ☐
Social workers	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Constantly ☐

2. Do care providers in these groups communicate with you in a *timely* way about your patients?

Surgeons	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Residents	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Nurses (nursing unit)	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Case managers	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Physical therapist	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Social workers	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐

3. Do care providers in these groups communicate with you *accurately* about your patients?

Surgeons	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Residents	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Nurses (nursing unit)	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Case managers	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Physical therapists	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Social workers	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐

4. When problems arise regarding the care of your patients, do care providers in these groups work with you to *solve the problem*?

Surgeons	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Residents	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Nurses (nursing unit)	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Case managers	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Physical therapists	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐
Social workers	Never ☐	Rarely ☐	Occasionally ☐	Often ☐	Always ☐

5. How much do care providers in these groups *know* about your role in caring for your patients?

Surgeons	Nothing ☐	Little ☐	Some ☐	A lot ☐	Everything ☐
Residents	Nothing ☐	Little ☐	Some ☐	A lot ☐	Everything ☐
Nurses (nursing u	Nothing ☐	Little ☐	Some ☐	A lot ☐	Everything ☐
Case managers	Nothing ☐	Little ☐	Some ☐	A lot ☐	Everything ☐
Physical therapis	Nothing ☐	Little ☐	Some ☐	A lot ☐	Everything ☐
Social workers	Nothing ☐	Little ☐	Some ☐	A lot ☐	Everything ☐

6. How much do care providers in these groups *respect* the role you play in caring for your patients?

Surgeons	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Residents	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Nurses (nursing u	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Case managers	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Physical therapis	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Social workers	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐

7. How much do care providers in these groups *share your goals* for the care of your patients?

Surgeons	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Residents	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Nurses (nursing unit)	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Case managers	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Physical therapists	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐
Social workers	Not at all ☐	A little ☐	Somewhat ☐	A lot ☐	Completely ☐

Appendix G

Demographics Data Collection Tool

The purpose of this survey is to explore the relationship between the RN Care Coordinators environment and work processes of care coordination. We hope that this study will help us to understand who the RN Care Coordinator is and to understand what make care coordination successful. Your participation will ultimately contribute to improved quality of care in the Veterans Health Administration.

Please read the directions carefully and provide answers to each question. Thank you for your participation.

Section A: Organizational Demographic Information

1. Name of Your Facility_____
2. Facility Complexity Level: 1 2 3

Section B: RN Care Coordinator Demographic Information

3. What is your current title?_____
4. Number of years you have worked with the Veterans Health Administration_____
5. Number of years you have worked as a registered nurse_____
6. Number of year you have worked as a registered nurse within the VHA_____
7. Number of years you have worked as a Community Health Nurse Coordinator _____
8. Please indicate your highest NURSING education earned:
   - Diploma
   - LPN
   - AAS
   - BSN
   - MSN
   - DNP
   - PhD
9. Please indicate your highest NON-NURSING Degree earned:
   - AD
   - BS/BA
   - MS/MA
   - PhD
   - Other
10. Please check all certifications that apply to you:

Nurse Practitioners

- Acute Care NP
- Adult NP
- Adult Psychiatric & Mental Health NP
- Diabetes Management - Advanced
- Family NP
- Family Psych & Mental Health NP
- Gerontological NP
- Pediatric NP
- School NP

Clinical Nurse Specialists

- Adult Health CNS
- Adult Psychiatric & Mental Health CNS

- Child Adolescent Psych & Mental Health CNS
- CNS Core Exam
- Diabetes Management - Advanced
- Gerontological CNS
- Home Health CNS
- Pediatric CNS
- Public/Community Health CNS

Other Advanced-Level

- Diabetes Management - Advanced
- Forensic Nursing - Advanced
- Nurse Executive - Advanced
- Public Health Nursing - Advanced Specialties
- Ambulatory Care Nursing
- Cardiac Rehabilitation Nursing
- Cardiac Vascular Nursing
- Case Management Nursing
- College Health Nursing
- Community Health Nursing
- General Nursing Practice
- Gerontological Nursing
- High-Risk Peri-natal Nursing
- Home Health Nursing
- Informatics Nursing
- Medical-Surgical Nursing
- Nurse Executive
- Nursing Professional Development
- Pain Management
- Pediatric Nursing
- Peri-natal Nursing
- Psychiatric & Mental Health Nursing
- School Nursing

Other: _____

11. Employment Status:

- Full time
- Part time
- PRN

12. What shift do you usually work? Days__ Evenings__ Nights__

13. What is your race?

- White
- Non-Hispanic
- Hispanic
- Native American
- Black/African American
- Asian
- Other

