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Nursing Staff Optimizing Elder Care

Kathy Chapman

Submitted as Partial Fulfillment for the Doctor of Nursing Practice Degree

Regis University

April 23, 2016

Copyright Page

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Executive Summary

This elder care knowledge improvement capstone project was an evidence-based, educational, intervention that focused on nursing staff and took place in a rural hospital setting.

Problem

The Nursing Staff Optimizing Elder Care Capstone project was implemented to improve caregiver knowledge and services provided to a growing population of hospitalized older adults as well as answer this question: Do nursing staff who care for patients 65 years and older and receive older adult education, have increased knowledge and perceptions of care regarding methods of reducing falls, alternatives to restraint usage, and interventions for pressure ulcer avoidance? The population included nursing staff and the intervention was education focused on fall prevention, pressure ulcer avoidance, and alternatives to restraint usage. Current practice did not include a focused elder care program, and the outcome was anticipated to be increased knowledge and perceptions of care for nursing staff who work with the hospitalized geriatric population.

Goal

The overarching principle or goal for this capstone was to complete an education focused, evidence-based capstone project affecting change in the knowledge and perceptions of care for nursing staff.

Objectives

The objectives of this capstone were to increase nursing staff knowledge regarding geriatric healthcare and perceptions of providing care as evidenced by improved Geriatric Institutional Assessment Profile survey results; reduce facility fall rates per quarter to < 5 per 1000 days, decrease restraint use (all type) to < 2 facility-wide per quarter, and maintain a pressure ulcer occurrence rate of zero.

Plan

The need for this project was identified by reviewing the hospital's strategic plan, payer mix, and census data. Facility leadership was presented with the capstone proposal and supported initiation of an educational intervention utilizing evidence-based geriatric information from the Nurses Improving Care for Healthsystem Elders program. Pre and post education survey data were evaluated to measure the effectiveness of this intervention.

Outcomes and Results

Outcomes revealed positive results for all objectives. General knowledge of nursing staff realized an improvement of 29.3% and knowledge regarding falls and restraints changed 43%. Perceptions of caring for older adults increased 15.6%. Facility fall rates decreased by 1.5 falls per 1000 patient days, restraint usage dropped by 4 episodes during the quarter after the educational intervention, and a pressure ulcer occurrence rate of zero was maintained.

Keywords: DNP capstone, elder care, older adult, restraint, pressure ulcer, falls, and nursing staff

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Nursing Staff Optimizing Elder Care

This evidence-based practice educational capstone project focused on improving knowledge and perceptions of care for nursing staff who provided services to older adult patients in a hospital setting. The project was conducted in partial fulfillment of the Regis University, Loretto Heights School of Nursing, Doctor of Nursing Practice (DNP) program. The focal points for this DNP student were on increasing staff member's understanding of geriatric patients' needs, professional autonomy, and the positive impact of a bedside nursing professional. Secondary goals included improving functional independence and outcomes for hospitalized adults 65 years and older. The identified practice issue included the need to improve nursing staff knowledge related to the growing number of older adults, increase the provision of quality care by maintaining or increasing patients' functional mobility, and prevent avoidable complications such as falls and pressure ulcers (Centers for Medicare & Medicaid Services, 2016). This capstone included the implementation of evidence-based practice education found in the Geriatric Resource Nurse (GRN) Curriculum from the Nurses Improving Care for Healthsystem Elders (NICHE) Program. This work was intended to advance learning and understanding for patient care staff related to the provision of geriatric care, and included the secondary purposes of benefiting the facility, staff members, and older adult patients requiring hospitalization.

Problem Recognition and Definition

Purpose and Appropriateness for Evidence-Based Project

The purpose of this capstone project was to improve the knowledge and perceptions of care for nursing staff who work with hospitalized adults 65 years and older in a rural, Southwest Michigan hospital. The staff at this facility were lacking opportunities to receive focused,

evidence-based, elder care education. This project was suitable to the role of the DNP as supported by the American Association of Colleges of Nursing (AACN) that encourages graduates to identify gaps in practice, analyze practice outcomes data, and design best practices in nursing care and interventions (AACN, 2006). According to Zaccagnini & White (2014), this work was also appropriate for the DNP role as bedside patient care is intertwined with systems of management and the business of doctoral prepared nurses includes working effectively in these complex systems, providing resources along with education to ensure “safe, high-quality patient care” (p.12).

The throng of people 65 years and older in the United States during the past century has tripled from 4.1% to 12.9% (Anderson, Goodman, Holtzman, Posner, & Northridge, 2012). As American’s continue to grow older, healthcare services must adapt to meet needs required for supporting the aging process and promoting the privilege and beauty of living. Some predictions indicate the number of Americans who are 65 years and older is projected to increase to over 83.5 million at the close of 2050 (U.S. Department of Commerce, 2014). By as early as 2030, the reality is that 20% of Americans may be over 65, potentially placing heavy demands on the current healthcare structure and creating a challenging dilemma for establishing a plan to adequately provide safe and effective care interventions for elderly folks requiring hospitalization (Anderson et al., 2012). One interventional method to help prepare for these predictions and remedy this anticipated provision of care situation includes instituting a specialized, nursing staff educational program. Effective education includes geriatric specific healthcare training and instruction promoting the benefits of utilizing interdisciplinary care teams and evidence-based methods of care delivery. A collaborative training program with proven success is the Nurses Improving Care for Healthsystem Elders model. The NICHE program

guides nursing protocols in the hospital setting and offers staff assistance in meeting the growing demands of providing safe, effective healthcare to an aging population.

Acquiring information regarding the foreseen growth of the older adult population requires action from healthcare leaders to implement essential methods of providing safer, patient-focused care and establish effective approaches to prevent falls, pressure ulcers, and the utilization of restraints; resulting in the avoidance of functional decline and the improvement in geriatric patients' overall outcomes. The anticipated change from this capstone related to evaluating the implementation of an elder focused educational program and learning if this intervention produced an effect on nursing staff's knowledge and perceptions of care. A secondary focus included evaluating this program's effect on patient outcomes.

Population-Intervention-Comparison-Outcome Articulation and Question

This capstone took place at Allegan General Hospital (AGH), located in Allegan County, Michigan. AGH is a 25-bed critical access hospital with a daily inpatient census of approximately eight to ten patients. Nearly 86% of the hospital's revenue is currently generated from outpatient services and a majority of the inpatient population consists of patients who are over 65 years of age (AGH, 2015). In fact, over 60% of the inpatients in 2015 were older adults (AGH, 2016). Many of the healthcare staff members have worked at the facility for over ten years, so the workforce at the time of the capstone was knowledgeable and experienced. The hospital did not have an elder care educational program or an on-staff nursing educator, and most nurses stated their college education did not include a comprehensive elder care focus. AGH's older adult patient population was not unique, as the global population currently includes a greater number of older adults than at any other time in past history (Anderson et al., 2012).

Older adults' needs may differ from younger adults, creating another reason specialized education can be so valuable. For instance, an elderly person may need a smaller dose of medication as compared to a younger adult, nutritional needs differ as well, and older adults may be prone or more sensitive to confusion in an unfamiliar environment (NICHE, 2014a). For this small sample of reasons, there was a need to investigate healthcare practices that were not only time and cost effective but also had the potential to result in the delivery of improved, high quality patient care. The aim of this capstone, as previously mentioned, was to investigate the impact of a focused elder care educational program on nursing staff members' knowledge and ultimately change nursing practice. AGH's Executive Management Council was presented with information regarding the aging of America, along with the proposed plan, and unanimously supported a focused elder care project at this facility. See Appendix A for the Facility Letter of Support.

The project employed a Population, Intervention, Comparison, Outcome (PICO) format for development of the research question to be investigated (Houser & Oman, 2011). The PICO for this project was:

Population: Nursing staff caring for hospitalized patients 65 years and older

Intervention: Education focused on fall prevention, pressure ulcer avoidance, and alternatives to restraint usage

Comparison: Current practice not based on a focused elder care program

Outcome: Increased perception of care and knowledge of fall prevention, pressure ulcer avoidance, and alternatives to restraint usage for this patient population

Implementing the NICHE educational program had the potential to provide consistent applications of evidence-based, elder focused, nursing protocols throughout the hospital and

answer this question statement: Do nursing staff members who care for hospitalized patients 65 years and older, and receive elder care education, have increased knowledge regarding methods of reducing falls, alternatives to restraint usage, and interventions for pressure ulcer prevention as compared to current practice lacking a focused educational program?

Project Significance, Scope, and Rationale

The United States spends substantially more per person on healthcare than any other developed nation, yet experiences substandard outcomes (Mager, Lange, Greiner, & Saracino, 2012). The Institute of Medicine (2015) alleges that healthcare fragmentation causes a significant hindrance to achieving above standard, quality care and recommends collaborative teamwork in conjunction with the creation and delivery of educational opportunities for all healthcare workers. According to Mager et al. (2012), a knowledgeable workforce that collaborates “across professions and provider levels” (p. 365) is the key to improving and sustaining quality elder care. Nurses represent the largest portion of healthcare professionals; however, due to current staffing models and cost-control measures in many settings, patient care assistants (PCA) assume many of a patient’s direct-care responsibilities (Mager et al., 2012). This prevailing care model has the potential to cause concern regarding PCA’s training and retention, as adequate instruction, orientation, and supervision are noted as key factors in supporting PCA workforce longevity. Mager et al. explains that high PCA turnover rates, as a result of inadequate onboarding, may negatively affect overall hospital quality outcomes. Education for nursing staff focusing on key elements common to the hospitalized older adult assists in instilling knowledge and confidence which in turn aids in the development of a competent, satisfied, self-assured workforce and made the targeted group of individuals appropriate for this DNP capstone project.

Topics of education making a positive difference, and relevant to population trends as well as needs, included identifying and sharing high-priority healthcare issues affecting the older adult population. Other high priority situations worthy of being addressed and incorporated in the scope of this project were the increased number of people over 65 years requiring general healthcare services and the number of traumatically injured older adults admitted to hospitals with cognitive as well as functional impairments. As America's population increases, the number of older adults admitted to hospitals with injuries related to falls will continue to rise (Maxwell, 2013). According to Maxwell (2013), from 2000 to 2010 the number of older adults admitted with a primary injury diagnosis rose nationally from 638,000 to 759,000 placing this large group of individuals at an increased risk for incomplete recovery, institutionalization, and death. A pilot study discussed a significant association between pre-injury functional impairment and greater risks of complications along with poor long-term outcomes among older patients who were hospitalized for traumatic injuries (Min, Ubhayakar, Saliba, & Kelley-Quon, 2011). These conditions have the strong potential to lead to "poor outcomes including increased lengths of stay, increased mortality, disposition other than home, functional decline, and increased readmission rates" (Maxwell, 2013, p. 146). This information clearly highlights the significance and rationale for this capstone and supported the implementation of an evidence-based, clinical intervention for the purpose of affecting change in knowledge and safe healthcare-related outcomes.

Theoretical Foundation

Nursing theory provides the foundational principles of nursing practice and assists in the generation of further knowledge. Continued theory development is essential for the progression of nursing as a discipline and a profession (Alligood, 2010). Benner's theory of skill acquisition

supports this capstone and has been successfully utilized in nursing education, career development, and clinical practice (Benner, Tanner, & Chesla, 2009). Benner identifies areas of nursing practice to include roles of diagnosis development, helping, teaching, monitoring, and managing symptoms, quality assurance, and organizational competency (McEwen & Wills, 2014). Stress can result when an expert nurse moves from a preferred area of comfort to a less-desirable competent or proficient level due to new skill acquisition. Implementing Benner's theory, with the assistance of a supportive team and the goal of achieving expertise once again, will foster team work and nursing satisfaction. Major concepts of Benner's theory, according to McEwen & Wills, include nursing competence, skill acquisition, experience, practical and clinical knowledge, as well as the significance of "retaining and rewarding nurse clinicians for their clinical expertise in practice settings" (p.230). Expert nursing care flourishes and is rewarding when nurses are able to apply what is learned in professional practice, refine work processes, make changes as appropriate, and realize positive results. According to Alligood & Tomey (2010), Benner's model uses a holistic approach to nursing and frames the practice of nursing in the context of what a nurse truly is and does.

The Neuman's System Model is also a nursing theoretical framework relevant to this DNP project and focuses on the human need for "protection and relief from stress" (McEwen & Wills, 2014, p. 150). This theory places emphasis on a dynamic human balance that can be achieved through nursing assessment, illness (stress) prevention, identification of issues, and agreed-upon goals (McEwen & Wills, 2014). Major assumptions of Neuman's Systems Model, according to McEwen & Wills (2014), indicate that each client is unique, having differing known and unknown stressors as well as responses. Each person has lines of defense that can be used as a means to evaluate health deviation as well as lines of resistance for the purpose of stabilization

and realignment toward a state of health (Neuman & Fawcett, 2011). Three levels of prevention or protection assist in attaining and maintaining a stable state. Primary prevention relates to applied general knowledge for eliminating risk factors from environmental or situational stressors, secondary prevention relates to prioritizing and initiating treatment for the reduction of symptomology, and tertiary prevention relates to processes of reconstructing and then maintaining a state of ongoing stability (McEwen & Wills, 2014). Major concepts of Neuman's Model include a definition of health to be the optimal stability of wellness or harmony at any given time. McEwen & Wills also explain that a structure of three concentric rings represent barriers of protection from "internal, external, and created environments, all of which influence the client's adaptation to stressors" (p. 150).

The primary area of concentration in Neuman's Model is on maintaining client stability through accurate assessment and assistance with intervention(s) to maintain or move to optimal well-being. Major relationships in this theory include "five interacting variables: physiological, psychological, sociocultural, developmental, and spiritual. These five variables function in time to attain, maintain, or retain system stability" (McEwen & Wills, 2014, p. 152). Neuman supports a three-step nursing action plan including appropriate diagnosis, goal collaboration, and outcomes measurement to determine nursing actions for positively influencing the current state (McEwen & Wills, 2014). This theory is prescriptive in nature, giving nurses the ability to implement steps that promote wellness and prevent illness and/or injury. Neuman's model complements and demonstrates the professional autonomy and esthetics of nursing--an appropriate fit to guide an educational program focusing on elder care.

According to Register and Herman (2006), the Register Theory defines quality of life as being linked with forces and processes through an ongoing course of specific actions that

produce connectivity with other people, society, and the environment--leading to an amiable and positive existence. Register's theory is easy to understand and provides a solid basis for explaining and introducing the importance of starting an elder care program in the acute care setting. This theory explains the *why* for providing individualized plans of care and interventions that demonstrate to the elder patient and their family that caregivers are genuinely concerned about their patients' experiences. Explaining to seasoned nurses the reasons for providing new educational opportunities and implementing new skills can create challenges related to staff buy-in. However, increased caregiver receptiveness to continued learning and decreased workplace stress may be very positive results when experienced nurses realize successful patient-to-nurse relationships as a result of implementing evidence-based practices. Register and Herman indicate that personal interaction and connections produce a positive feedback circuit that perpetuates the interactive, interpersonal rhythm. Nurses who know the reason for required actions are more apt to develop passion for their work and prosper professionally.

Register's middle range theory supports nursing designed, patient-centered goal development targeting connectedness through metaphysical associations, faith-based options for reflection and/or meditation, social networking, therapeutic touch, and environmental contact with the outdoors (Register & Herman, 2006). This theory focuses on the positive aspects of life rather than the problem-oriented issues that can affect the elderly population. According to Register and Herman (2006), principles of nursing practice are holistically focused and distinctly capable of directing and guiding patient-centered interventions that improve quality of life and produce positive outcomes for patients and nurses. Register's theory focuses on positivity and the impact of how evidence-based practice strongly influences nursing empowerment.

According to Kenner & Weinerman (2011), the Adult Learning Theory is also relevant as a guide to this DNP project. This theory focuses on adult learners who have varied life experiences that serve as a foundation to their individual self-identity. Adult learners are self-directed, resist having information arbitrarily forced on them, are goal driven, and likely to be engaged in the learning of their choice (Kenner & Weinerman, 2011). Nurses' professional experience as well as adult maturity helps improve readiness to learn, drives motivation to succeed, and increases the desire for cooperation between the student and the educator (Kenner & Weinerman, 2011). Research indicates that adult learners prefer a "problem-oriented rather than subject-oriented approach and the opportunity to use their experiences and skills to help others" (Bastable, 2008, p. 65). This adult learning concept fits nicely into a process of presenting an elder care educational program where new ideas can be added to experience in order to problem-solve and gain further understanding, helping to lessen or prevent the impact of patient complications. Kenner & Weinerman also explain that adult learners have experienced some level of professional success which can be reinforced and replicated during a learning endeavor when they understand the reason for additional education and realize this opportunity leads to goal attainment and increased job satisfaction. Nurses are adult learners who have completed college courses. Implementing an elder care educational program guided by the Adult Learning Theory assists in the creation of situations where nurses are able to experience positive outcomes by gaining knowledge, implement strategies for meeting goals, and achieve success.

Review of Evidence

Background of the Problem

Aging results from decreasing mortality and declining fertility, leading to a reduction in the proportion of children compared to the number of older people in a population (United

Nations Department of Economic and Social Affairs [United Nations], 2013). Hospital admissions for nurses working in this 25-bed, rural, Michigan hospital consist mainly of clients over 65 years of age who elect to have joint replacements, experience unexpected traumatic orthopedic fractures needing repair, and those who require hospitalization for pneumonia, cellulitis, chronic obstructive pulmonary disease, or congestive heart failure. Lack of standardized, patient-centered, nurse-driven protocols for these acute care patients can lead to significant treatment variability as well as nursing and patient dissatisfaction with less than desirable outcomes (NICHE, 2014a). This critical access hospital has an experienced workforce, with many nurses having more than a ten year employment history at the facility. However, a number of these experienced nurses shared that their nursing education lacked a comprehensive elder care focus, and small rural hospitals such as AGH must be prepared to meet the growing needs of the community. AGH does not have a nursing educator on staff, yet must remain competitive in the healthcare market for the purpose of improving patient outcomes, retaining staff, and increasing net revenue.

Since cognition and functional status are protrusive predictors of poor outcomes for the older hospitalized patient, it is imperative that healthcare workers increase their knowledge and are provided with tools to assess patients for proper clinical management. Standardized, highly-accurate tools for bedside nurses to assess fall risks, cognitive capabilities, and pressure ulcer susceptibility were needed and available with the NICHE program membership. Nursing staff must also be able to develop interventions aimed at preventing further complications and functional decline. Societal needs are changing as the older adult population continues to grow in numbers. Methods of improving older adults' independence will lead to improved

socialization, increased community perceptions of quality care delivery provided by the local hospital, and greater nursing staff satisfaction.

