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Effectiveness of a Pilot Gerontological Nursing Certification Preparation Support Program for Registered Nurses Working in Long Term Care

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Abstract

This pilot project evaluated the effectiveness of a program to motivate and prepare registered nurses working in long term care to achieve gerontological nursing certification through the American Nurses Credentialing Center (ANCC) and informed planning for a sustainable program to increase the number of certified registered nurses within the organization. The organization provided payment for expenses associated with preparation materials for the certification examination and the actual cost of the examination for their participant employees. Other incentives provided by the organization included a one-year paid membership to the American Nurses Association, monetary bonuses, recognition of certification on the employee name tag and in the organizations newsletters. Preparation resources included all available preparation resources from ANCC, a timeline and study plan, additional study guides and resources, and individualized coaching.

Sample size was intentionally limited to six registered nurses who met certification eligibility requirements. Project evaluation included percentage of participants achieving certification, pre- and post-program knowledge testing, measurement of participant perceptions of program incentives, and the Perceived Value of Certification Tool© (American Board of Nursing Specialties, 2006). A post-program survey evaluated perceptions of the effectiveness of program educational and preparation resources.

A significant increase was found in post-program knowledge test scores. Participant perceptions of program incentives and values of certification were high and there were no statistically significant changes from pre- to post-program surveys. Participants indicated satisfaction with resources and provided feedback for possible program changes. Five of the six participants passed the certification examination on the first attempt. Continued data collection

and evaluation is recommended for future groups of certificants, including evaluation of impact on patient outcomes.

Effectiveness of a Pilot Gerontological Nursing Certification Preparation Support Program for Registered Nurses Working in Long Term Care

Between 2000 and 2025 there will be a 30% increase in the prevalence of Alzheimer's disease (AD) in Indiana (Alzheimer's Association, 2010). Many individuals with AD and related dementias are cared for in long term care communities. Adequate knowledge and expertise of nurses caring for older adults, particularly those with dementia, is important for the delivery of quality care and the promotion of quality of life for residents living in long term care. This pilot project examined the benefit of a resource support program to encourage Gerontological Nursing certification for registered nurses in the long term care setting.

Background and Significance

Incidence and Prevalence

According to the Alzheimer's Association (2012), there are an estimated 5.4 million individuals with AD in the United States. AD is the sixth leading cause of death in the U.S. and of the top ten leading causes of death, AD was the only disease where the death rate has increased, rising more than 66% from 2000 to 2008. Based on current morbidity statistics and projected demographic changes, the Alzheimer's Association estimates prevalence of AD, in individuals age 65 and older, will be between 11 million and 16 million by 2050. The number of new cases annually will reach over 600,000 by 2030 and nearly 1 million by 2050. Alzheimer 's disease International (2010) estimated 35.6 million individuals with dementia worldwide in 2010 and projected that number will climb to over 100 million by 2050.

Impact on Individuals and Families

AD is a progressively debilitating disease that negatively impacts the quality of life for those who are affected and for their informal family caregivers (Alzheimer's Association, 2012; Burgener, Marsh-Yant, & Nega, 2010). The disease results in financial strain, loss of personal

assets to pay for care, loss of independence, loss of self, social isolation, depression, and risk for exploitation and abuse. Family members and other loved ones who provide informal care to the AD sufferers often experience negative effects on their health and wellbeing, including financial strain, role strain, psychological distress, depression, fatigue, sleep deprivation, and disruption in family dynamics (Alzheimer's Association, 2012; Metlife, 2006). Goy and Kansagara (2010) conducted a systematic review of the literature and reported there was sufficient evidence to conclude that interventions to reduce caregiver burden may have a positive effect on both the caregiver's and the care recipient's quality of life. Early onset Alzheimer's disease (EOAD), defined as AD in individuals less than 65 years of age, affects an estimated 200,000 to 500,000 individuals in the U.S. In these cases, the devastating effects of the disease may negatively impact children living in the home. There is very little published research on the impact of AD on minor children of the affected individuals. The additional burden for caregivers of individuals with EOAD, where dependent children are adversely affected, is not clearly understood (Gelman & Greer, 2011). Nurses with expertise and knowledge in gerontological care will be more prepared to provide effective, family-centered care to improve quality of life for individuals and families coping with the devastating effects of dementia.