14. What is your gender?

- Male
- Female

15. What is your age?

- 18-21 years
- 22-25 years
- 26-40 years
- 41-50 years
- 51-60 years
- Over 60 years

Section C: Team Demographics

16. Do you supervise other employees in your current role:

- ☐ RN
- ☐ LPN
- ☐ CNA
- ☐ Program Support
- ☐ Other

17. How many other Care Coordinators are in your program?

18. Do you have program support personnel?

19. Does your program have dedicated medical providers (MD, DO, PA, NPs) assigned to it? If so, please check all that apply: MD__ DO__ PA__ NP__

19. Please describe your program's leadership hierarchy to include both nursing and medical leadership if applicable:

_____

_____

_____

20. Please identify tools and resources that you use in your practice as a RN Care Coordinator:

- ☐ VHA Handbooks
- ☐ Centers for Medicare & Medicaid Website (Home Health Compare, Nursing Home Compare)
- ☐ Centers for Medicare & Medicaid Online Tutorials, Listservs
- ☐ Literature Review (Journals, Professional Organizations)
- ☐ Professional Organization Website
- ☐ Attend educational conferences
- ☐ Attend VHA sponsored educational conferences
- ☐ Fee Basis Program Intranet
- ☐ Geriatric & Extended Care Intranet
- ☐ Purchased Care Email Group(s)
- ☐ Home Health Care Agencies
- ☐ Contract Nursing Homes
- ☐ VHA Online Tutorials
- ☐ VHA Training Webinars
- ☐ VSSC
- ☐ Quality Reports
- ☐ VISN
- ☐ ProClarity

Other- specify:_____

Appendix I

Permission to use Practice Environment Scale-Nurse Work Index

Yes, Danette, you have my permission.
-Dr. Lake

Eileen Lake, PhD, RN, FAAN
Associate Professor of Nursing and Associate Professor of Sociology
Associate Director,
Center for Health Outcomes and Policy Research
University of Pennsylvania
418 Curie Boulevard
Philadelphia, PA 19104-6096

Appendix J

Permission to use Relational Coordination Instrument

From: Jody Hoffer Gittell [Redacted]
Sent: Monday, March 07, 2011 12:05 PM
To: Danette Y Wall
Subject: Re: Use of Relational Coordination Scale
Danette--

Thank you for your note and for your interest in the relational coordination survey. I would be glad for you to use this in your study. If you are interested in using an online version of the survey, please let me know and I will let you know as soon as it is available (sometime this month, we anticipate). This version would be available for a relatively small user fee.

-- Jody

Appendix K

Permission to Use Duva's Work

From: **Duva, Ingrid Margaret** [redacted]
Date: Thu, Mar 31, 2011 at 12:11 PM
Subject: permission to use dissertation materials
To: '[redacted]
Cc: '[redacted]

Hi Dannette,

Sorry for the delayed response. You have permission to use materials from my dissertation with the caveat that any use of the instruments be obtained from those respective authors: Gerri Lamb (NCCI), Eileen Lake (PES-NWI), or Jodi Gittell (RCI). As far as I know though - the PES-NWI and the RCI are public documents.

Good luck and please let me know how I can be of further assistance.

Ingrid Duva, PhD, RN

Appendix G

Permission to Use Survey Monkey

From: Herzberg, Keith (Orlando ISO)
Sent: Thursday, March 31, 2011 11:49 AM
To: Wall, Danette Y.
Cc: Powell, Richard S. (Orlando ISO); Isaac, Robert
Subject: RE: Use of Survey Monkey in Process Improvement Process

Hello,

I don't see any security concerns with the use of this application. You would naturally want to ensure that no sensitive or personally identifiable information is uploaded to the site.

Hope it works out well for your project.

Keith

Redacted

Information Security SharePoint

From: Wall, Danette Y.
Sent: Thursday, March 31, 2011 11:22 AM
To: Herzberg, Keith (Orlando ISO)
Subject: Use of Survey Monkey in Process Improvement Process

Good Moring Mr. Hertzberg,

Thank you for taking the time to speak with me concerning the use of Survey Monkey to collect data in a QA/PI project. The QI project involves assessing nurse's perspective of their practice environment and relational coordination within VHA. As discussed, I forward this link for your review and approval that Survey Monkey's security features meet VHA security requirements.

http://www.surveymonkey.com/Monkey_Security.aspx

http://www.surveymonkeypro.com/

Thank you,

Danette Y. Wall, ACRN, MSN, MBA/HCM
Regional Nurse, Orlando
National Office of Clinical Consultation and Compliance (OC3)
Office: (Redacted