Ensuring each member of the nursing staff has the proper education and tools to provide age-appropriate care supports the accomplishment of the hospital's mission and ethical duty to dispense services promoting quality of life and reflecting compassionate care. Providing focused care to the aging population for the purpose of improving functionality also supports legislation specifically related to the Older Americans Act that provides funds for services to keep older adults healthy and independent (Area Agency on Aging of Western Michigan, n.d.). Regulatory agency requirements for this critical access hospital are mandated and enforced by Det Norske & Veritas (DNV), an organization with deeming authority from The Centers for Medicare and Medicaid Services (CMS). This educational capstone assisted in fulfilling the hospital's CMS and DNV requirements to meet staff learning needs that have been identified from staff feedback. This project also helped support issues identified from a previous community needs assessments as well as the hospital's strategic plan to improve healthcare services that meet the requirements of an older adult population (AGH Strategic Plan, 2013-2014).

Systematic Review of Literature

Major themes located during the literature review process included broad geriatric overviews and theories grounded in supportive data for focused geriatric knowledge having the potential to improve care, reduce injuries, and improve functionality as well as patient independence. A thorough, systematic literature review highlighted the topic of functionality and revealed that a focused geriatric educational program provides staff with opportunities and skills to improve a patient's range of capabilities, decrease lengths of stay, and offer ideas for

developing plans of care that facilitate patient independence (Boltz, Resnick, Capezuti, Shuluck, & Secic, 2012). See Table 1 for the Systematic Literature Review.

Table 1

Literature Review Table

Literature Review Table	
Search Engines Used	Academic Search Premier; Cochrane Library; Cumulative Index to Nursing and Allied Health Literature Complete; Health and Psychosocial Instruments; MEDLINE; Communication & Mass Media Complete: Primary Search: PubMed; and Topic Search.
Search Terms	Elder care, geriatric care, older adult, restraint, pressure ulcers, falls, healthcare, perception, healthcare worker, functionality, and nurse(s)
Number Articles Reviewed	52 scholarly articles were reviewed
Inclusion Criteria	Less than 5 years old, located in a peer reviewed, scholarly journal or website, published in English, population similar to the U.S.
Exclusion Criteria	Older than 5 years; adults less than 65 years, non-scholarly journals, articles without outcome data; studies without weaknesses
Articles Included in Project	33 articles with dates of 2010 to 2015
Levels of Evidence	Number of articles per level in brackets: [1] Level I; [1] Level II; [3] Level III; [4] Level IV; [17] Level V; [0] Level VI; [7] Level VII (Houser & Oman, 2011)

The content of articles considered for inclusion were compared with other items distilled from the literature review to evaluate and include items relating to each aspect of the project including falls, pressure ulcers, and restraint usage (Aday & Cornelius, 2011). The leveling model chosen was the Seven-tiered levels of evidence found in Houser and Oman (2011) and

derived from the medical model. This leveling model does not account for patient preference, clinician experiences, local cultural influences, or costs, and does not focus heavily on qualitative studies yet is an integrative review that combines data from different types of research designs (qualitative and quantitative), as well as empirical literature supporting the benefits of elder care focused education in clinical practice.

The strong support found in literature reviews and breadth of evidence addressing this elder care issue also indicated that implementation of the NICHE program utilizing the GRN curriculum significantly improved perceptions among nurses related to their experience in caring for older adult patients and knowledge regarding methods of preventing pressure ulcers and avoiding restraint use across the nation (NICHE Program, 2013). Other hospitals and medical centers have implemented this elder care program and realized a significant increase in “nurses’ cultural awareness levels ($p < .001$, $n = 133$) and cultural competence levels ($p < .001$, $n = 134$)” (NICHE, 2014a, p. 2). These stated results demonstrate the relevance of this project and the potential impact on increasing nurses’ knowledge. The vast scope of documented research indicated that staff providing direct patient care have the strong capability to provide specialized care and meet each patient’s individualized requirements by developing personalized plans of care and coordinating healthcare teams that may exceed patient conditions and expectations. Consequently, when patient needs are met, greater satisfaction and improved outcomes are reported (Zisberg et al., 2014).

Patient outcomes regarding falls, pressure ulcers, improved functional levels, and lengths of stays related to diagnosis were also examined. These outcome areas demonstrated marked improvements compared to similar situations where patients did not receive care from trained staff. Articles with major themes of falls and pressure ulcers focused on elder care programs

having the potential to decrease fall rates and pressure ulcers by addressing underlying illnesses and providing prompt, safe, individualized, patient interventions (Barton-Gooden, Dawkins, & Bennett, 2015). Research focusing on restraints discussed that restraint usage is restrictive and has a considerable potential to create undo patient agitation. According to Barton-Gooden et al. (2015), education alone is not usually enough to ensure reduction of restraint usage, and an evidence-based elder care educational program provides staff with knowledge regarding effective methods for maintaining safe environments along with a better patient experience and improved outcomes with minimal or no restraint usage.

Articles included in the literature search also discussed the use of the grounded theory approach to generate and analyze data along with the substantive theory to explore current patient care area practices and routines that may help or hinder high-quality, individualized care (Nilsson, Rasmussen, & Edvardsson, 2013). A grounded theory of research may start with a question or collection of data, and concepts are arranged into categories as more data is found (Houser, 2012). This research approach was often discussed in literature and used to develop a substantive theory or action plan that could be put into place in a specific unit or department. For instance, the idea of safe care for elderly patients with a cognitive impairment could be generated and a study might begin related to developing a theoretical understanding of the “process that may or may not be hindering person-centered care (PCC) of older people with intellectual or emotional impairment in acute care settings” (Nilsson et al., 2013, p. 1683). One article supported the ongoing focus of the NICHE model by stating that PCC has been associated with higher nursing satisfaction while providing safer care, lower costs, and increased patient perceptions of care; however, “several studies show that acute care settings struggle to implement PCC” (Nilsson et al., 2013, p. 1683). Literature from NICHE facilities and non-

NICHE organizations tended to support a type of holistic care that included an interdisciplinary team along with a caring, protected environment with knowledgeable healthcare workers (Capezuti et al., 2012).

Common themes in writings explained that inexpensive interventions can have very positive implications for patients. Zisberg et al. (2014) supported the work and importance of the clinical nurse along with the value of a nurse and physician working in collaboration to achieve common patient-focused goals. In many cases, the systematic review of literature revealed that when functional changes occur in the hospital, more individualized, tailored nursing care is needed (Zisberg et al, 2014). Articles by Boltz, Capezuti, Fulmer, and Zwicker, (2012) demonstrated the strong influence a nurse can have on the entire older adult patient experience and supported benefits that can be realized from implementing an elder care program in an acute care setting.

As previously mentioned, the literature studied addressed models of care and supported foundations of care for improving practice based on the Geriatric Resource Nurse Curriculum (NICHE, 2014a). The GRN modules uphold the underlying goal of improving knowledge and skill of the bedside nurse by utilizing educational and clinical interventions, providing nurses with the ability to function as a resource for other staff and an advocate for safe patient care (NICHE, 2014a). The literature review also provided an explanation for the value of the Geriatric Institutional Assessment Profile (GIAP), a survey developed by NICHE personnel. The GIAP is a survey combination allowing healthcare systems to quantify staff knowledge, attitudes, and perceptions regarding the care of geriatric patients, and provides invaluable data for facilities to focus on areas needing positive change (NICHE, 2014b). The results of facility

GIAP questionnaires are added to a database with over 105,000 staff-completed responses, and allow the opportunity for comparison with similar-size hospitals as well as larger facilities.

Although the reviewed GIAP studies did not always occur at large, over 400 bed hospitals, it was difficult to find literature regarding the implementation of elder care programs in small critical access hospitals, such as the location for this project. Research focusing on facilities with relatively small sample sizes revealed that nurses' scores indicating personal perceptions of elder care knowledge were relatively high; yet the scores revealing knowledge of evidence-based, best-practice care were not equally high. These comparative results indicated that education and assistance was needed to improve staff acceptance of the educational program (Capezuti et al., 2012). This gap in the amount of documented research available from smaller hospital facilities also indicated that exploratory and interventional work might be needed in facilities with less than 100 beds and could reveal new opportunities for investigation (Houser, 2012). Overall, the comprehensive literature search demonstrated the strong influence a nurse can make on the entire patient experience and supported the ideal that an empowered nurse, armed with education and the right tools, can be a positive change agent for quality improvement. The success and benefits of implementing an elder care program in an acute care setting were clearly documented in literature, and indicated replication of a similar project to be a very worthwhile undertaking. See Appendix B for the Systematic Literature Review Table.

Project Plan and Evaluation

Market and Risk Analysis

The market and risk analysis performed as part of this DNP educational capstone project displayed a realistic market area along with plausible issues and minimal risks. AGH's strategic plan revealed the hospital's primary service area included six zip codes, anticipated slow

population growth, and continued to realize a declining population of women who were child bearing age. Allegan County, the primary service county for AGH, had an average-size 65 years and older age group in 2013 who enjoyed an overall *good* health status (AGH Strategic Plan, 2013-2014). The hospital has the potential to provide services to approximately 42,000 area residents (United States Census Bureau, 2015). Many people living in the area, who are over 65 years old, have multiple options for care as this region offers many nearby healthcare organizations including other hospitals, long-term care facilities, assisted living centers, and physician practices (Michigan Department of Community Health, 2014). Data revealed that over 45% of the inpatient population was discharged to nursing homes for rehabilitation or long term care. This statistic provided another indicator for the need to equip staff with information and tools to help meet the needs of the growing, geriatric population (AGH Strategic Plan, 2013-2014).

This 25-bed critical access hospital not only offers individual departmental services, but collaborates with other tertiary healthcare centers to provide on-site specialists at designated times. NICHE training for AGH patient care staff supported the strategic plan by proactively anticipating a national trend of declining inpatient admissions and discharges while continuing to build on excellent quality scores, along with predictions that older patients will desire receiving healthcare services from knowledgeable, compassionate, staff who provide personalized services in their local community. No major risks were identified related to the implementation of this educational project.

Setting.

The setting for the capstone was Allegan General Hospital, a facility supporting a collaborative culture based on Studer® principles promoting accountability, innovation, and the

creation of delivering a great patient experience and quality outcomes (Studer Group, n.d.). AGH has a traditional, or top-down structure, with an organizational, pyramid-type leadership chart and chain of command. At determined times, AGH employs a matrix-type business structure for accomplishing certain projects, as an employee may report to more than one manager in order to accomplish a short-term work assignment. Quality metrics at AGH are considered excellent, with inpatient overall perceptions of care in the top quartile of the country and 81% of patients would recommend AGH to friends and family (*Safety and quality* report, 2015). This quality hospital is organized for the purpose of providing inpatient and outpatient healthcare services to the area population. The Board of Trustee members are voted into office and include an eleven member team as directed by the governing body bylaws. These members are challenged with the objective of recruiting and retaining physicians and other allied health professionals along with maintaining appropriate facilities to provide the resources for the provision of all appropriate healthcare services (AGH Governing Bylaws, 2001). The Executive Management Council reports to the Board of Trustees and consists of six members who lead the day-to-day activities of AGH.

As previously mentioned, AGH is a 25-bed critical access facility with a 4-bed critical care unit, a 16-bed medical/surgical unit, and a 5-bed orthopedic unit. Outpatient services include emergency care, surgery, endoscopy, vascular care, physical rehabilitation, radiology imaging, laboratory, home health care, outpatient psychological medicine, occupational health, industrial medicine services, diabetes & cardiac education, cardiac & pulmonary rehabilitation, a wound healing center, sleep disorder center, pain management office, cancer treatment & infusion unit, and services emphasizing women's health promotion & disease prevention. The facility employs approximate 300 employees including approximately 60 nurses, and 15 patient

care assistants. The emergency room staff treat approximately 900 patients each month and approximately 65 inpatients along with 35 outpatients are admitted to the acute care unit during this same time period of one month.

Strengths, Weaknesses, Opportunities and Threats

A systematic evaluation of this capstone and associated target market was essential for identifying an organization's strengths, weaknesses, opportunities, and threats (SWOT) (Fortenberry Jr., 2010). The SWOT analysis for this capstone revealed the organization's internal strengths included a strong belief in and support of the mission statement to provide exceptional, compassionate, personalized healthcare to the community, a dedicated nursing workforce with many years of experience, a below national average voluntary employee turnover rate, a management team who support life-long learning, a community need for focused elder care education, and a low nurse-to-patient ratio. Internal weaknesses included limited front-line staff exposure and networking with urban facilities who also provide great care and enjoy positive results, attitudes of some patient care staff who may not understand or realize the importance and benefits of the NICHE program membership, and limited financial resources as a critical access, independent facility in a rural setting.

Opportunities for change included a local patient population ready for focused, individualized care that will continue having the potential to greatly benefit from expert nursing care provided locally. Threats or restraining forces included a national healthcare system that is rapidly changing and providing less reimbursement for healthcare services and extra personnel. These financial challenges place a significant impact on small healthcare facilities, moving required regulatory work, data gathering, and reporting to a higher priority of focus as well as causing time management constraints for staff to develop and implement specialized

educational programs. Competition from other nearby facilities, located in a 35 mile radius, with greater financial opportunities and support also persist and create the potential to pull patients into their systems, decreasing revenue and financial growth for AGH. See Appendix C for SWOT Analysis.

Driving and Restraining Forces

According to Fortenberry Jr. (2010), driving and restraining forces, when studied and understood, have the potential to provide leaders with information for correctly responding to opportunities resulting in growth and success. The presence of and concern for a growing older population who will at some point require healthcare services was realized and shared by the AGH Board of Trustees and Executive Management Team as a primary driving force for this project. The awareness of this information provided a realistic opportunity to assist in the educational growth of the nursing workforce for the purpose of meeting identified community needs, promoting the use of AGH for healthcare services, supporting the facility's vision, and increasing the financial health and longevity of this community hospital.

Along with driving forces, there were also restraining forces that could have hindered the plan and project. The restraining forces included budget cuts and the need to down-size the middle management team at AGH during the planning and implementation phases of this project. This change resulted in the initial NICHE leadership team of seven being reduced to five and then to three members. Restraining forces also included perceptions of some staff members who did not realize or understand the benefits of receiving focused elder care education as well as those who struggle with learning and the amount of new information provided.

Needs, Resources, and Sustainability

According to Zaccagnini and White (2014), a needs assessment systematically determines current gaps as compared to desired conditions. The requirements of the local community were considered by reviewing the hospital's 2013 community needs assessment. This assessment is completed every three years and guides the development of the hospital's strategic plan which is based on many factors including community input, governmental resources, and payer mixes. As previously mentioned, CMS regulatory conditions of participation require critical access hospitals to be able to meet staff learning needs identified through performance measurement evaluations and staff feedback. The CMS conditions of participation document also includes strong wording regarding the proper use of restraints and AGH data supported national statistics indicating that approximately 83% of staff admitted to a lack of restraint training and many staff members reported restraint knowledge came from peer observation rather than evidence-based education (Barton-Gooden, Dawkins, & Bennett, 2015).

Resources for the project were identified early in the planning stages, were made available, and were cost-effective. The hospital, an independent, non-profit organization, provided membership funding for the NICHE program prior to the initiation of this project. Active membership in the NICHE program provided access to the valuable GRN curriculum, patient assessment tools, and email as well as telephone contact with geriatric nurse specialists. The capstone project required instructors and physical materials including paper, a photocopier, staples, and pens totaling approximately \$200.00. Other needed provisions included a reserved training room and functioning audio-visual equipment that were provided by the facility. The class room oversight instruction was provided by this DNP student and teaching duties were shared by nursing leaders who completed a leadership training program offered by the NICHE

program and included in the membership. Budget and resource information is presented in Appendix D and display low costs for this project as well as potential costs to replicate the study for a facility without an active NICHE membership.

This educational program was not only cost-effective, but also supported the regulatory and quality metrics of the facility as the curriculum was evidence-based and shown to improve nursing staffs' perception of care resulting in positive patient outcomes (NICHE, 2014b). The sustainability of this program will be extremely valuable to nursing staff and patients, due to the ever-increasing number of older Americans who will at some point require hospitalization and desire to be the recipients of safe, effective, patient-centered, high-quality care (Terry, 2015). Program sustainability is also desired and feasible as new regulations including the Medicare spending cuts known as sequestration continue to have disruptive effects on small, non-profit organizations and AGH, similar to many other facilities, experienced reimbursement reductions in 2015. Decreased financial reimbursements resulted in cost-cutting measures and the implementation of various methods to increase the utilization of services by community members and improve the organization's market share and financial bottom line.

Sustaining forces are currently in progress and include the commitment of nursing leaders to support and continue providing evidence-based education as well as share positive patient and staff outcomes realized from this work by AGH and other NICHE facilities. Plans for 2016 include the implementation of a GRN module specifically focusing on the emergency department older adult patient population as well as a facility-wide fall reduction program. Ongoing efforts are supported by the AACN (2006), encouraging nurses to provide quality improvement strategies and changes that are sustainable and realistic as well as based on professional standards.

Feasibility, Risks, and Unintended Consequences

The feasibility of this capstone was demonstrated by the successful completion of the project and the positive, measureable outcomes as well as the applicability to scholarship and evidence of learning. Zaccagnini & White (2014) explain that the DNP is prepared to bring evidence-based information to the patient care setting and is able to apply data to the identified problem. Providing focused older adult education to nursing staff who care for a growing geriatric population and realizing measurable improvements in knowledge and perceptions of care demonstrates the usefulness and value of this project and the importance of the DNP in clinical practice. Potential risks for this capstone were minimal and could have included paper cuts, falls to and from class, participant anxiety, lack of understanding, or a feeling of being overwhelmed with a vast amount of information. No injuries occurred as a result of the educational experience and this type of teaching included a similar adult style to what has been offered to staff in the past, so staff were not novice to this training.

Intended current and future consequences of the educational project include a strengthened nursing knowledge base along with increased confidence to practice effective, safe patient care. An improved community perception of quality care delivery in a small acute care facility is also an ongoing expectation. Other intended consequences include an ongoing decrease in facility-wide fall rates per quarter to less than five per 1000 patient days, a decrease in restraint utilization facility-wide, and the consistent maintenance of a pressure ulcer occurrence rate of zero. Unintended consequences of project implementation include the potential to surpass gross revenue goals due to the level of quality care provided as well as the opportunity to explore and open more service lines for meeting community healthcare needs. The impact of not implementing this project could include the further loss of revenue as older

adults living in the community may choose to receive care at other facilities. Increased employee turnover rates could also result if a lack of educational opportunities exist and nursing staff select other places of employment offering more experiences and occasions for gaining professional knowledge.

Stakeholders and Project Team

Zaccagnini & White (2014) discuss the need for identifying stakeholders and realizing their importance in the project planning process as this group of individuals has the potential to provide support, offer ideas for improvement, and become advocates for policy sustainment and growth. Stakeholders who were affected by this educational intervention included the nursing staff, patients, families, significant others, and the facility leadership. The hospital's management company, another stakeholder, was also very supportive of this initiative and continues to assist the hospital in determining methods of improving the financial bottom line and upholding the mutual goal of remaining an independent, non-profit facility. Other stakeholders included collaborative community members who have shown interest and offered support for the project, the Hospital Board of Trustees and their families who are strong hospital advocates, area physicians, previous AGH patients, area Hospice leaders, and local Chamber of Commerce members.

The capstone team included Dr. Barbara Berg as capstone chair, Susie Sebright PAC, as clinical mentor, and this DNP student as team leader. The facility project team initially consisted of the Quality Manager, Joint Care Manager, Acute Care Manager, Emergency Department Manager, two staff registered nurses (RN) who held charge-nurse positions, and this DNP student who is also the hospital's Chief Clinical Officer. This hospital NICHE team developed a plan of action based on the facility's SWOT. The number of team members changed due to a

necessary downsizing process that occurred at the facility during the spring of 2015. The remaining team of nurses began implementing NICHE concepts by educating staff via classroom lectures, printed materials, emails, staff meetings, and hands-on opportunities. The current post-project NICHE team consists of three nurses including a staff RN, a House Supervisor, and the Chief Clinical Officer.

Cost-Benefit Analysis

The implementation of this educational capstone has the ongoing potential to save healthcare costs as trained nursing staff now have increased knowledge to add to their experience for the purpose of preventing functional decline for the older adult population. Keeping a geriatric patient mobile decreases the likelihood of falls, pressure ulcers, and extended hospital lengths of stay. National data from 2013 indicate that direct medical costs of falls, adjusted for inflation, were \$34 billion dollars and a 37% fall reduction could save a facility approximately \$122,000 per year (Barton-Gooden, Dawkins, & Bennett, 2015). According to Brem et al. (2010), pressure ulcer costs were also very high, averaging over \$125,000 per stage IV hospital-acquired pressure ulcer and mortality rates were also very high for those who acquired a decubitus ulcer.

Benefits to nursing staff, impacting the cost-benefit ratio, included the addition of new knowledge after completing education and being provided with new patient assessment tools. Knowledge has the potential to create nursing empowerment for the purpose of providing safe, effective care. Satisfied nurses remain employed at hospital facilities longer and satisfied patients return for other services, improving gross revenue and the hospital's financial viability. Reiter, Young, & Adamson (2008) estimate the cost of orienting a new nurse is between \$20,000 and \$50,000 or between 75% and 125% of a registered nurse's annual salary. Direct hospital

costs for education were not impacted as no additional staff members were needed to implement the educational capstone. Other anticipated impacts as a result of project implementation affecting the cost-benefit ratio include the hope that inpatient growth will increase to the projected target of 5% per year, resulting in a potential net revenue increase in over \$400,000 during the next five year period (*AGH Financial Report, 2015*).

Mission, Vision, and Goals

The mission of this capstone project, very similar to the facility mission, was to provide exceptional, compassionate, personalized healthcare to the elder population served. The vision of the project's team was and continues to focus on the importance of being trusted healthcare professionals, promoting clinical quality, effective leadership, unprecedented service, and an enduring commitment to the older population. Zaccagnini & White (2014) explain goals to be statements identifying future outcomes, providing direction, and focusing on specific and anticipated results of a project or event. The overarching goal for this elder care educational capstone was to complete an education focused, evidence-based project affecting change in knowledge for nursing staff at AGH.

Process, Objectives, and Outcomes

This educational project included a planned process having the potential to cause a practice change and positively affect patient caregivers, older adults, hospitalized patients, family members, significant others, and AGH's hospital system. Objectives for the capstone were to:

1. Increase nursing staff general knowledge regarding geriatric healthcare as evidenced by improved Geriatric Institutional Assessment Profile (GIAP) survey results.

2. Increase nursing staff general perceptions of care as evidenced by improved GIAP survey results.
3. Reduce facility fall rates per quarter to < 5 per 1000 patient days.
4. Reduce restraint use (all type) to < 2 facility-wide per quarter.
5. Maintain a pressure ulcer occurrence rate of zero.

Other likely outcomes based on the proven success of evidence-based geriatric educational programs included staff recognition of the NICHE program's value of increasing professional autonomy, interdisciplinary collaboration, cost-avoidance, and compliance with facility regulations (NICHE, 2014a).

This capstone's sequence of events included the plan to implement a pre intervention survey, offer the educational intervention, and then repeat the survey post intervention. The pre intervention GIAP survey instructions and the GIAP Uniform Resource Locator (URL) were emailed to all nursing staff members. Subjects were provided three weeks to access and complete the survey. Twenty hours of classroom education, over a five week period, was then provided in two-hour sessions with a morning and evening option offering schedule flexibility. Classroom sessions taught by nurses who had previously completed NICHE leadership training, included geriatric focused topics such as delirium, dementia, incontinence, pressure ulcers, medications, nutrition and hydration, fall prevention, restraints, caregiver stress, and advance directives. Emails with each week's class objectives and highlights were sent to all nursing staff after the classroom presentations, providing staff with the opportunity to read the information and ask questions as needed. Approximately four weeks after completion of the classroom education, another email with GIAP survey instructions and access information was sent. Staff

were provided another three weeks to complete the same survey post education. See Appendix E for Capstone Timeline.

Logic Model

A logic model, or program framework, helps to display how a project's strategy offers an effective solution to the problem statement. The logic model for this capstone is presented in Appendix F and identifies the problem statement as a lack of focused elder care knowledge for experienced nurses as well as minimal on-site opportunities for achieving this knowledge. Influential factors such as readiness to learn, staff job satisfaction, and project support, just to name a few, had the potential to affect the issue as well as the desired results of increased care-related knowledge. Strategies for gaining nursing staff's support to attend the educational classes are listed in the logic model, general assumptions of staff, influential factors, and desired results are also presented. The Logic Model and Conceptual Diagram (see Appendix G) helped describe variables or inputs influencing the project's planning and processes, and how these influences could affect the desired results (Longest, 2014).

Population Sampling Parameters

The population or participants for this project included male and female nursing staff members employed at AGH who were between 20 and 62 years of age, from various backgrounds, and who volunteered to complete the GIAP surveys, attend class, and/or read educational emails and printed material. The participant's primary written and spoken language was English. Many of the staff members who completed surveys worked at this facility for over ten years. Exclusion criteria included newly hired staff who were completing an orientation process, students, and monitor technicians. The participants for this project did not fall into a vulnerable population for research category as the subjects were male and female nurses and

patient care assistants who worked in the hospital setting. There were approximately 75 nurses and patient care assistants employed at AGH at the time of this project and each person was provided with the same information and opportunity to participate.

Participation in all aspects of this project was completely voluntary. A Research Project Information Sheet can be viewed in Appendix H and was created with pertinent instructions regarding participation in this educational opportunity. The instructional sheet also included details indicating that any participant could cease their involvement at any time without penalty or loss. Participant confidentiality was maintained. Voluntary attendance in the classroom as well as self-initiated reading and review of educational materials demonstrated agreement to participate and eliminated the need for a consent form. All project information and survey data remains secured in a locked office and will be stored for three years and then safely shredded and destroyed, per facility policy.

Evidence-Based Design Methodology and Measurement

The project's design implemented to assess outcomes was a quantitative, descriptive, quasi-experimental, non-randomized approach. This research technique utilized convenience sampling of participants who were located or employed in a certain area and available for voluntary participation in the study (Terry, 2015). This capstone project was an evidence-based educational project utilizing an organized method of gathering data based on an identified need, locating educational material from the GRN curriculum, implementing a web-based, pre-educational survey combination, presenting education using various adult learning methods, repeating the survey combination post education, and gathering as well as analyzing data.

The importance of clearly explaining rationales and methods used in the process of identifying, selecting, analyzing, and recording data is essential (University of Southern

California, 2011). This process is significant because it allows the reader to evaluate the capstone's overall validity and reliability. To achieve a confidence interval of 0.05 and a confidence level of 95% a power analysis was completed and the sample size for this project ideally included at least 36 nursing staff members (National Statistical Service, 2014). Due to the relatively small number of patient care staff available and the challenge of providing training while fulfilling hospital staffing needs, a minimum sample size of 30 nursing staff members was the ideal and goal for this project.

The analysis for determining if this project's educational intervention caused a change was the independent samples t-test. The independent t-test, appropriate for this project, compared one set of measurements (pre intervention survey) with the second set (post intervention survey) for the purpose of determining whether change occurred as a result of the educational intervention. Realized outcomes from this educational initiative were not meant to produce new knowledge but instead to focus on a clinical issue and then apply best practice to the identified problem for the purpose of determining an evidence based solution (Zaccagnini & White, 2014). The ongoing plan is to actively use what has been learned and apply this information to current and future clinical situations.

Protection of Human Rights

Factors to consider during an outcomes research project include responsibilities related to human subjects' protections. Terry (2015) encourages professionals involved in research to be very conscientious regarding ethical requirements and to act in the best interest of all participants. Collaborative Institutional Training Initiative (CITI) Certificates can be viewed in Appendix I. According to guidelines from the Department of Health and Human Services, this project was exempt from Institutional Review Board (IRB) approval because the education took

place in a conference room at the hospital and involved a pre and post educational survey combination “in which the participants cannot be identified” (Terry, 2015, p. 70). Even though this project was exempt from IRB approval, the duty remains to follow ethical rules of research including: autonomy, beneficence, respect, justice, fidelity, and veracity (Houser, 2012). Each participant deserved to be treated with dignity and every investigator must be an advocate for learning, human subjects, and the research process. This capstone project was submitted to Regis University’s Human Subjects Review Board and approved under the exempt study category of research 45CFR46.101.b (categories one, two, and four). Category one indicated that the research would occur in an educational setting, under normal practices and would not in any way link personal data. Category two indicated the project would involve the use of a survey tool that would pose no risk to the employee’s employment, reputation, or status. Finally, category four included the fact that this research involved the collection of existing facility data specific to patient fall and restraint usage rates as well as pressure ulcer occurrences. See Appendix J for the Regis IRB approval as exempt study letter.

Employees taking part in this project did not fall into a vulnerable population for research category as the subjects were male and female nurses and nursing assistants who worked at AGH, voluntarily participated, and were not an underserved population. This project involved minimal to no personal risk. Each participant was treated with dignity and respect. Anonymity and confidentiality with regard to data collection as well as all capstone involvement was ensured. Pre and post web-based, survey questionnaires were voluntarily accessed by participants via a GIAP URL provided from the NICHE Program personnel who also collated data and returned the reports to the AGH team leader as aggregate data. No disclosure of gathered data was or will be released that would in any way place a human subject in jeopardy of

personal or professional risk. All GIAP information is protected and stored in the project leader's secure office and original survey results are stored in the secured NICHE research informational technology data bank.

Instrumentation of Reliability, Validity, and Intended Statistics

Reliability ensures that results can be reproduced and validity refers to the degree a method or test actually measures what is supposed to be measured (NICHE Program, 2013). Tests for the GIAP outcome validity or reliability were previously accomplished by the NICHE program and supporting documentation was provided with membership. As previously mentioned, the GIAP was developed by a nationally recognized panel of geriatric care experts and is reliable and valid, with an overall Cronbach's alpha ranging from 0.63 to 0.94 and Interclass Correlation Coefficients ranging from 0.82 to 0.92 (Capezuti et al., 2012). The GIAP Measurement Tool can be viewed in Appendix K and the Permission to use the GIAP Data Agreement can be seen in Appendix L.

The GIAP survey tool, a self-completed, web-based questionnaire for hospital staff was designed to assess four parameters and requires approximately fifteen to twenty minutes for completion (NICHE Program, 2013). These criterion included knowledge of geriatric best practice related to restraints and pressure ulcers, attitudes/perceptions regarding care practices, influence of professional issues upon care delivery to older adults, and organizational support for geriatric care along with staff perceptions of overall quality (NICHE Program, 2013). The GIAP's questions were posed as statements which participants rated on a 5 point scale ranging from 0 (strongly disagree) to 4 (strongly agree). Participants at the close of the survey were asked to write in comments to three questions regarding the most pressing issues nurses face

while working with older adults, reactions raised from completing the questionnaire, and what would personally help them care for older adults (NICHE Program, 2013).

The GIAP results provided individual hospital data regarding staffs' perceptions of, knowledge about, and attitudes toward common older adult disorders. Comparison data from other similar hospitals across the nation and matched by bed size and similar units nationally was provided for consideration and future planning (NICHE Program, 2013). Final GIAP results were displayed in graph and numeric table format. These data will continue to be studied and used in a variety of ways, highlighting staff strengths and weaknesses regarding care of the older adult, helping to overcome resistance to change by providing objective evidence of knowledge deficiencies, and demonstrating realistic needs for improving outcomes (NICHE Program, 2013). The survey results continue to provide meaning to unit managers, revealing specific informational gaps that will be the catalyst to help guide and encourage department leaders, along with staff members, to develop unit-based action plans for improved care provided to older adults (Capezuti et al., 2012).

Data Collection and Treatment

As previously explained, the study design implemented to assess outcomes was a quasi-experimental, non-randomized approach. The entire capstone design, data collection, and reporting process was significant because this combined process allows current and future readers to evaluate the study's overall validity and reliability. Gathering and organizing data started with providing the hospital nursing staff with verbal and written explanations regarding the GIAP survey tool. All patient care staff were sent a URL from the NICHE Program, via their work email address, and were provided 24-hour access to the survey for voluntary completion over a three week period of time.

Houser (2012) explains that in order to analyze data, variables need to be converted into numbers or other classifications and then the most fitting statistical test may be utilized to answer the research question. Ordinal data was the categorical data that was used for this project as the information gathered was able to be ranked in order of strongly disagree to strongly agree and captured one subject's (a nursing staff member's) single response for each question. Ordinal data does not determine if each respondent's score or interval was comparable or equal such as can be accomplished with interval levels of data. For instance, the actual difference between *agree* and *disagree* may vary between subjects. Ordinal data is also a relatively simple method of data collection and balanced by the "relative insensitivity of the measures and the limitations on the statistics that can be used" (Houser, 2012, p. 208). Some statisticians may call this level of data quasi-ordinal as a confidence interval (mean) that was calculated and can be considered reliable due to the calculation of a Cronbach's alpha on the overall survey scores that proved results were not due to random error (Khan Academy, 2016).

The coding process for this project's data collection was established by the writers of the GIAP and information was entered electronically as participants completed online demographic data entry and then answered the survey questions. Coding included assigning numbers, starting at number one, to options for the following questions: position where the staff member spent the majority of their time; highest educational degree; highest non-nursing degree; country where education was received; years in the profession; and years working at the institution. Numbers starting at zero were assigned to treatment, knowledge, and perceptions of care questions using the format similar to a Likert scale. A negative one (-1) number was assigned, when appropriate, to the *not applicable* choice. Numbers starting with zero were also assigned to labels such as *daily, weekly, monthly, or hardly ever* as appropriate for specific survey questions. The

participants entered their answers using radio buttons in tables located under the word choices rather than having the option to choose a numbered response. The GIAP survey captured more data than was required to answer the initial research question and results regarding overall nursing staff knowledge and attitudes were clearly provided.

Project Findings and Results

Key Elements and Instrumentation Findings

The overarching principle or goal for this capstone was to complete an evidence-based, education focused project affecting change in knowledge for nursing staff who care for hospitalized older adults. From studying the survey results relating to the project's five objectives, the goal has been realized. Key demographic findings revealed nursing staff from the medical/surgical (acute care), emergency, ambulatory care, and homecare departments initially completed the GIAP survey. From these patient care units, 88.9% were female, the average age was 44.5 years, the average years working in the nursing profession was 17.7 years, and the average years worked at AGH was 11.4 years (NICHE, 2015a). Forty-five pre education surveys with valid data were initially received and a minimum of ten surveys from any given unit must have been reported for that department to be included in the comparative analysis (NICHE, 2015b). Therefore, the number of participants included in the independent t-test on selected measures was 30 for the pre intervention GIAP. These 30 participants worked in the emergency department or acute care units. Seventeen participants were included in the same survey post education. Thirteen participants attended all classroom sessions.

Objective one for this capstone was to increase nursing staff general knowledge regarding geriatric healthcare as evidenced by improved GIAP survey results. Results from the GIAP

survey (NICHE, 2015c) indicated percent improvements in all areas pertaining to nursing staff knowledge. See Table 2 for independent samples t-tests data regarding knowledge.

Table 2

Independent Samples t-tests on Measures Related to Knowledge

	GIAP Admin	Mean	Standard Deviation	Statistically Significant	Percent Improvement
Total Knowledge	Pre Intervention	5.37	2.19	p<.05	29.3%
	Post Intervention	6.94	1.10		
Knowledge about Pressure Ulcers	Pre Intervention	6.50	2.71	p<.05	5.6%
	Post Intervention	6.86	2.76		
Knowledge about Restraints & Falls	Pre Intervention	5.27	2.95	p<.05	43.0%
	Post Intervention	7.53	1.50		
Knowledge about Medications/Sleep/ & Pain	Pre Intervention	5.03	2.66	p<.05	28.6%
	Post Intervention	6.47	1.50		
Knowledge about Functional Decline & Incontinence	Pre Intervention	5.67	2.73	p<.05	26.6%
	Post Intervention	7.18	1.88		
Knowledge about Dementia & Delirium	Pre Intervention	5.00	2.86	p<.05	29.4%
	Post Intervention	6.47	2.18		
Knowledge about Nutrition & Hydration	Pre Intervention	5.06	2.98	p<.05	39.6%
	Post Intervention	7.06	2.60		

Objective two included increasing nursing staff's general perceptions of care as evidenced by improved GIAP survey results. Data from the NICHE (2015c) survey regarding attitudes or perceptions of caring for older adults improved as well. The percent changes listed

represent statistical significance between the pre and post GIAP survey all resulting in a p value of $< .05$. See Table 3 for independent samples t-tests data regarding attitudes of caring for older adults.

Table 3

Independent Samples t-tests on Measures Related to Attitude

Total Attitude	Pre Intervention	6.00	0.69	p<.05	15.6%
	Post Intervention	6.94	0.93		
Attitudes about Evidence-Based Approaches	Pre Intervention	6.15	0.68	p<.05	11.6%
	Post Intervention	6.86	0.96		
Attitudes about Restrictive Approaches	Pre Intervention	5.69	1.23	p<.05	24.8%
	Post Intervention	7.10	1.29		

Objective three through five focused on facility-specific issues. The third objective was to reduce facility fall rates per quarter to < 5 per 1000 patient days. Fall rates for the fourth quarter in 2015 were not available and January 2016 data revealed a patient fall rate of 7.2 per 1000 patient days, down from 8.7 in the third quarter of 2015 (*SAQC Report, 2016*). Fall data is now being captured more consistently and the start date for a fall prevention initiative is being planned for June 2016 as an outcome of this capstone work. The 2016 fall prevention initiative will utilize evidence-based resources from the NICHE program.

Objective four included reducing restraint use (all type) to < 2 facility-wide per quarter. Restraint data from January to the current date in 2016 represent a small decrease of four episodes as compared to third quarter 2015 data (*SAQC Report, 2016*). Interestingly, thus far in

2016 no restraints have been used for patients over 65 years. These findings may suggest staff are utilizing alternatives to restraints for the older adult population.

Objective five included the maintenance of a facility-wide pressure ulcer occurrence rate of zero. Data for 2016 reveal no hospital acquired pressure ulcers have been reported to date (*SAQC Report, 2016*). Thorough skin assessments and early skin breakdown intervention plans are key elements that were enforced during this educational intervention and continue to assist staff in maintaining a successful pressure ulcer prevention program.

Statistical Data and Reliability of Findings

Data regarding staff knowledge, for all areas surveyed, demonstrated statistically significant results with a p value of $<.05$. The results presented in Table 2 and Table 3 reveal statistically significant changes between the GIAP pre and post intervention surveys. The overall improvement scores suggest the classroom discussions as well as the educational emails and printed material were helpful in improving participant knowledge and attitudes regarding caring for hospitalized older adults.

The higher level inferential analysis or independent samples t-test, as previously discussed, assessed whether the means of the pre and post survey results were statistically different from one another (Houser, 2012). Table 2 and Table 3 also display overall data along with mean and standard deviation (SD) results. The minimum-maximum mean score is one through ten (1-10) with a higher score representing better results. The SD results from this study, as compared to the mean, represent little variability indicating change was not a result of chance or random error. This conclusion is supported by data demonstrating that post intervention means are greater in all categories and the SD results are low indicating the group's

results are close to the average and not spread out. Resultant data could be represented by a leptokurtic distribution or thin bell curve.

Results According to the Evidence-Based Practice Question

The evidence-based question for this capstone was: Do nurses caring for hospitalized patients 65 years and older, who receive focused elder care education, have increased knowledge related to fall prevention, pressure ulcer avoidance, and alternatives to restraint usage for this patient population? The results of the data analysis, considering the p values of $<.05$ and percent improvement scores, indicated a statistically significant change. Overall improvement in knowledge and attitudes of providing care to older adults for nursing staff at AGH was realized as a result of the intervention that included classroom education, informational emails, and printed handouts including evidence-based information from the GRN curriculum. As a result of this DNP capstone project, a conclusion to the research question was formulated and answered in the affirmative. Nursing staff caring for hospitalized patients 65 years and older, who receive focused elder care education, realized increased knowledge related to fall prevention, pressure ulcer avoidance, and alternatives to restraint usage for this patient population.

Limitations, Recommendations, Implications for Change

Limitations

Limitations of a capstone project are influences a researcher may not have the ability to control. Identifying constraining forces can help a project leader learn what went well and what did not go well, promoting sustainability and the potential for future efforts affecting clinical practice (Zaccagnini & White, 2014). Limitations for this capstone project included the small post education survey sample size of seventeen. Thirty or more participants would have added to the project's validity. Another limitation might have included the potential of survey burden as

the survey required up to twenty minutes to thoroughly complete. The workload of a nursing staff member at the time of survey completion might have also created a limitation. The URL's were sent to the nursing staff's work emails and the survey was allowed to be completed during working hours. If a staff member's patient assignment was heavy due to responsibilities related to caring for older adult patients, the participant's responses could have been influenced or staff might have chosen not to take time to complete the survey.

During the spring of 2015, the hospital went through a staff restructuring and downsizing initiative as a result of factors impacting reimbursement rates and the need to decrease overall facility spending. These difficult decisions and necessary actions did not result in the loss of front-line nursing staff positions however, the initiative resulted in the loss of mid-level managers. Nursing staff anxiety can occur as a result of downsizing and the perceived loss of support and change in hospital culture. Many nursing staff members were also required to re-bid work schedules as a result of the cost-reduction plan and to improve efficiencies. Work schedule changes for nursing staff have the potential to result in feelings of job-related fear and discontent. Change is frequent in healthcare, yet difficult, and may affect attitudes and survey responses.

Recommendations

Recommendations based on the analysis of capstone results include sharing and celebrating this data with the nursing staff. The shareholders and community will be made aware of this project's outcomes for the purpose of promoting the community hospital and building confidence regarding the efforts and abilities of the hospital's nursing staff. The Executive Management Council will also be recognized and congratulated for their ongoing support and data must be shared with this team, specifically identifying the success of this endeavor. Other recommendations are to begin more accurately measuring actual clinical care and patient

outcome data as results reported in this article focus mainly on knowledge of employees in clinical areas.

The GIAP survey included opportunities for participants to answer open-ended questions and this information revealed staff concerns over disagreements between care providers and families regarding elder care issues, limited access to geriatric services and resources, perceived vulnerability to legal action, and an intensity and burden of behavioral problems (NICHE, 2015b). Providing staff with support to lessen their anxiety associated with these identified issues related to caring for older adults is also a recommendation. Results indicated staff member's attitudes were high in certain areas where knowledge was somewhat low, with room for improvement. Staff may need additional assistance recognizing clinical knowledge-related needs. Support from leadership regarding ongoing education as well as recognition of positive outcomes will be an ongoing focus.

Staff member's identified the need for continued initiatives on aging-sensitive care delivery, facility values regarding older adults and staff, resource availability, and ongoing interdepartmental collaboration (NICHE, 2015b). An increased effort from leadership will target the exploration of gaining more support from Medical Social Workers, improving care collaboration, and increasing community resources as well as patient care protocols to meet the identified needs of nursing staff and the geriatric patient population. Finally, considering more opportunities for staff to receive older adult education, initiating a facility-wide fall prevention program, and exploring the potential of employing a Clinical Nurse Specialist with a certification in geriatric services are strong recommendations.

Implications for Change

Based on data analysis from this elder care capstone project, implications to practice include that nursing professionals hold key positions for continuing and advancing best practices for the older hospitalized adult. Research must continue and be readily available to promote the growth of knowledge and effectiveness of evidence-based care. Varied educational opportunities based on adult learning needs and methods should be offered to nursing staff for the purpose of assisting each care giver to increase their knowledge and have every possible opportunity to provide improved care for the ever-increasing number of older adults in the local community. Nursing leaders should also intervene and collaborate with social workers as well as case managers for the purpose of locating effective elder care resources and creating new strategies that will assist staff to improve care and feel adequately supported in their roles as care providers. Nurses providing direct patient care, nursing leaders, and researchers are in key positions to detect, refer, educate, intervene, change or create policy, and develop new strategies of improving healthcare education as well as services for all clinical staff members and the growing population of older adults (Boltz, Capezuti, Fulmer, & Zwicker, 2012).

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Appendix A

Facility Letter of Support



Allegan General Hospital

555 Linn Street - Allegan, MI - 49010

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Letter of Agreement

July 15, 2015

To Regis University Institutional Review Board (IRB):

I am familiar with Kathy Chapman's research project entitled Nurses Improving Elder Care Capstone. I understand Allegan General Hospital's involvement to be implementing an educational intervention utilizing the Geriatric Resource Nurse Curriculum developed for The Nurses Improving Care for Healthsystems Elders (NICHE) evidence-based program by New York University's College of Nursing as well as providing the Geriatric Institutional Assessment Profile (GIAP) survey pre and post education. Participants will include nursing staff who volunteer to take part in the survey and educational opportunities. Exclusions include nursing staff involved in an orientation process, monitor technicians, and students.

I understand this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.

Therefore, as a representative of Allegan General Hospital I agree that Kathy Chapman's research project may be conducted at our agency/institution.

Sincerely,

A handwritten signature in black ink, appearing to read "Gerald J. Barbini".

Gerald J. Barbini
President and CEO
Allegan General Hospital
555 Linn Street
Allegan, MI 49010
269-686-4101

Appendix B

Systematic Literature Review Table

Article/Journal	Acute care for the elderly: A literature review. Population Health Management. 219-225.	Assessment and management of pressure ulcers in the elderly. Drugs and Aging. 27(4). 311-325.
Author/Year	Ahmed, N., Pearce, S. (2010)	Jaul, E. (2010)
Database/Keywords	ACE models, ACE units, acute care for the elderly	aging, co-morbidities, function, nutrition, social, family and emotional factors
Research Design	Literature review focusing on randomized controlled trials, clinical trials, reviews, and meta-analysis from 1990 to 2008. PubMed, Ovid, and Scopus databases	Literature review from expert opinion
Level of Evidence	Level V	Level VII
Study Aim/Purpose	Evaluation of the effectiveness of Acute Care for the Elderly (ACE) units at improving hospitalization outcomes for adults older than 65 years of age.	To discuss the pathogenesis of pressure ulcer development in the elderly, the importance of considering concomitant diseases and other risk factors, and the management of pressure ulcers. Connecting the pressure ulcer to the person as a whole is emphasized throughout the review
Population/Sample Size Criteria/Power	20 studies were deemed to be the most relevant for the purposes of the review	100 articles cited. This is review article (not a research paper) with valuable information from cited sources.
Methods/Study Appraisal/Synthesis Methods	462 findings which included 421 irrelevant article that did not mention the ACE model of care in the studies, 21 were excluded for not being English, not retrievable, of duplicate studies.	Review and recommendations listed rather than research results
Primary Outcome Measures/Results	ACE is associated with positive global outcomes (e.g. costs, length of stay, readmission rates, utilization, rehabilitation, cognition, function, patient/staff satisfaction). Some studies may point to a decreased incidence of delirium and polypharmacy.	The underlying management of pressure ulcers is to prevent their occurrence taking into consideration the physical and pathological condition of the patient. The multidisciplinary management team must take a broad approach not only with respect to the wounds, but also to the needs of the patient and family
Conclusions/Implications	More studies are needed to delineate prescribing practices on ACE units and to identify how these practices contribute to the functional prognosis of acutely ill older adults.	Should a pressure ulcer develop, the goal of the treating physician is to heal the ulcer by addressing and stabilizing underlying illnesses, augmenting caloric and protein intake and instituting strategies for pressure relief and frequent repositions. With Chronic wounds, the goal changes from healing to optimizing the patient's quality of life, controlling symptoms, supporting the family and dealing with ethical and end-of-life issues.
Strengths/Limitations	Limitations: randomized controlled trials, clinical trials, reviews, and meta-analysis between the years of 1990-2008. Scarcity unduplicated results and homogeneity in operational definitions and outcome variable associated with elder care.	N/A review article
Funding Source	Dr. Ahmed's salary is supported by a Geriatric Academic Career Award (GACA grant)	No sources of funding were used to assist in the preparation of this review
Comments	The literature review presents compelling evidence that warrants further investigation of ACE as a valuable alternative paradigm of acute geriatric care.	
Article/Journal	Acute care for elder's components of acute geriatric unit care: Systematic descriptive review. Journal of the American Geriatrics Society. 61. 939-946	Assessment of the elderly: it's worth covering the risks. Journal of Nursing Management. 21. 94-105.
Author/Year	Fox, m., Sidani, S., Persuad, M., Tregunno, D., Maimets, I., Brooks, D., O'Brien, K. (2013)	Langdon, R., Johnson, M., Carroll, V., Antonio, G. (2013)
Database/Keywords	ACE model, elderly, descriptive systematic review, component analysis, outcomes	comprehensive assessment, falls, mental health, medical record audit, older patients, pressure area, risk assessment
Research Design	Systematic descriptive review.	Concurrent mixed methods including an initial retrospective medical record audit and focus groups

Level of Evidence	Level V	Level V
Study Aim/Purpose	To describe the Acute Care for Elders (ACE) model components implemented as part of acute geriatric unit care and explore the association between each ACE component and outcomes of iatrogenic complications, functional decline, length of hospital stay, nursing home discharges, costs and discharges home	To evaluate the effectiveness of a comprehensive assessment tool, the Adult Patient Assessment Tool (APAT), particularly in relation to early identification of older people at risk of falls, pressure, areas cognitive impairment or delirium or patients with mental illness or substance abuse.
Population/Sample Size Criteria/Power	32 articles including 14 trials reporting on the implementation of ACE components of the effectiveness of their implementation in improving outcomes.	286 medical records were randomly selected from two participating regional health facilities. Two focus groups representing RNs practicing at these facilities were conducted. The focus groups were digitally recorded and verbatim transcripts were produced for analysis
Methods/ Study Appraisal/ Synthesis Methods	Mean effect sizes were calculated using trial outcome data. Information describing implementation of the ACE components in the trials was analyzed using content analysis	The quantitative component of this study used a retrospective medical record audit design using an online data collection form based on the Adult Patient Assessment Tool (APAT)
Primary Outcome Measures/Results	Medical review, early rehabilitation, and patient-centered care, characterized by the implementation of standardized and individualized function-focused interventions, had larger standardized mean effect sizes (ES)(ES = 0.20) averaged across all outcomes, than did early discharge planning (ES = 0.17) of prepared environment (ES =0.11)	With the introduction of the APAT, assessment of falls risk and mental illness increased. The number of nursing actions, relating to pressure areas (p = 0.006) and falls (p = <0.001) also increased, indicating a greater awareness of patients' individual needs. Non-clinical information gathered through the APAT enabled a more holistic approach to patient care
Conclusions/ Implications	Specific ACE component interventions of medical review, early rehabilitation, and patient-centered care appear to be optimal for overall positive outcomes. These findings can help service providers design and evaluate the most-effective ACE model within the contexts of their respective institutions to improve outcomes for acutely ill or injured older adults	The use of electronic medical records would alleviate pressures on nurses' time, providing an opportunity to store and retrieve comprehensive nursing assessment and benefit patient health care
Strengths/ Limitations	The number of trials included in the ES estimates on iatrogenic complications was small and may have resulted in an overestimation of their magnitude. ES differences between the five components are modest and may have been susceptible to bias in reporting in trials or by investigators. It is possible that easily implemented aspects of prepared environment such as the installation of elevated toilet seats, clocks, and calendars, may have become standard features of usual car units in other trials, contributing to an underestimation of the ES of this ACE component	Limitations: Although the data were collected for cognitive impairment, delirium, substance, abuse and mental health, the proportion noted as not applicable was high, making the reporting and interpretation of the data difficult. Similarly, the sample size used in the testing of referrals to mental health professionals was low and further research is needed to confirm or refute the differences reported
Funding Source	A grant from University Health Network supported this study	The Clinical Governance Unit of the North Coast Area Health Service
Comments	Future trials should examine the effects of isolated ACE components on the outcomes, permitting a future meta-analysis that provides estimated of each ACE component's effects, giving weight to the size of different trials included	Early assessment results in an increased number of nursing activities related to patient care. Further education relating to mental health and substance abuse screening and cognitive assessment may enhance the completion of these tools.
Article/Journal	Can the use of an early mobility program reduce the incidence of pressure ulcers in a surgical critical care unit? 36(1). 127-140	Developing nurses' geriatric expertise through the geriatric resource nurse model. <i>Geriatric Nursing</i> . 33(2); 140-149
Author/Year Database/Keywords	Dickinson, S., Tschannen, D., Shever, L. (2103) activity programs, acute-phase mediators, cytokines, mobility programs, pressure ulcers	Pierre, J., Twibell, R. (2012) geriatric resource nurse (GRN), older adults, intervention model, nurses
Research Design Level of Evidence Study Aim/Purpose	Retrospective review using nursing documentation Level IV The specific aim of the study was to determine whether the implementation of an early standardized process for mobility could reduce or eliminate the development of PU's in a surgical intensive care unit	Quasi-experimental design Level III The purpose of this quality improvement project was to explore outcomes of the GRN model, specifically nurses' knowledge, confidence, and satisfaction related to care of the hospitalized older adult.

Population/Sample Size Criteria/Power	A total of 1112 patients were included in the analysis; 555 patients pre-implementation and 557 patients post-implementation of the early mobility project.	The setting was a 344-bed suburban Midwestern teaching hospital; nurses from 3 medical inpatient units participated; 33 participants
Methods/Study Appraisal/Synthesis Methods	Patient data were collected pre- and post-implementation of an early standardized mobility protocol	Quantitative data were collected at the beginning of the GRN model and 1 year later.
Primary Outcome Measures/Results	The mobility compliance for patients post-implementation was 71.30%, with a range of 25% to 100%. Patients in the intervention group had significantly more unit-acquired PU's than the control group (p=0.009) No significant differences were identified between the 2 groups	Mean scores on the project measures were computed for GRNs and non-GRNs pre- and posttest. Analysis of variance revealed a significant interaction effect between scores of the GRNs (n = 17) and non-GRNs (n = 11) overtime. GRNs reported a greater increase in knowledge pre- to post-test than non-GRNs on the single-item measure of overall basic knowledge of care of older adults [P <.001] and the 9-item Knowledge of Care of Older Adults Scale [P< .04]
Conclusions/Implications	Despite implementation of the early mobility protocol, the researchers did not see an improvement in the PU rate overall or with time as protocol compliance improved	This study adds to the body of knowledge on the effectiveness of the GRN model to improve direct-care nurses' knowledge, confidence, and satisfaction related to the care of hospitalized older adults.
Strengths/Limitations	Limitations: not targeting the intervention to specific populations deemed to be at risk. Many patients had short stays and may have washed out any beneficial effects. The patients in the study may have been sicker than others. The protocol might have reduced PU rate if compliance were better.	Strengths: An initial test of the Confidence in Caring for older adults scale in this project revealed early support for its reliability. Limitations: a small convenience sample and there was no intent to keep participants and nonparticipants in the GRN model isolated from each other. Nonparticipants could have received geriatric information from nurses who did participate in the model. In fact, nurses participating in the model were encouraged to share what they learned with peers and nonparticipants. Another limitation was that version 4 of the GIAP did not have the strong psychometric properties cited for the current version of the GIAP.
Funding Source Comments	None Noted Data supports the notion raised that not all PU's are preventable in the critical care setting.	None noted Through the implementation of the GRN model in this project, multiple new organizational initiatives emerged to improve care of older adult inpatients. When implemented with an expert geriatric nurse leader and administrative support, the GRN model can yield significant results, even when other geriatric resources are limited.
Article/Journal	Development of a proactive care program (U-CARE) to preserve physical functioning of frail older people in primary care. <i>45(3); 230-237.</i>	Effect of a guideline-based multicomponent intervention on use of physical restraints in nursing homes <i>Journal of the American Medical Association, 30, 2177- 2184.</i>
Author/Year	Bleigenberg, N., ten Dam, V., Drubbel, I., Numans, M., de Wit, N., Schuurmans, M. (2013)	Kopke, S., Muhlauser, I., Gerlach, A., Haut, A., Haastert, B., Mohler, R., Meyer, G. (2012, May).
Database/Keywords	frailty, comprehensive geriatric assessment, older people, primary care, nurse	CINHAL, MEDLINE, GOOGLE SCHOLAR. Key words: <i>Intervention, physical restraint, safety, nursing home, legal regulations, planned behavior, evidence-based</i>
Research Design	A systematic review of the literature (from CINAHL and Cochrane databases from 2000-2010) and of relevant guidelines, combined with clinical practice experience and expert opinion. A feasibility study (questionnaire) was then performed.	A parallel-group cluster randomized controlled trial with 1:1 randomization and 6 months of follow-up.
Level of Evidence	Level IV	Level III; evidence gathered from controlled studies with results that support a specific intervention to reduce restraint prevalence
Study Aim/Purpose	This study describes in detail the development process of the U-CARE program to allow its	To reduce physical restraint usage in nursing homes using a guideline and theory of planed behavior based

	replication. The feasibility study aimed to assess barriers and facilitators for implementation of the U-CARE intervention in clinical practice, as well as acceptability of this model among the care providers. An average of 11 systematic reviews and meta-analyses for each geriatric condition were included. The feasibility study included 52 geriatric practitioners and registered nurses.	multicomponent intervention
Population/Sample Size Criteria/Power		Cluster randomized controlled 6-month trial conducted in 2 German cities. Nursing homes were eligible if they had 20% or more residents with physical restraints. There were 36 nursing homes included with 3771 residents at baseline; 18 nursing homes with 1952 residents in the intervention group and 18 nursing homes with 1819 residents in the control group.
Methods/Study Appraisal/Synthesis Methods	A framework (Medical Research Council [MRC]) was used as a guide for the design of the U-CARE program. An extended stepwise multimethod procedure was used to develop U-CARE. A multidisciplinary team was involved in the development process to increase its feasibility in clinical practice. A systematic review of literature and of relevant guidelines, combined with clinical practice experience and expert opinion, was used for the development of the intervention.	All nursing homes in the study completed the program and all residents were included in the analysis. At baseline 30.6% of control group residents had physical restraints vs. 31.5% of intervention group residents. At 6 months, rates were 29.1% vs. 22.6%; $P=.03$). Rates were stable from 3-6 months.
Primary Outcome Measures/Results	Based on redefined potentially effective guiding components, a frailty assessment, a comprehensive geriatric assessment at home followed by a tailor-made care plan, and multiple follow-up visits. Evidence-based care plans were developed for 11 geriatric conditions. The feasibility in clinical practice was tested and approved by experienced registered practice nurses.	Primary outcome was the percentage of residents with physical restraints (bilateral bed rails, belts, fixed tables, and other measures limiting free body movement) at 6 months. Assessment occurred through direct unannounced observation by blinded investigators on 3 occasions during 1 day. Secondary outcomes included restraint use at 3 months
Conclusions/Implications	Based on the feasibility-pilot study, the general practitioners and the registered practice nurses indicated that the U-CARE intervention is feasible in clinical practice. This program has the potential to improve the care of older patients.	A guideline and theory-based multicomponent intervention compared with standard information reduced physical restraint usage in nursing homes.
Strengths/Limitations	Strengths: The MRC is provided in the study (an often missing component in reports of complex intervention trials). A stepwise approach including literature and guideline review combined with practical experiences, expert opinions, and a target group evaluation was used to develop this intervention. Limitations: The approach is time consuming and costly	Strengths: All study procedures were transparently reported in advance. Study procedures ensured a low risk of bias. Direct observation was used to assess prevalence of physical restraint use. Limitations: Head nurses of control and intervention clusters had to be informed about the dates for assessing prevalence of physical restraint use. 6 months of observation may be considered a short time period to determine sustainability.
Funding Source	None noted.	The opinions, results, and conclusions reported are those of the authors and are independent of funding sources. Four research assistants were funded by the German Ministry of Education and Research.
Comments	To evaluate the effectiveness of the U-CARE program, a single-blind, three-armed, cluster-randomized controlled trial with 1-year follow-up was being performed (2012)	The authors feel confident that a culture change was achieved related to continued avoidance of physical restraint usage.
Article/Journal	Effectiveness of acute geriatric unit care using acute care for elders components: A systematic review and meta-analysis. <i>Journal of the American Geriatrics Society</i> , 2237-2245.	Functional decline in hospitalized older adults: Can nursing make a difference? <i>Geriatric Nursing</i> , 33, 272-279. http://dx.doi.org/10.1016/j.gerinurse.2012.01.008
Author/Year	Fox, M., Persaud, M., Maimets, I., O'Brien, K., Brooks, D., Tregunno, D., Schraa, E., (2012)	Boltz, M., Resnick, B., Capezuti, E., Shuluck, J., & Secic, M. (2012).
Database/Keywords	ACE model, elderly, meta-analysis, function-focused interventions, acute geriatric unit	CINHAL, MEDLINE, GOOGLE SCHOLAR. Key words: <i>Physical function, quality, geriatric care, barriers, functional decline, conceptual model,</i>

Research Design	Systematic review and meta-analysis of 13 randomized controlled and quasi-experimental trials with parallel comparison groups retrieved from multiple sources.	<i>intervention</i> Prospective descriptive design, observational study
Level of Evidence	Level V; A systematic review	Level III; evidence gathered from controlled studies with results that support a specific intervention/treatment
Study Aim/Purpose	To compare the effectiveness of acute geriatric unit care, based on all or part of the Acute Care for Elders (ACE) model and introduced in the acute phase of illness or injury, with that of usual care	The purpose was to study the demographic and clinical characteristics of patients who were provided Function-focused care (FFC) and the relationship between change in physical activity and FFC activities
Population/Sample Size Criteria/Power	Acutely ill or injured adults (N=6,839) with an average age of 81 years.	93 Hospitalized older adults (70 and above) admitted to acute care settings in two medical units in an urban academic medical center. Patients could read and write English
Methods/Study Appraisal/Synthesis Methods	Falls, pressure ulcers, delirium, functional decline at discharge from baseline 2-week prehospital and hospital admission statuses, length of hospital stay, discharge destination, mortality, costs, and hospital readmissions were measured/monitored using risk ratios and confidence intervals.	Method/design was appropriate to answer the question/purpose. Conclusions were appropriate and very insightful for providing evidence to investigate the effectiveness of FFC in patients with diverse functional abilities and health characteristics—FFC can have a positive influence on the functional future of hospitalized over adults.
Primary Outcome Measures/Results	Results from meta-analysis demonstrate that acute geriatric unit care including one or more ACE components and introduced during the acute illness or injury phase has significant beneficial effects over the usual care in reducing falls, delirium, functional decline between baseline 2-week pre-hospital admission status and discharge, length of hospital stay, discharge to a nursing home, costs and in increasing discharges to home.	Patients who received FFC were more likely: to be younger (P=0.028); had one or more falls during the hospitalization (P=0.048); had demonstrated better functional performance at admission (P=0.004) and better physical capability, measured by the Tinetti gait and balance scale (P=0.004). FFC was associated with less decrement in ADL function, admission to discharge, while considering patient characteristics (t=7.6; P<=0008)
Conclusions/Implications	Acute geriatric unit care, based on all or part of the ACE model and introduced during the acute phase of older adults' illness or injury, improves patient outcomes.	Results suggest that nursing interventions that support function independence and physical activity may mitigate risk for hospital-acquired functional decline.
Strengths/Limitations	Strengths: six study authors provided unpublished data, minimizing publication bias Limitations: the study included a small number of studies with limited information regarding study methods leading to restricted ability to draw conclusions regarding level of bias in several domains.	Strengths: results demonstrate a significant number (58%) of patient experiences a decline in functional status immediately before admission to the hospital, consistent with other studies and strengthening validity. Limitations: single setting and only one, 3-hour observation. Cognitive status may have changed during admission and the presence of delirium, evaluated by chart audit, may have been under-reported.
Funding Source	Canadian Institutes of Health Research Grant KRS-94307 and Faculty of Health Minor Research Grant, York University	None reported; Support provided by the John A. Hartford Foundation's Building Academic Geriatric Nursing Capacity Award Program and the Rehabilitation Nurses Foundation
Comments		Providing nursing staff with education and support to integrate FFC into care interactions may not only prevent functional decline during the hospital stay but may also facilitate carryover of rehabilitative interventions in the post-acute setting.
Article/Journal	Going home better not worse: Older adults' views on physical function during hospitalization. <i>International Journal of Nursing Practice</i> , 16, 381-388	Hospital nurses' perceptions of the geriatric care environment in one Canadian health care region. <i>Journal of Nursing Scholarship</i> , 181-187
Author/Year	Boltz, M., Capezuti, E., Shabbat, N., & Hall, K. (2010).	LaPointe McKenzie, J., Blandford, A., Menec, V., Boltz, M., Capezuti, E. (2011)
Database/Keywords	CINHAL, MEDLINE, GOOGLE SCHOLAR. Key words: <i>barriers and facilitators, focus groups,</i>	Hospital nurses, older adults, geriatric care environment, Canada

Research Design	<i>hospitalization, older adult, physical function</i> Exploratory Qualitative Study using purposeful sampling and focus groups	The Geriatric Institutional Assessment Profile (GIAP) was administered to staff in eight urban hospitals between 2005 and 2006 (two geriatric-chronic care hospitals, four community hospitals, and two tertiary hospitals). Analysis focused on a composite measure of overall perceptions and three subscales Level V; survey assessment profile
Level of Evidence	Level IV; Evidence gathered from studies of intact groups; a cohort study	To identify and compare perceptions of the geriatric care environment among nurses in three different urban hospital types in one healthcare region.
Study Aim/Purpose	The purpose was to identify factors that influence physical decline of hospitalized older adults in order to effectively develop effective interventions to prevent loss of function	Eight urban hospitals between 2005 and 2006 (two geriatric-chronic care hospitals, four community hospitals, and two tertiary hospitals). The study focused on 1,189 nurses.
Population/Sample Size Criteria/Power	Three focus groups (of 24 participants) from three senior centers in New York City. Age range was 72-94 years, all participants provided voluntary, informed consent and remained anonymous. Each participant had been recently hospitalized.	Hospital type was significantly associated with nurses' perceptions of the geriatric nurse practice environment composite scale ($p < .001$). Nurses in geriatric-chronic hospitals had significantly higher mean scores than nurses in community hospitals and nurses in tertiary hospitals. Nurses in tertiary hospitals also had significantly higher mean scores than nurses in community hospitals
Methods/Study Appraisal/Synthesis Methods	Did not provide p-value. Methods and design were appropriate to answer the purpose and were verified by an audit of the tapes, notes, and transcriptions, conducted by researchers. Findings provided evidence for developing education and nursing models aimed at preventing functional decline.	Nurses' perception of the care environment varied by hospital type, with nurses in community hospitals expressing the most concern and nurses in geriatric-chronic care hospitals being the most positive. The study highlights the importance of the setting in understanding nurses' ability to provide quality geriatric care. Findings indicate that community and tertiary hospitals need to target specific areas of practice for improvement. The study results suggests the need to collect more specific clinical data that would allow assessment of how changes in the hospital environment impact specific clinical outcomes.
Primary Outcome Measures/Results	Outcomes: four themes associated with older adult views of hospitalization were identified and include—going home better not worse, strong basic nursing care, enabling environment, and barriers to independence	Strengths: This study provides a useful basis for hospitals outside the U.S. to compare with those in the U.S. Also provides the opportunity to examine perceptions within a universal healthcare system. Limitations: completion of survey was voluntary and this may have led to response bias (i.e. more dissatisfied than satisfied responding. More detailed categorization of nurses (e.g. by unit) within hospital type might have provided better understanding of nurse's perception. This study represents only one healthcare region in Manitoba.
Conclusions/Implications	Conclusion: the sample size was adequate and four strong themes for influencing practice were identified. Support was strongly provided for nursing involvement in exploring strategies to prevent physical decline, for addressing beliefs that affect care, and for education to foster awareness of preventing loss of independence and promoting health.	The Centre on Aging by the Winnipeg Regional Health Authority,
Strengths/Limitations	Strengths: Accurate representation of the participants' views and insight into the meaning of physical function and the perceived facilitators and challenges to maintain and promote activities of daily living. Limitations: Representation from a varied ethnic/racial group and geographic set might have provided more value; the survey was retrospective and this may have limited the validity.	Assessing nurses' perceptions of the care environment becomes a key issue in targeting policy and programs.
Funding Source	None reported; Support provided by the John A. Hartford Foundation's Building Academic Geriatric Nursing Capacity Award Program	Implementation of geriatric acute care best practices:
Comments	Provides strong evidence about the importance of patients' beliefs and perceptions regarding barriers that can add to functional decline in hospitalized older adults and the importance a nurse plays in prevention of physical decline. Functional decline in the hospitalized older adult can be pervasive and costly.	
Article/Journal	Identifying and evaluating electronic learning	

	resources for use in adult-gerontology nurse practitioner education. <i>Journal of Professional Nursing</i> . 30(2) 155-161.	Initial results of the NICHE SITE self-evaluation. <i>Nursing and Health Sciences</i> , 1-7
Author/Year	Thompson, H., Belza, B., Baker, m., Christianson, P., Doorenbos, A., Nguyen, H. (2014)	Boltz, M., Capezuti, E., Shuluk, J., Brouwer, J., Carolan, D., Conway, S., DeRosa, S., LaReau, R., Lyons, D., Nickoley, S., Smith, T., Galvin, J., (2013)
Database/Keywords	geriatric, gerontology, web-based learning, web-based education, computer-assisted instruction, e-learning, distance learning, virtual learning continuing education	acute care, clinical best practice, models, older adults, program evaluation
Research Design	Literature search	A retrospective descriptive study
Level of Evidence	Level VII	Level V; Systematic reviews of descriptive studies; theory based evidence and expert opinion
Study Aim/Purpose	Identify relevant available ELR for use in enhancing geriatric advanced practice registered nurse education and to evaluate the educational utility of identified ELR's based on established criteria.	The purpose was to describe the NICHE Site Self-evaluation and to report the results of initial self-evaluation site data
Population/Sample Size Criteria/Power	The search was limited to the first 10 pages of Web sites returned. The initial literature search identified more than 100 citations. In all, 320 ELR were located for review, classification and critique. Following evaluation, 244 credible resources were found including self-paced tutorials, slide kits, video-enhanced learning modules, podcasts, Webcasts, video podcasts, virtual patients and interactive case studies. Criteria included authority, objectivity, authenticity, reliability, timeliness, relevance, and efficiency	180 NICHE hospitals ($n = 180$); they were NICHE hospitals for one year or more and scheduled to submit evaluation data for the year 2011.
Methods/Study Appraisal/Synthesis Methods	First: A literature search was performed from 2001 to 2011 using PubMed and CINAHL Second: a search in two available repositories for available electronic learning resources (ELR) geriatric/gerontological resources. Third: identification and search on the Web for sites of relevant geriatric and gerontological organizations for available ELR on their Web sites and references to ELR from other organizations. Fourth: a Google search for domains to identify additional sites and resources with the specific domain/area of interest.	Members have engaged in a process of every other year program self-evaluation designed to evaluate internal progress toward developing, sustaining, and disseminating a NICHE program. Descriptive statistics for the hospital sample were examined and subject to reliability estimates using coefficient alpha.
Primary Outcome Measures/Results	Resources identified are useful to advanced practice educators in improving lecture and seminar content in a particular topic area and providing students and preceptors with additional self-learning resources.	The response rate was 84%; the results show that a little more than half of the sites are in the progressive stage of implementation and other sites dispersed over the other three levels; this demonstrates the need to support sites at varying stages of program development
Conclusions/Implications	Increased numbers of older adults in the US has made it necessary for nursing facilities to enhance existing curricula. There are a number of ELRs that are readily available in a number of differing formats for geriatric/gerontological graduate education	Hospital size and teaching status is not a factor influencing the level of implementation; hospitals that have other older adult programs in place have a more mature understanding and culture of aging sensitive principles
Strengths/Limitations	Strengths: Most ELRs located were freely available, increasing the opportunity to integrate them into existing or new course programs. Limitations: The results of the review were not exhaustive. Some of the ELRs required additional steps to access including registration, membership, or fee payment which may present a drawback.	No strengths listed. Limitations: the study only included NICHE sites; the self-evaluation tool did not evaluate potentially notable measures of quality including clinical and financial outcomes related to care of hospitalized older adults
Funding Source	Division of Nursing, Bureau of Health Professions, Health Resources and Services Adm., Department of	Dr. Boltz's work was partially supported by a grant from the National Center for the Advancement of

	Health and Hyuan Services under grant #D09HO18978-01-00	Translational Science and National Institutes of Health (NIH); Dr. Galvin by NIH, National Institute on Ageing, and the US Dept. of Health and Human Services
Comments	Addressing sustainability within geriatric APRN education is critical for sharing of best practices among educators and for sustainability of teaching and related resources	NICHE implementation can be successful in a variety of settings (e.g. large, medium, and small size facilities; those with or without magnet status, etc.)
Article/Journal	Implementation of inpatient geriatric consultation teams and geriatric resource nurses in acute hospitals: A national survey study. <i>International Journal of Nursing Studies</i> . 49; 842-849	Innovation pilot study: Acute care for elderly (ACE) unit--promoting patient-centric care. <i>Health Environments Research & Design Journal</i> . 5(3).. 90-98
Author/Year	Deschodt, M., Flamaing, J., Rock, G., Boland, B., Boonen, S., Milisen, K. (2012)	Krall, e., Close, J., Parker, J., Sudak, M., Lampert,, S., Colonnelli, K. (2012)
Database/Keywords	geriatric assessment, geriatric consultation team, geriatric resource nurse, inpatients, survey	ACE unit, patient-centric, geriatric care, GRN model
Research Design	A cross-sectional survey performed in March and April, 2010, in acute hospitals in Belgium	Case study/Literature review
Level of Evidence	Level V	Level IV
Study Aim/Purpose	To evaluate the implementation and performance of geriatric consultation teams and geriatric resource nurses after patients were screened using the Triage Risk Screening Tool	A pilot project was created to show how one NICHE health system identified the need to better address the care of older adults by implementing the ACE model and the Geriatric Resource Nurse (GRN) model
Population/Sample Size Criteria/Power	Sixty-six hospitals completed the questionnaire) and 63 geriatric consultation teams were included.	One hospital in CA. Data reviewed of 342 charts of patients age 65 or greater with documented cognitive impairment of a diagnosis of Alzheimer's dementia in 65% of the population entering the acute care environment. 90 patients were treated in the ACE unit compared to 345 patients on the general medical-surgical unit. The average age was 84 years in the ACE unit and 82.4 years outside the unit.
Methods/Study Appraisal/Synthesis Methods	A newly developed questionnaire was sent to participating hospitals and completed by the head of the geriatric department, consultation teams, geriatric resource nurses, and the geriatrician. All data were analyzed in a descriptive manner.	A transdisciplinary team was created to design this pilot to include staffing patterns, nurse-driven admission criteria, physician and nurse education and resource mobilization. Metrics from the ACE unit were compared with equivalent metrics on the general medical-surgical unit for the same 3 months
Primary Outcome Measures/Results	To increase the impact of the geriatric consultation team, they must focus on older patients using a screening tool identifying high-risk needs; more intense collaboration with GRN's is necessary and the function of the GRN needs further improvement (The geriatric consultation team was introduced in Belgium in 2007—new at the time of this study)	Patient's functional status was neutral or improved at discharge, fall rates within the ACE unit were zero compared to six that occurred outside the unit. The ACE unit remained restraint free as hoped. The ACE unit demonstrated decreased average length of stay, which was 3.18 in the ACE unit compared to 3.90 on the comparable unit.
Conclusions/Implications	Further research is needed to address the feasibility and impact of geriatric consultation team's intervention in complex care settings. About half of the teams had an advisory role only and no control over direct patient care—limiting compliance with team recommendations	The ACE unit provides a safe environment and a better patient experience; it has also improved the way the organization cares for the older population. Outcomes including falls, pressure ulcers, functional level, and length of stay were examined and demonstrated marked improvement compared to similar patient outside the ACE unit.
Strengths/Limitations	Strengths: The overall response rate was 70% and different regions of the country were equally represented Limitations: Main stakeholders (patients and their families) were not part of the evaluation. Organization and activities of the geriatric consultation teams and GRN's were evaluated with one question (a simple 4 point Likert) which may have limited the ability of the survey to specifically address the commitment and functioning of the GRN's. The responses were not verified and may not entirely reflect the really happened in hospitals.	Limitation: data were captured with paper documentation and some comparison group results were not available. The pilot study was conducted in only one facility and the sample size was small

Funding Source	None	None noted
Comments	GRN models in the U.S. are evolving to a more multidisciplinary focus as excellent care of older adults requires the involvement of multiple disciplines.	Older patients need individualized care planning by staff competent in elder care and a specialty unit to address their specific needs
Article/Journal	Job demands and personal resources I their relations to indicators of job strain among nurses for older people. <i>Journal of Advanced Nursing</i> , 2185-2195.	Linking RN workgroup job satisfaction to pressure ulcers among older adults on acute care hospital units
Author/Year	Schmidt, K. & Diestel, S. (2012)	Choi, J., Bergquist- Beringer, S., Staggs, V.
Database/Keywords	active coping, job strain, nurses, protective resources, self-efficacy beliefs, survey	RN job satisfaction, nurse-sensitive quality indicator, hospital- acquired pressure ulcers
Research Design	Cross-sectional questionnaire survey was conducted to test and contrast an active, problem-focused coping style and self-efficacy beliefs as personal resources in the link from job demands to indicators of job strain	Cross-sectional correlational design. Random-intercept logistic regression analyses
Level of Evidence	Level V	Level II
Study Aim/Purpose	To examine the role of two personal resources (active, problem-focused coping; self-efficacy beliefs) in the relation between job demands and strain	To examine the relationship between RN workgroup job satisfaction and hospital acquired pressure ulcer rates among hospitalized older adults.
Population/Sample Size Criteria/Power	A total of 145 of the 251 employees in three nursing homes of a rural, municipal organization for residential elderly care participated in the survey study (57.8% participation rate)	3,329 adult care units from 561 NDNQI hospitals. Units submitted 2009 data on both nurse staffing and pressure ulcers and participated in the NDNQI RN survey. Only patient 65 and older were include.
Methods/Study Appraisal/Synthesis Methods	A survey was conducted between February-April 2010 among staff members. Data were analyzed by hierarchical moderated regression analysis	Descriptive statistics were used to summarize hospital characteristics and study variables. Random-intercept logistic regression analyses were performed to examine the relationship between RN work-group job satisfaction and HAPU's among older adult patient at the unit level.
Primary Outcome Measures/Results	Increasing job demands (quantitative and qualitative workload) had adverse effects on emotional exhaustion, psychosomatic complaints, and turnover intentions, whereas nurses' self-efficacy beliefs exerted beneficial effects on all outcomes. Findings revealed that active, problem-focused coping interacts with job demands in the predication of job strain	Although further investigation on the possible moderating effect of other nursing workforce factors on the relationship between nurse staffing and patient outcomes is needed to clarify this issue, findings demonstrate the importance of both the quantity and quality of nurse staffing for meeting the care needs of the patient on each nursing unit and thereby reducing HAPU rates
Conclusions/ Implications	Implementing strong training designed to boost nurses' self-efficacy beliefs (not training new skills, but to enhance their beliefs as to what they can do with the skills they already have) may strengthen and boost confidence. Encouraging various coping skills rather than a single coping style serves to increase the effectiveness and use of personal resources and protects nurses from detrimental effects of their daily work.	There is empirical evidence to support the relationship between RN job satisfaction and better patient care outcomes.
Strengths/ Limitations	Limitations: the cross-sectional design does not allow for firm conclusions on the direction of causality (a longitudinal study may reveal further results). All data was reported by self-reports and may be contaminated Strengths: Self-reports might in fact be the most valid measurement method, because a nurse is the best person to report on his/her own personality (including coping style) and level of strain. All study variables were assessed by well-validated and widespread scales allowing comparisons with related studies. The present results would claim to be valid and free from distortions.	Strengths: unique in analyzing unit-level data to examine the relationship between RN job satisfaction and HAPU rates. Limitations: Larger and not-for-profit hospitals tend to be over-represented compared with all US hospitals. The subsample consisted only of unite that submitted data on both pressure ulcers and nurse staffing t NDNQI during 2009 and participated in the RN survey that year

Funding Source	No specific grant from any funding agency I the public, commercial, or non-for-profit sectors.	This study was conducted under contract with the ANA
Comments		The results from this analytical approach might guide the development of strategies to facilitate RN workgroup's capability to deliver high-quality patient care on units where serious safety risks occur.
Article/Journal	Matching the environment to patients with delirium: Lessons learned from the delirium room, a restraint-free environment for older hospitalized adults with delirium. <i>Journal of American Geriatrics Society</i> . 59. (295-300)	Nurse led care coordination: Trial protocol and development of a best practice resource guide for a cluster controlled clinical trial in Australian aged care facilities. <i>Archives of Gerontology and Geriatrics</i> .58.15-19.
Author/Year	Flaherty, J., Little, M., (2011)	Arendts, G., Etherton-Beer, C., Howard, K., Lewin, G., Sim, M., Pickstock, S., Fitzhardinge, S., O'Brien, K., Tassell, S., Deans, P., Blackwell, S.(2013)
Database/Keywords	delirium, patients, older adult, falls,	nursing homes, care coordination, quality of life, hospitalization
Research Design	Observational data over 13 years; longitudinal study	Published systematic reviews of quantitative studies, existing resources and multidisciplinary expert opinion to develop an intervention for testing in a cluster controlled trial.
Level of Evidence	Level V	Level VII
Study Aim/Purpose	The authors wanted to show that a restraint-free environment could be achieved and safe (limited falls and no/minimal loss of functionality)	The trial will determine whether care coordination of multiple evidence-based strategies can improve quality of life and reduce hospitalization rates among people living in residential aged care facilities (RACF)
Population/Sample Size Criteria/Power	148 patients, ≥ 65 at one facility over a 4-month period	Four residential aged care facilities in metropolitan Perth, Western Australia. Patients are eligible if they are a permanent high level care resident in a n accredited facility and will be excluded if they are not eligible for Medicare, less than 65 years, and/or not expected to survive more than 60 days after enrolment
Methods/Study Appraisal/Synthesis Methods	For activity of daily living scores, a significant interaction effect indicated improvement in patient with delirium and deterioration in those without (p=<.001). The rate of falls is at least not higher in the delirium rooms than in the other beds on the adult care unit. In one year, there were two falls in patient in the delirium room compared with 28 falls in patients in other larger units.	Trial design and protocol; A multicenter open label cluster controlled trial with two facilities receiving intervention and two acting as control facilities; set eligibility criteria, intervention, control, data collection, sample size estimated, resource guide development
Primary Outcome Measures/Results	based on observational data, it appears that negative outcomes associated with delirium, such as loss of function, longer hospital stay, and greater mortality, can be decreased to levels seen in individuals without delirium' also the rate of falls is not higher	Distinct clinical strategies impact the quality of life and hospital transfer of older adults in RACF. New strategies of care can be incorporated into a single intervention program; for the first time a determination can be made on maximal clinical effect derived from these strategies combined.
Conclusions/Implications	Implementing a delirium room is an innovative management model for delirium that provides 24hour nursing care, emphasizes nonpharmacological approaches, and is free of physical restraints. 13 years has shown that the delirium room can lead to a culture of patient safety through nursing leadership.	Results will have immediate translational impact to guide resources to the aging population
Strengths/Limitations	Strengths: there are few management models, such as this, that try alternatives to one-to-one sitters, limit the use of pharmacological means, or avoid the use of physical restraints. Limitations: lack of randomized controlled trials and the inability to determine which component of the model profiles its benefits.	Strengths: The intervention incorporates six strategies that have been found to be clinically effective and appear to impact quality of life and hospital transfer Limitations: The intervention is a coordination of a number of clinical strategies, it is possible that individually some of these will be redundant in any overall measured effect and so mot

		contribute to the outcome.
Funding Source	No funding sources.	None noted
Comments	The model includes less use of physical restraints, lower fall risk, and better behavior management. Over time this model empowers nurses to manage these at risk patients without physical restraints, without any apparent downsides such as longer hospital stay, greater fall rates, or dramatic increases in nursing unit budget costs.	More results will be reported from this trial after further work is completed.
Article/Journal	Nurses' decision-making process in cases of physical restraint in acute elderly care: A qualitative study. <i>International Journal of Nursing Studies</i> . 50. 603-612	Nurses improving care for Healthsystem elders: A model for optimizing the geriatric nursing practice environment. <i>Journal of Clinical Nursing</i> , 21, 3117-3125.
Author/Year	Goethals, S., Dierckx de Casterle', B., Gastmans, C. (2013)	Capezuti, E., Boltz, M., Cline, D., Vaughn, V., Rosenberg, M., Wagner, L., ... Nigolian, C. (2012).
Database/Keywords	decision-making process, nursing, physical restraint, qualitative research	CINHAL, MEDLINE, GOOGLE SCHOLAR. Key words: <i>Elderly people, geriatric care, environment, geriatrics, healthcare organizations and systems, hospitals, nurse practice environment, nursing, patient care, quality, quality of geriatric care</i>
Research Design	Qualitative interview design inspired by the grounded theory approach. Data analysis was guided by the qualitative analysis guide of Leuven	2103
Level of Evidence	Level VII	Level V; evidence gathered from systematic reviews of descriptive studies
Study Aim/Purpose	Aims were to explore and describe nurses' decision-making process in cases of physical restraint	The purpose was to explain the relationship between a positive nurse practice environment (NPE) and implementation of evidence-based practices as well as to describe the Nurses Improving Care for Healthsystem Elders (NICHE) program's positive environmental contributions.
Population/Sample Size Criteria/Power	21 acute geriatric nurses interviewed between October 2009 and April 2011 were selected with the aim of including nurses having a variety of characteristics and experiences concerning decisions on using physical restraint	Various (unspecified number) geriatric models were studied
Methods/Study Appraisal/Synthesis Methods	The questionnaire for nurses contained general closed-ended questions about the nurses' characteristics (age, diploma, religion, education, work experience) and open-ended questions about their practice and ethical views regarding the use of physical restraint. Nurses met an inclusion criteria to be included.	Did not provide p-value. Selective method criteria and design were appropriate to support a hospital's ability to implement and sustain evidence-based geriatric knowledge, focused on individual patient care, into practice
Primary Outcome Measures/Results	In cases of physical restraint in acute elderly care, nurses' decision making was never experienced as a fixed decision but rather as a series of decision. Decision making was mostly reasoned upon and based on rational arguments; however, decisions were also made routinely and intuitively. Some nurses felt very certain about their decisions, while other experienced feelings of uncertainty regarding their decisions.	NICHE has been the most successful geriatric program in recruiting hospital membership along with contributing to the depth of geriatric focus of care across an entire hospital system
Conclusions/Implications	Nurses' decision making is an independent process that requires nurses to obtain a good picture of the patient, to be constantly observant, and to assess and reassess the patient's situation. Coding to thoughtful and individualized decisions requires major commitment and constant critical reflection.	NICHE focuses on the nursing staff's perception of care, making it different and more accepted by care providers, thus producing a NPE. This NPE improves quality geriatric care as it is based on hospital processes and nursing initiatives that focus on specific patient needs.

Strengths/ Limitations	<p>Strengths: the systematic and cyclic process of data collection and analysis, the heterogeneity of the sample regarding both hospital and nurse's characteristics, the principle of theoretical sampling until saturation, and the various techniques used to maintain the trustworthiness of the findings.</p> <p>Limitations: the setting was limited to one geriatric ward</p>	Strengths: The NICHE program is relevant to practice and addresses unique patient care needs of the older hospitalized adult. It also provides a network of communication between other NICHE facilities
Funding Source	Funded by the Flemish Community, Department of Education and the Catholic University College Ghent, Belgium	Atlantic Philanthropics, (USA) Inc., John A. Hartford Foundation's Building Academic Geriatric Nursing Capacity Award Program, New York State Health Foundation
Comments	It would be interesting to replicate this research in other acute settings like intensive care, where vulnerable patients also can be found.	Provides strong evidence for the benefit of implementing a NICHE program at any hospital that desires to provide quality elder care. NICHE not only allows a high degree of nursing input but it also stresses a high degree of nursing involvement in decision-making regarding care of the older adult.
Article/Journal	Nurses perception of pain management in older adults. <i>MedSurg Nursing</i> , 22(6). 375-382	Nursing staff perceptions of physical function in hospitalized older adults. <i>Applied Nursing Research</i> , 24 (4), 215-222.
Author/Year	Gropelli, T., Sharer, J., (2013)	Boltz, M., Capezuti, E., & Shabbat, N. (2011, January 2).
Database/Keywords	pain, older adult, care plan, pain management	CINHAL, MEDLINE, GOOGLE SCHOLAR. Key words: <i>Physical function, quality, geriatric care, barriers, functional decline, conceptual model, intervention</i>
Research Design	Literature review from 2005 to 2013	Qualitative Descriptive Method, Question-by-Question basis
Level of Evidence	Level V	Level V; evidence was gathered from qualitative studies and integrative reviews
Study Aim/Purpose	To determine nurses' perceptions of pain management in older adults in long-term care. The research question was: What are nurses' perceptions of pain management for older adults in long-term care facilities?	The purpose was to identify nursing staff perceptions of hospitalized older adults physical function and their beliefs about prevalence, risk factors, onset, and effective interventions along with barriers and facilitators of physical function
Population/Sample Size Criteria/Power	Nurses including RN's and LPN's who work at a long term care facility caring for older adults. Sixteen subjects were interviewed with an average age of 41 and who had been licensed for an average of 15 years. The study was conducted at a large skilled nursing facility in the U.S.	Six focus groups of 55 participants at two sites in a suburban community New York hospital, each site had three groups: two of registered nurses and one group of patient care assistants
Methods/Study Appraisal/Synthesis Methods	A qualitative descriptive design with a content analysis approach was used to investigate the nurses' experiences with pain management in older adults. Content analysis served as the method for analysis of the data. Through the use of interviews this method allowed the researcher to explore the phenomenon of nurses' perception of pain management in older adults.	Did not provide p-value. Method and design were appropriate to answer the question/purpose. Conclusions provide new insights into beliefs about physical function and components to include in the design of a model to prevent older adult functional decline.
Primary Outcome Measures/Results	The results of this study were consistent with past findings that the beliefs of the nurse and older adult can affect pain management. The lack of and need for continuing education emerged from this study which was different than past qualitative research that focused more on a traditional LTC setting without patients experiencing acute pain.	Outcomes: physical function in hospitalized older adults may be modified by the environment and nursing staff; a meaningful measure of physical function would be supported; staffing (number of staff and competency) and time constraints affect ability to prevent physical function decline; standardized treatment methods would be supported
Conclusions/Implications	Development of successful pain management programs for older adults needs to focus on nurse's perceptions and biases. Nurses need to understand their perceptions so they can address the effects. Education empowers nurses to make the best decision	Conclusion: the six focus groups provided new insights into beliefs about hospitalized physical function of older adults and the caregiver's perceived barriers as well as ideas for the design of a program to facilitate well-being.

Strengths/ Limitations	<p>about pain. By improving nurses' knowledge base and understanding pain management perceptions, effective health care teams can build and improve quality pain management programs for older adults. The study was conducted at one long-term care facility. The demographic characteristics of the sample, such as only one male and similar cultural background, limited interpretation of study results. The sample also was limited to persons who were able to participate. By agreeing to participate in the study, subjects may have stronger feelings about pain management than nurses who did not agree to participate. The perceptions of the nurses were within the context of their experiences primarily within the study facility, as many participants had not worked recently at another facility.</p>	<p>Strengths: Provides a solid foundational model for further study and identifies key components needed in order to design an effective treatment model. Limitations: Lack of quantitative evidence and no current model is available to compare results. Sample size was small</p>
Funding Source	None listed	None reported
Comments	Education empowers nurses to make the best decisions about pain.	Provides strong evidence about the importance of caregiver beliefs and perceptions regarding barriers that can add to functional decline in hospitalized older adults (Walking the tight rope, Coaching and caring, Constraints to function promotion, and Enablers of physical function. Decline can be prevented by environment modification and an effective interdisciplinary team.
Article/Journal	Nursing staff perceptions of the use of physical restraint in institutional care of older people in Finland. <i>Journal of Clinical Nursing</i> ; 3197-3207	The NICHE geriatric resource nurse model: Improving the care of older adults with Alzheimer's disease and other dementias. <i>Geriatric Nursing</i> . 31(2); 128-132
Author/Year	Saarnio, R., & Isola, A. (2010)	Allen, J., & Close, J. (2010)
Database/Keywords	Nurses, nursing, nursing staff, older people, physical restraint, supervisors	Nurses, older adults, Geriatric Institutional Assessment Profile (GIAP), institutional, geriatric syndromes
Research Design Level of Evidence	A qualitative study Level V	A qualitative study Level V
Study Aim/Purpose	To describe the perceptions of nursing staff on the use of physical restraints in the care of older adults	To assess attitudes regarding the institution's care of the older adult patient, knowledge of institutional guidelines for care of the older adult, knowledge of best practice in 4 geriatric syndromes, and perceived strengths and barriers to best practice for care of older adults.
Population/Sample Size Criteria/Power Methods/Study Appraisal/Synthesis Methods	Four focus group interviews (all female); RN's = 6; LPN's = 6; assistants = 4; supervisors = 5 Focus group interviews with staff and supervisors.	40% return rate from 1200 RN's in one health care district Online survey
Primary Outcome Measures/Results	Factors contributing to the use of restraints included requests from patient's family to use restraints for safety and the lack of legislation on the use of restraints. Restraint use caused feelings of guilt among the nursing staff but also as a method of making the older adult feel more secure.	19.2% believed almost no older adult patient had a continuing care plan when hospital records reflect that 60% have a continuing care plan; nurses scored high in the attitudes about pressure ulcer management but lower in their knowledge of the same; nurses also scored high in the attitude regarding restraint management, but their knowledge score was lower.
Conclusions/ Implications	There was a need for legislative guidelines on the use of physical restraints while caring for older adults; requiring the entire nursing team to make a joint decision on the use of restraints and constant reassessments of the need for their usage.	Nurses perception problems could hamper improvements; pressure ulcer and restraint education was shown to be needed and was provided with proven successful results of improved knowledge.
Strengths/ Limitations	Strengths: The trustworthiness of the data gathering process was enhanced by the previous experience of the researcher Limitations: The small focus group size	Strengths: adequate sample size of 480 RN's and the health care district serves nearly half-a-million people in California Weaknesses: Nurses from only one

Funding Source	and only one facility was included in this study.	health care district were surveyed.
Comments	None listed The results provided staff a chance to ethically deliberate and evaluate their own work and consider alternative practices for physical restraints.	None listed Implementation of the NICHE model provides positive outcomes for nurses, older adults, and hospital systems
Article/Journal	Pressure ulcers in the intensive care unit: The relationship between nursing workload, illness severity and pressure ulcer risk. <i>Journal of Clinical Nursing</i> . 2183-2191	REFINE (Reducing Falls in in-patient Elderly) using bed and bedside chair pressure sensors linked to radio-pagers in acute hospital care: a randomized controlled trial. <i>Age and Aging</i> . 43. 247-253.
Author/Year	Creiasco, M., Wenzel, F., Zanei, S., Whitaker, I. (2012)	Sahota, O., Drummond, A., Dendrick, D., Graninge, M., Vass, C., Sach, T., Gladman, J., Avis, M. (2014)
Database/Keywords	intensive care units, nursing assessment, nursing workload, pressure ulcer, safety, severity of illness index	in-patient falls, falls, bed sensors, older people
Research Design	Prospective descriptive study	Randomized controlled trial
Level of Evidence	Level V	Level I
Study Aim/Purpose	To verify association between pressure ulcer (PU) development with nursing workload and illness severity and to verify whether nursing workload and illness severity are related with Braden Scale scores	Falls in hospital are a major problem and contribute to substantial healthcare burden. Do advances in sensor technology and innovative approaches reduce falls?
Population/Sample Size Criteria/Power	The study sample included 160 patients. Patients admitted to three intensive care units without PU at admission and a minimum stay of 24 hours were included	1839 participants were randomized (918 to the intervention group and 921 to the control group)
Methods/Study Appraisal/Synthesis Methods	Prospective data collection included demographic, clinical and hospital data, nursing activities score, simplified acute physiology score and Braden scale. Multivariate linear regression analysis was applied to verify whether nursing workload and illness severity are related with Braden Scale scores. Multivariate logistic regression analysis was used to verify whether nursing workload and illness severity were risk factors associated with PU development	pragmatic, parallel-arm, individual randomized controlled trial of bed and bedside chair pressure sensors using radio-pagers (intervention group_ compared with standard care (control group) in elderly patient admitted to acute, general medical wards, in a large UK teaching hospital.
Primary Outcome Measures/Results	The mean Braden score as 12 and the PU incidence was 34.4%. Multivariate linear regression analysis identified as factors related to variation of Braden score; illness severity, nursing workload and age. Multivariate logistic regression showed a model with risk factors associated with PU development: sex, length of ICU stay, illness severity and nursing workload	Primary outcome measure number of in-patient bedside falls per 1,000 bed days. There were 85 bedside falls in the intervention group, falls rate 8.71 per 1,000 bed days compared with 83 bedside falls in the control group, falls rate 9.84 per 1,000 bed days (P = 0.51). There were no significant differences between the two groups with respect to time to first bedside fall. The mean cost per patient was also not statistically significant (P = 0.67)
Conclusions/Implications	Nursing workload, severity of illness, sex and length of ICU stay were identified as risk factors associated with PU development. However, nursing workload acted as a protective factor. Illness severity, nursing workload and age were related to Braden scores	Bed and bedside chair pressure sensors as a single intervention strategy do not reduce in-patient bedside falls, tie to first bedside fall and are not cost effective in elderly patient in acute, general medical wards in the UK.
Strengths/Limitations	Limitations: data collection from a single hospital, the small sample size, and therapeutic modalities and individual patient's characteristics were not incorporated into the analysis	Strengths; findings confirm those from previous small non-randomized studies. This study adds evidence that the use of radio-paging systems to alert nurses does not enhance the effectiveness of the sensor systems. Limitations: It is possible that the intervention may be associated with a smaller reduction in bedside falls, which may have been missed as the study was powered to detect a 35% reduction in the rate of bedside falls. The primary outcome data was collected from the mandatory incident reporting system operating within the hospital and it is recognized that under-reporting of falls may occur within such systems. Blinding the staff to the intervention may have led to differential reporting of falls between groups, however unless this

Funding Source	None noted	occurred to a very large extent, it is unlikely to explain the findings of no effect National Institute for Health Services Research-- Research for Patient Benefit Program. Nottingham University Hospitals Trust was the sponsor of the trial
Comments	Accurate identification of risk factors and the use of clinical judgment in skin assessment are prerequisites for determining appropriate strategies to prevent PU to improve quality of care for patient safety and to reduce length of ICU and hospital stay and costs	In-patient falls are a significant problem in acute hospitals In-patient falls lead to significant injury and an increased length of stay. Bed and bedside pressure sensors using radio-paging as part of a single intervention do not reduce fall rates
Article/Journal	Review: nurses predominantly have negative feelings towards the use of physical restraints in geriatric care, though some still perceive a need in clinical practice. <i>Evidence Based Nursing.</i>	Rural geriatric glue: A nurse practitioner-led model of care for enhancing primary care for frail older adults within an ecosystem approach. The American Geriatrics Society. 1772-1780.
Author/Year	Hamers, J. (2014)	
Database/Keywords	physical restraints, interventions, nurses, geriatric acute care	primary care, frail older adults, nurse practitioner, chronic disease management, geriatric care
Research Design	The study reviewed both qualitative and quantitative studies. A search of the literature published from 1990 to August 2013 was conducted. The quality of the studies was assessed by design-specific instruments and the data were extracted by two reviewers independently.	Retrospective
Level of Evidence	Level V	Level VI
Study Aim/Purpose	The aim of the study was to examine the attitudes of nurses in geriatric acute and long-term care settings towards the use of physical restraints	This study describes the implementation of the Care for Seniors model of care, an innovative approach to improving care coordination and integration, and provides preliminary evidence of effective use of specialist resources and acute care services.
Population/Sample Size Criteria/Power Methods/Study Appraisal/Synthesis Methods	Overall, 31 publications were included 20 quantitative studies, 10 qualitative studies and one mixed-methods study— and analyzed using a thematic synthesis approach and qualitative content analysis.	Older adults living in a rural area in southwestern Ontario, Canada Measurements included the number of new geriatrician referrals and follow-up visits before and after the launch of the Care for Seniors program, the number of Nurse Practitioner visits in a primary care setting, in-home, retirement home and hospital, number of discharges home from hospital and length of hospital stay between.
Primary Outcome Measures/Results	Nurses' attitudes were primarily characterized by negative feelings towards physical restraint use, but nurses still perceived a need for using physical restraints in clinical practice	In the 2 years prior to the launch, the number of visits to the geriatrician was relatively low (21 and 15 respectively for 2005-06 and 2006-07), increasing to 73 for the 2011-12 year.
Conclusions/Implications	To adequately and safely reduce the use of physical restraints, different approaches are needed— approaches that are effective at different levels in care organizations, from administrative areas to clinical ones. Multicomponent interventions are needed, consisting of policy changes, education (with a focus on attitudes), consultation and availability of alternative interventions tailored to individual residents or patients. The evidence on the effects of such approaches is available. Despite some positive effects, the conclusion is that education alone is not enough to ensure a reduction in the use of restraints	This model of care represents a promising collaboration between primary care and specialist care for improving care to frail older adults living in rural communities, potentially improving timely access to health care and crisis intervention
Strengths/Limitations	Limitations: small sample size	Strengths: the low cost of implementation, use of existing services without creation of additional layers of services, effective communication, and capacity building for older adults' care across sectors. Strengths: the low cost of implementation, use of existing services without creation of additional layers of services, effective communication, and capacity building for older adults' care across sectors.

Funding Source	None	The Canadian Mental Health Association Waterloo Wellington Dufferin funded data collection and analysis and manuscript preparation.
Comments	Physical restraints (e.g., belts, full enclosed bedrails) are still commonly used in the care of older people. However, there is a large variation in restraint use that cannot be explained by case mix or organizational characteristics. Most interventions to reduce restraint use were focused on changing nursing practice. However, educational interventions alone have proven to be ineffective in many situations. This underlines the need for a description of nurses' attitudes as a necessary basis to develop theoretically well-grounded interventions aimed at reducing the use of physical restraints.	This service is a promising model of collaboration between family physician and NPs with geriatric expertise, supported by a geriatrician, to improve care for frail elderly adults living in rural areas and has the potential to be easily replicated in other communities.
Article/Journal	Staff Response time to call lights and unit-acquired pressure ulcer rates in adult in-patient acute care units. <i>Contemporary Nurse. 182-187</i>	Using simulation pedagogy to enhance teamwork and communication in the care of older adults: The ELDER project. <i>The Journal of Continuing Education in Nursing, 43(8). 363-369</i>
Author/Year	Tzent, H., Grandy, G., Yin, C.	Mager, D., Lange, J., Greiner, P., Saracino, K. (2012)
Database/Keywords	hospitals, pressure ulcer, response time, in- patients, safety, quality of health care	simulation, nurses, best practices, older adults
Research Design	Exploratory study. Archived hospital data from July 2005 to December 2008. The unit analysis was the patient care unit-month defined aggregated by month for each patient care unit	Post simulation surveys and qualitative interviews with hired evaluators
Level of Evidence	Level VII	Level VI
Study Aim/Purpose	Examine the relationship between staff response time to call lights and the rate for unit-acquired pressure ulcers Stage II and greater in adult in-patient acute care units.	Participants' ability to integrate best practices into the care of older adults while collaborating and communicating in teams --effectiveness evaluated using qualitative and quantitative measures
Population/Sample Size Criteria/Power	The study was conducted in nine adult non-critical acute in-patient care units, including five medical, on surgical, and three medical-surgical units, of an academic medical center (about 900 beds) in Michigan. The types of the nine study units were verified by the site coordinator of the study hospital. Only unit-month data with valid information of pressure ulcer rates and staff response time to call lights were included in the analysis.	Total numbers of participants for each of 3 simulations ranged from 33 to 35 across three agencies, with the number of RNs ranging from 8 to 10, the number of LPNs ranging from 5 to 7, and the number of nursing assistants ranging from 18 to 20 for each scenario. Several occupational or physical therapists also participated, for a total sample size of 104. The settings were two long-term care facilities and one home care agency.
Methods/Study Appraisal/Synthesis Methods	The average staff response time to call lights was abstracted from the reports generated from the call-light tracking system adopted by the study hospital. Staff response time to a call light was defined as the time elapsed from normal call activation to call cancellation from the patient room. The response times were aggregated at the unit level for each month and operationalized as (call-light response time in seconds from all the calls made for the unit and month/total number of calls for the unit and month.	All participants received training in the first 2 years of the project. Curricula from the John A. Hartford Foundation were adapted to design unique curricula for each agency and level of personnel. The focus of this report is a case-based simulation learning approach used in year 3 to validate application of knowledge and facilitate teamwork and interprofessional communication
Primary Outcome Measures/Results	A faster average staff response time to call lights was found to be associated with a lower percentage of surveyed patients with unit-acquired pressure ulcers stage II and greater. The findings could imply that timely response to call lights presents an opportunity to assess for pressure ulcer development and to introduce or adjust the use of pressure ulcer prevention measures. However, additional research is needed.	All participants indicated that the learning objectives throughout each of the three simulations were met 97% to 100% of the time. Participants were asked to rate the usefulness of each simulation in relation to their current practice with results of 92% to 100%. Many participants verbalized the value of having the opportunity to practice teamwork and communication skills with each other in a simulated setting. Nurses, nursing assistants, and supervisors reported a new appreciation of understanding of the roles of other

Conclusions/ Implications	Exploring and determining the optimum response time to call lights for medical units, surgical units, and medical-surgical units, warrants further research. Future research may verify the conclusion of this current study by conducting multihospital studies and performing regression analysis to determine if the effect persists when controlled for other variables.	team members and the importance of seeing a situation "through different eyes." The use of simulation scenarios to test knowledge of best practices and encourage communication and teamwork across multiple provider groups in long-term care and home care agencies was an effective method in the study. Collaboration between the project staff at a school of nursing and the multiple clinical agencies represents an effective way for agencies to gain access to simulation expertise and equipment that might otherwise be cost prohibitive.
Strengths/ Limitations	Strengths: collected data were processed using SPSS statistical software; a post hoc power analysis was used to compute the power achieved (Alpha was set at 0.05) Limitations: The information of the pressure ulcer measure was quarterly data, which were matched to the monthly average staff response time to call lights. This study used data from one single academic medical center and only adult in-patient acute care units were included in the analysis. This study did not adjust the relationship between the unit-acquired pressure ulcer rated and staff response time to call lights by considering other variables.	Limitations: encouragement by employers to participate in education may have influenced the positive outcomes of the project. Although the intent was to obtain various perspectives from which to evaluate the program, the evaluation process may have influenced the positive outcomes as well. There was no way to measure whether participation in this project improved actual patient care.
Funding Source	The project was partially supported by grant number R03HS018258 from the Agency for Healthcare Research and Quality.	The Health Resource and Services Administration, Division of Nursing, U.S. Department of Health and Human services grand number D62HP06858 funded this project
Comments	Identifying nursing-process indicators that are objective and associated with pressure ulcer rates is desperately needed as staff response time is a significant process indicator to predict unit-acquired pressure ulcer rates.	Based on outcomes of this project, a collaborative approach to sharing resources with clinical agencies has the potential to improve care and benefit both academic and clinical partners
Article/Journal	Variability in measuring (instrumental) activities of daily living functioning and functional decline in hospitalized older medical patients: a systematic review. <i>Journal of Clinical Epidemiology</i> . 619-627	
Author/Year	Buurman, B., van Munster, B., Korevaar, J., de Haan, R., de Rooij, S., (2011)	
Database/Keywords	Functional decline; systematic review; measurement; older patient; hospitalized; activities of daily living; instrumental activities of daily living	
Research Design	Systematic literature search/review from 1990 to 2010.	
Level of Evidence	Level V; Evidence from integrative reviews	
Study Aim/Purpose	To study instruments used and definitions applied in order to measure activities of daily living functioning and functional decline in hospitalized older medical patients	
Population/Sample Size Criteria/Power	397 articles were searched and 68 were eligible; 28 studies were included in the review using 5 different instruments to measure functional decline.	
Methods/Study Appraisal/Synthesis Methods	One author conducted a literature search via data bases and by hand; article were included if the focused on acute hospitalization for medical illness, described the instrument use to measure patient functioning, and outline the definition of functional decline. Data was abstracted by two investigators and study characteristics were summarized using simple descriptive statistics.	
Primary Outcome Measures/Results	Item content and scoring between and within the instruments (IADL; scale of Lawton and Brody,	

Conclusions/ Implications	Barthel index, Functional independence Measure, and Care Needs Assessment) varied widely. The minimal amount for decline, defined by the authors, referred to a decrease in functioning between 2.4% and 20.0%. There is a large variability in measuring activities of daily living functioning of older hospitalized patients and a large range of clinical definitions of functional decline. These barriers handicap the interpretation and comparison of outcome data
Strengths/ Limitations	No strengths or limitation specifically identified. However, a suggestion as made that recommended more studies on the process are needed as well as the need to discuss if an appropriate time point for the measurement of functional decline can be identified
Funding Source Comments	No funding sources listed This review stresses a strong need for standardization in measuring functioning of hospitalized older medical patients and the use of clinical definitions of functional decline
Reference:	Houser, J., & Oman, K. S. (2011). <i>Evidence-based practice: An implementation guide for healthcare organizations</i> . Sudbury, MA: Jones & Bartlett Learning.

Appendix C

Strengths, Weaknesses, Opportunities, & Threats Analysis

<p>Strengths</p> <ul style="list-style-type: none"> • Strong belief in and support of the mission and vision • Dedicated nursing staff with many years of experience • Support of life-long learning • Nurse-to-patient ratio (1:3 or 1:4) • Community need 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Limited exposure to neighboring facilities and networking opportunities • Limited resources (staff/financial) as a critical access facility in a rural setting • Attitudes of some staff who may not understand or realize the importance of the NICHE program
<p>Opportunities</p> <ul style="list-style-type: none"> • Commitment to older adult's needs • Majority of AGH patients are over 65 years • Multiple area extended care facilities whose patients will require hospitalization • Access to NICHE resources 	<p>Threats</p> <ul style="list-style-type: none"> • Larger neighboring healthcare facilities with large financial bases of support that provide great patient care • Staff resistance to change • Rapid healthcare changes • Impact of not implementing an elder care program

Appendix D

Budget and Resources

Capstone Costs	In Kind	Costs to Replicate
<u>Study</u>		
NICHE membership (Including GIAP)	\$ 0.00 (Paid prior to project start)	\$4,700.00
Class Supplies (Paper, copies, etc)	≈ \$200.00	≈ \$ 200.00
Preparation & teaching time (Instructor initial training & classroom costs of 50 hours x \$36.00/hour; teaching & prep. time donated by the DNP student to facility-AGH)	\$ 0.00	\$1,800.00
Total Proposed Costs		
	≈ \$200.00	\$6,700.00

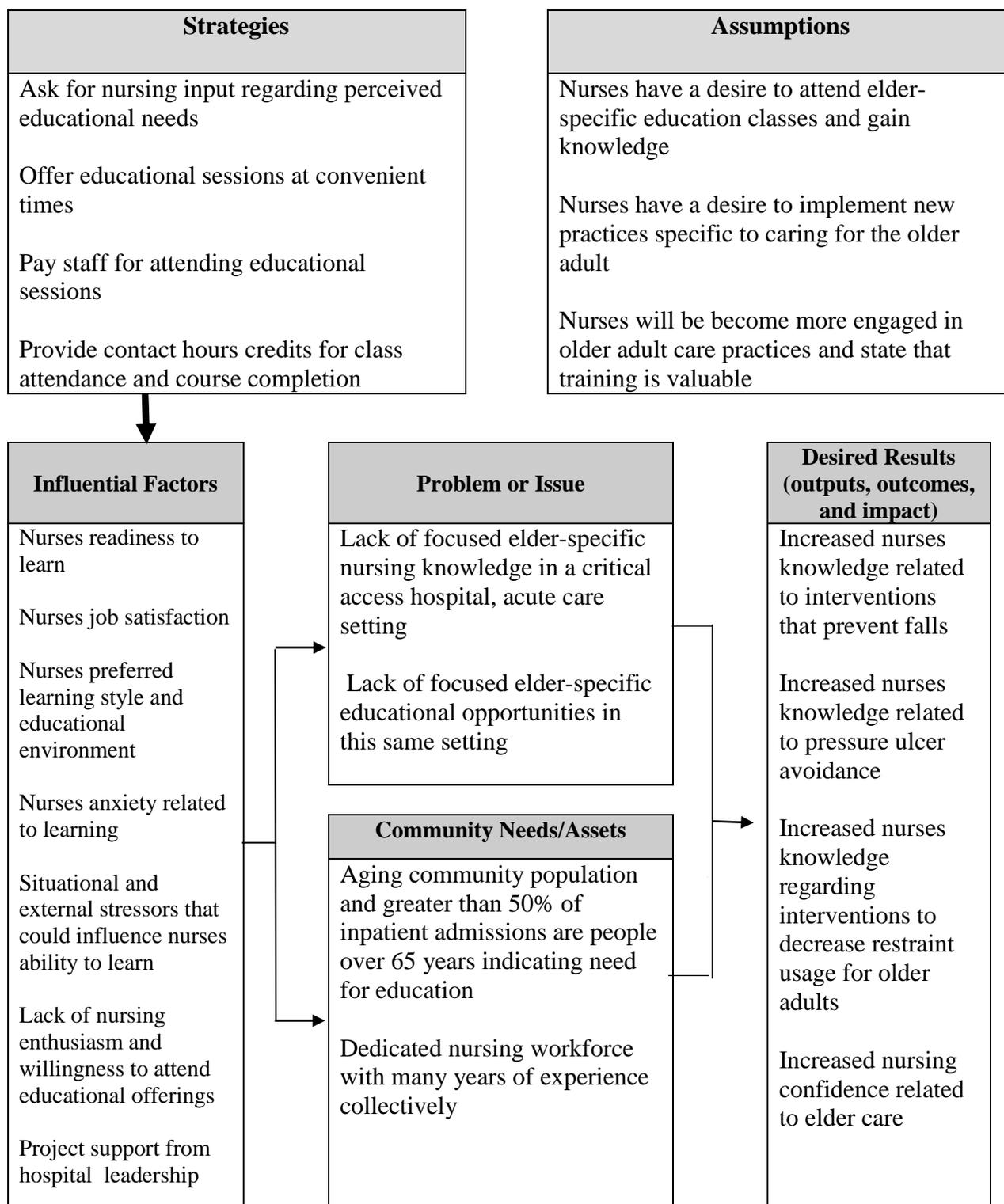
Appendix E

Capstone Timeline

Educational Timeline	Objectives & Benchmarks
August 2014	Problem Recognition & Needs Assessment
October 2014	Theoretical Underpinnings; Evaluation Plan; Logic Model
August 2015	Proposal & IRB Application Due to Dr. Berg
September 2015	IRB Approval to Dr. McGuire-Cullen
October 2015	GIAP Pre Education Survey
October - November 2015	Staff Education Provided
Dec. 2015 - January 2016	GIAP Post Education Survey
February - March 2016	Analyze GIAP Pre & Post Survey Results; develop Power Point & write final DNP Defense Paper
April 2016	Presentation of Capstone Defense and Submission of DNP Capstone Paper

Appendix F

Logic Model



Appendix G

Conceptual Diagram

RESOURCES/INPUTS	ACTIVITIES	OUTPUTS	SHORT & LONG-TERM OUTCOMES	POTENTIAL CONSTRAINTS
<i>In order to accomplish our set of activities we will need the following:</i>	<i>In order to address our problem or asset we will accomplish the following activities:</i>	<i>We expect that once accomplished these activities will produce the following evidence of service delivery:</i>	<i>We expect that if accomplished these activities will lead to the following changes in 1-3 then 4-6 years:</i>	<i>What might limit or restrict the NICHE educational sessions or the unit implementation</i>
<p>Nurses Improving Care for Healthsystem Elders (NICHE) team (six members)</p> <p>Hospital leadership support (written and monetary)</p> <p>Geriatric Resource Nurse (GRN) curriculum – available on website</p> <p>Qualified educator</p> <p>Rooms for education with PowerPoint capabilities</p> <p>Nurses who are willing to attend class and learn</p> <p>Unit implementation plan</p> <p>At least 30 participants attend educational sessions</p>	<p>Completion of web based NICHE leadership training program</p> <p>Develop a strengths, weaknesses, opportunities, threats (SWOT) assessment</p> <p>Develop an Action Plan & Select Pilot Units</p> <p>Allocate human and material resources</p> <p>Promote and educate about NICHE to Hospital Board of Directors and staff</p> <p>Implement Geriatric Institutional Assessment Profile (GIAP); a staff survey</p> <p>Apply for continuing education (CE) credits Provide nurses with four 4-hour educational sessions presenting information based on the Geriatric Resource Nurse Curriculum</p> <p>Repeat the GIAP 3-4 months post education</p> <p>Develop a plan for sustaining the NICHE program</p>	<p>Increased nurses knowledge related to interventions that prevent falls</p> <p>Increased nurses knowledge related to pressure ulcer avoidance</p> <p>Increased nurses knowledge regarding interventions to decrease restraint usage for older adults</p> <p>Increased nursing confidence related to elder care</p>	<p>Other healthcare disciplines will join the NICHE team (PT, OT, Dietitian)</p> <p>Creation of a Geriatric Resource Nurse on each unit</p> <p>Increased community support and hospital revenue</p> <p>Decrease in the number of patient falls, pressure ulcers, and physical restraints used facility-wide</p> <p>HCAHPS scores consistently above 85%</p> <p>Yearly increase in the number of Geriatric Certified RNs</p> <p>Ongoing & increased staff satisfaction</p>	<p>Lack of nursing enthusiasm and willingness to attend educational offerings</p> <p>Lack of willingness to complete the GIAP</p> <p>Less than 30 participants</p> <p>Lack of CE's attached to education</p>

Appendix H

Research Project Information Sheet



RUECKERT-HARTMAN COLLEGE FOR HEALTH PROFESSIONS
LORETTO HEIGHTS SCHOOL OF NURSING

Research Project Information Sheet

Project Title: Nurses Improving Elder Care Capstone Project

Investigator: Dr. Barbara Berg (Capstone Chair), Susie Sebright, PAC (Clinical Mentor), Kathy Chapman MSN, RN (Doctoral Student Investigator)

Explanation/Purpose: The current global population includes a greater number of older adults than at any other time in past history and the proportion of people 65 years and older in the United States during the past century has tripled. This population growth requires healthcare systems to implement effective and practical interventions to improve societal health, enhance the patient experience, and reduce the per capita cost of healthcare. A large number of baby boomers are approaching and surpassing the age of 65. As this trend continues, heavy demands may be placed on the healthcare structure creating a challenging situation regarding appropriate methods of adequately providing safe and effective care interventions to older adults requiring hospitalization. For these reasons listed, there is a need to investigate healthcare practices that are not only time and cost effective but also deliver high quality patient care. The aim of this experimental study is to investigate the impact of a focused elder care educational program on nursing staff members' knowledge and perceptions of care for hospitalized patients 65 years and older. This project is a requirement for obtaining a doctor of nursing practice degree.

Eligibility: Nursing staff members who are not students or completing orientation and who care for hospitalized patients 65 years and older.

Participation: Participation in the study is completely voluntary. If you decide to participate in this study, you may withdraw at any time without penalty or loss of benefits.

Procedure: Participants will be emailed a URL and asked to complete an online Geriatric Institutional Assessment (GIAP) survey. The survey contains mostly open-ended questions posed as statements and participants rate their answers on a 5 point scale. The survey takes approximately 15 minutes to complete. The participants will then have the opportunity to attend classroom education, read emails highlighting class objectives, and have access to online and paper assessment tools as well as case studies specific to the older adult population in a hospital setting. After the classroom education has concluded, the GIAP survey will again be made available. Findings will then be reviewed and discussed in a research paper and/or conference presentations.

Confidentiality and results: The results of your survey will be confidential as the survey does not contain any questions requiring identifiable information. Data will be stored in protected electronic format. The results of this study will only be used for scholarly purposes and participants will have access to the outcomes data through the research student's research paper, conference attendance, or potential future journal publications. This data may be used in future related research, publications of conference proceedings.

Risks/benefits: Participant risks are expected to be very minimal and include the potential for paper cuts, falls to and from class, learning anxiety, or lack of understanding. Benefits include increased knowledge and access to assessment tools for the purpose of greater nursing staff empowerment and having an active role in team collaboration resulting in positive patient outcomes.

Concerns: If you have any concerns or complaints regarding the way this research project is being conducted you may contact the Student Investigator, Clinical Mentor, and/or Capstone Chair

Contact:	Regis Institutional Review Board	Dr. Barbara Berg	Kathy Chapman
	303.458.4206	Capstone Chair	Student Investigator
	irb@regis.edu	bberg@worldclass.regis.edu	kchapman001@regis.edu
		303-964-5736	269-355-0318

The Investigator and University would like to thank you for your interest in this project and appreciate your effort and involvement.

Appendix I

Collaborative Institutional Training Initiative (CITI) Certificate

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM) COURSEWORK REQUIREMENTS REPORT*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

• **Name:** Kathy Chapman (ID: 4662365)
 • **Email:** kchapman001@regis.edu
 • **Institution Affiliation:** Regis University (ID: 745)
 • **Institution Unit:** Nursing

 • **Curriculum Group:** CITI Conflicts of Interest
 • **Course Learner Group:** Conflicts of Interest
 • **Stage:** Stage 1 - Stage 1

 • **Report ID:** 15217075
 • **Completion Date:** 02/04/2015
 • **Expiration Date:** 02/03/2019
 • **Minimum Passing:** 80
 • **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY

CITI Conflict of Interest Course - Introduction
 Financial Conflicts of Interest: Overview, Investigator Responsibilities, and COI Rules
 Institutional Responsibilities as They Affect Investigators

DATE COMPLETED

02/04/15
 02/04/15
 02/04/15

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

CITI Program

Email: citiprogram@miami.edu
 Phone: 305-243-7970
 Web: <https://www.citiprogram.org>

**COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COURSEWORK REQUIREMENTS REPORT***

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

• **Name:** Kathy Chapman (ID: 4662365)
 • **Email:** kchapman001@regis.edu
 • **Institution Affiliation:** Regis University (ID: 745)
 • **Institution Unit:** Nursing

• **Curriculum Group:** Human Research
 • **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
 • **Stage:** Stage 1 - Basic Course

• **Report ID:** 15217073
 • **Completion Date:** 02/06/2015
 • **Expiration Date:** 02/05/2018
 • **Minimum Passing:** 80
 • **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY

Belmont Report and CITI Course Introduction
 History and Ethical Principles - SBE
 The Federal Regulations - SBE
 Assessing Risk - SBE
 Informed Consent - SBE
 Privacy and Confidentiality - SBE
 Regis University

DATE COMPLETED

02/06/15
 02/06/15
 02/06/15
 02/06/15
 02/06/15
 02/06/15
 02/06/15

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid independent Learner.

CITI Program

Email: citi@unpmi.edu
 Phone: 305-243-7970
 Web: <https://www.citi-program.org>

Appendix J

Institutional Review Board Approval as Exempt Study Letter



IRB – REGIS UNIVERSITY

September 30, 2015

Kathy Chapman
10 Oak Court
Allegan, MI 49010

RE: IRB # 15-248

Dear Ms. Chapman:

Your application to the Regis IRB for your project, "Nurses Improving Elder Care", was approved as an exempt study on September 8, 2015. This study was approved per exempt study category of research 45CFR46.101.b(#1, #2, #4).

The designation of "exempt" means no further IRB review of this project, as it is currently designed, is needed.

If changes are made in the research plan that significantly alter the involvement of human subjects from that which was approved in the named application, the new research plan must be resubmitted to the Regis IRB for approval.

Sincerely,

A handwritten signature in black ink that reads "Patsy McGuire Cullen". The signature is written in a cursive style.

Patsy McGuire Cullen, PhD, CPNP-PC
Chair, Institutional Review Board
Professor & Director
Doctor of Nursing Practice & Nurse Practitioner Programs
Loretto Heights School of Nursing
Regis University

Appendix K

Geriatric Institutional Assessment Profile (GIAP) Measurement Tool

GIAP Scales & Subscales; Validity & Reliability

GIAP Scale	Content	# of Items	ICC*	Alpha Cronbach**
Geriatric Nursing Knowledge Scale	Knowledge of the assessment and nursing management of four common geriatric syndromes: pressure ulcers, incontinence, restraint use, and sleep disturbance	22	0.87	0.60 ¹
Geriatric Care Environment (GCE) Scale	Composite of the following 4 subscales	28	0.91	0.93 ⁷
Institutional Values Regarding Older Adults and Staff (GCE subscale)	Nurse perceptions of: respect for the rights of older adults, involvement of older adults and families in decision making and support of nurse autonomy and personal growth	7	0.86	0.84
Capacity for Collaboration (GCE subscale)	Nurse perceptions of: other disciplines' knowledge of geriatric care, use of geriatric protocols, and degree of conflict	3	0.82	0.83
Resource Availability (GCE subscale)	Nurse perceptions of: access to human and material resources specific to care of older adults and management support of communication with patients and families	8	0.86	0.90
Aging-sensitive Care Delivery (GCE subscale)	Geriatric specific, evidence-based, individualized care that promotes informed decision making, and is continuous across settings	10	0.91	0.94
Staff Disagreement	Disagreement among staff around treatment of common geriatric syndromes	10	0.89 ₈	0.91 ⁹
Staff / Family / Patient Disagreement	Disagreement between staff and patients families regarding treatment of common geriatric syndromes	10	0.88 ₈	0.93 ⁹
Use of Geriatric Services	Perception of the appropriate use of geriatric specialist and professional practices (conferences, journal clubs, rounds)	7	0.90 ₈	0.91 ⁹
Perceived Legal Vulnerability	Perceived legal vulnerability related to pressure ulcers, falls, restraint use, nosocomial infection and injuries related to sedating medication	6	0.92 ₈	0.92 ⁹
Perceived Upsetting Behaviors	Perceived frequency of patient behaviors that are upsetting	7	0.82 ₈	0.83 ⁹
Burden of Upsetting Behaviors	Perception of the degree to which patient behaviors are burdensome	7	0.92 ₈	0.87 ⁹

* ICC = Intraclass Correlation coefficients: measure of consistency for a data set when it has multiple groups

**Alpha Cronbach: measure of internal consistency; measures how well a set of items measure a concept

(NICHE Program, 2013)

Appendix L

Permission to Use Geriatric Institutional Assessment Profile (GIAP) Data Agreement

NICHE Benchmarking Service
Nurses Improving Care to Healthsystem Elders (NICHE)
New York University (NYU) College of Nursing

NICHE-GIAP Instrument & Benchmarking Data Agreement

By executing this agreement you are hereby applying for a limited license to use the NICHE-Geriatric Institutional Assessment Profile Instrument (GIAP Instrument) or a section of the GIAP. You and your organization agree to be bound by the terms and conditions of this NICHE-GIAP Instrument Agreement ("Agreement") and you, either as an individual or contracting on behalf of your organization, upon acceptance of this agreement by NICHE Benchmarking Service (Service), will become an Authorized User ("User") of GIAP Instrument. This Agreement governs all access to and use of GIAP Instrument including but not limited to all data derived either directly or indirectly from the use of GIAP Instrument.

As a User you are granted limited permission to access GIAP Instrument solely for the purpose of conducting your research study, entitled,

Nursing Staff Customizing Care for Older Adults

and for no other reason or purpose whatsoever. As a condition precedent to approval by the Service, User must provide the following: a brief summary of the research project including the research questions, a list of the GIAP variables that the User proposes that he/she will need to complete the research study and the names and organizational affiliation of all others who will have access to the GIAP Instrument. Students must also have a signed letter from their faculty sponsor indicating their acknowledgment of this study, and the sponsor's agreement to supervise the student and take responsibility for the students' full and complete compliance with the Agreement.

1. GIAP Instrument Content. The GIAP Instrument provided to the User will contain GIAP scales and variables as specified by the study objectives.

2. Use of GIAP Instrument. Only User is entitled to a copy of the GIAP Instrument (or scales or individual items) and User will be responsible for, and bear all expenses for all additional data analysis not included in the standard benchmarking report. Furthermore, User has the responsibility to insure that all others who will be included in the specified research study fully comply with the terms and conditions of the Agreement. User also agrees not to permit any other persons or entities other than those disclosed to the Service to have access to the GIAP Instrument, without the prior written permission from the Service.

3. Limitations. User may not copy, download, store, publish, transmit, transfer, sell or otherwise use GIAP Instrument, or any portion of GIAP Instrument, in any form or by any means, except as expressly permitted by this Agreement. User will not sell, license or distribute GIAP instrument to third parties or use GIAP Instrument as a component of or as a basis for any material offered for sale, licensz, distribution, or publication without prior written consent of the Service.

4. No Rights in Data. Except for the permission expressly granted in the Agreement, all rights, title and interest in GIAP Instrument Data, in all languages, formats and media, including all copyrights, are and will continue to be the exclusive property of the Service. User has no rights whatsoever in the GIAP Instrument.

5. Disclaimer of Warranties and Limitation of Liability. The Service makes no warranties and additionally disclaims all warranties, either express or implied, including, but not limited to, warranties of performance, fitness for a particular purpose, accuracy,

omissions, completeness, and delay.

6. No Assignment. User is not entitled to assign, sublicense or otherwise transfer the Agreement or any part of it or any of the duties or responsibilities of User under the Agreement to a third party without the Services' prior written consent. User is responsible for all access to and use of GIAP Instrument or sections of GIAP Instrument.

7. Termination. The Service may terminate the Agreement and access to GIAP Instrument at any time without prior notice to User, in its sole and absolute discretion. In no event shall the Service have any obligation to User as a result of said termination including but not limited to the obligation to pay any compensation or remuneration of any type or form to User. Sections 5 and 8 shall survive any termination of the Agreement.

8. Indemnification and Hold Harmless Agreement. User agrees to indemnify and hold the Service harmless for any and all liability whatsoever, which may result from the violation by User of any of the terms and conditions of the Agreement.

9. General Provisions. This Agreement constitutes the entire agreement between the parties with respect to GIAP Instrument and it supersedes all prior proposals and agreements, both written and oral. Furthermore, the Agreement may only be modified in writing signed by all parties.

This Agreement is to be returned to: Emma Hutchinson, NICHE, NYU College of Nursing, 250 Park Avenue South, 6th Floor, NY, NY 10003. You can also either fax (914-612-9168) or convert to a PDF/scanned document (send to email: emma@nicheprogram.org) for approval.

**READ AND AGREE FOR AND ON BEHALF OF:
THE USER THE SERVICE**

Signature: <u><i>Kathy Chapman</i></u>	Signature: <u><i>Barbara Bricoll</i></u>
Name: <u><i>Kathy Chapman</i></u>	Name: <u>Barbara Bricoll</u>
Title: <u><i>Chief Clinical Officer</i></u>	Title: <u>Executive Director</u>
Organization: <u><i>Albany Hospital</i></u>	Organization: <u>NICHE, NYU College of Nursing</u>
Date: <u><i>2-4-2016</i></u>	Date: <u>2-8-16</u>

Faculty Sponsor (if User is conducting study as part of student project):

Signature: *Barbara W. Berg*
 Name: *Barbara W. Berg, DNP, RN, CNS, PNP, CNE*
 Title: *Associate Professor*
 Organization: *Regis University Loretto Heights School of Nursing*
 Date: *2/8/16*