Impact on Healthcare Expenditures

According to the Agency for Healthcare Research and Quality (2011), average annual healthcare expenditures for elderly individuals who reported one or more cognitive disorders were $67,779 as compared to $37,575 for those without cognitive disorders. Significant differences were found in annual expenditures for those ages 75-84 and those over age 85. Further, individuals with cognitive disorders were more likely to be receiving Medicare and other public insurance, than private insurance or Medicare alone. Metlife (2006) found that the

cost of caring for individuals with AD at home were 31% higher than the cost of caring for individuals with serious physical illnesses. According to the national Alzheimer's Association (2010), total costs for care of individuals with AD are expected to rise dramatically, from an estimated $172 billion in 2010 to more than $1 trillion in 2050. Annual expenditures for AD care will increase more than 600% for Medicare and 400% for Medicaid by 2050. The Alzheimer's Association reported that in 2004 annual per-person healthcare and long-term care expenditures were three times higher for individuals with AD than for those without AD. Average Medicare expenditures for individuals without AD were $5,262, while expenditures for individuals with AD were $15,145. Even more dramatic, average Medicaid expenditures for those without AD were $718 and expenditures for individuals with AD were $6,605.

According to Alzheimer's Disease International (2010), estimated costs associated with informal caregiving, social services, and medical care for individuals with ADRD were over $6 billion in 2010 globally. This is equal to 1% of the world's gross domestic product (from 0.24% in low income countries to 1.24% in high income countries). Seventy percent of those costs were in North America and Western Europe. Interestingly, the estimated 2010 costs of care for AD exceeded the annual revenue of Walmart by nearly $200 billion and of Exon by nearly $300 billion. Alzheimer's International estimates there will be an 85% increase in ADRD related costs by 2030, reflecting an estimated increase to over $11 billion annually. While the fiscal impact is clearly a complex issue, increasing the number of nurses with gerontological knowledge and expertise may be one important factor in programming aimed at providing quality, cost-effective care.

Impact on Healthcare System

Increased numbers of individuals with AD, particularly the disproportionate increase in the numbers of individuals with severe dementia, will place additional demand on the healthcare system. There will be an increasing demand for physicians, nurses, advanced practice nurses, physical and occupational therapists, and social workers with expertise in gerontology and dementia care. Unlicensed assistive personnel will be in even greater demand (Alzheimer's Association, 2010). Education and training for these healthcare providers will require additional clinical and faculty resources for educational institutions.

National and State Government Plans to Address the Impact of ADRD

Based on findings from their 2010 report, Alzheimer's Disease International challenged world governments to increase attention to impact of ADRD, including resources for research and resources to provide adequate access to care for affected individuals and their caregivers. On January 4, 2011, the National Alzheimer's Project Act (NAPA) was signed into law by President Barack Obama. This legislation directed the U.S. Department of Health and Human Services (HHS) to establish a national plan for Alzheimer's disease, including increased research and services across all federal agencies. Objectives of the project included establishment of a national plan to conquer AD, development of more effective treatments, improved diagnosis and coordination and care, improved outcomes for ethnic and racial minorities, and coordination with global efforts to overcome AD. NAPA also established the Advisory Council on Alzheimer's Research, Care and Services to collaborate with HHS in development of the national plan (U.S. Department of Health and Human Services, 2012).

On February 7, 2012 President Obama announced a $156 million investment in AD research and services. The total investment in research for fiscal years 2012 and 2013 is $130

million. This includes immediate appropriation of $50 million of 2012 National Institute of Health funding to research for AD. Additional funding of $80 million for fiscal year 2013 was appropriated for AD research. The remaining $26 million was designated for initiatives associated with improved services to individuals with AD and the family caregivers, outreach and education for healthcare providers, outreach and education to improve public awareness, and improved data collection to monitor the impact of the disease (U.S. Department of Health and Human Services, 2012).

HHS released the National Plan for public comment on February 24, 2012 and the final plan was released in May 2012. The plan seeks to optimize and coordinate existing resources and services, support public-private partnerships in the fight against AD, and to transform the nation's approach toward AD. Goals include prevention and effective treatment by 2025, optimized quality and efficiency of care, expanded support for affected individuals and their families, improved public awareness and engagement, and improved tracking of progress and use of data to drive improvement. Toward the goal of improved quality and efficiency of care, the first identified strategy is to build a workforce to provide high-quality care. Actions include education of healthcare providers, encouragement of specialization in geriatric care, use of dementia-specific guidelines and curricula for all provider groups across the spectrum of care, improved training for the nursing home direct care workforce through the Affordable Care Act, support for states on strengthening their workforces and implementing state plans for AD.

Twenty-two states have developed state plans to address the impact of ADRD (Alzheimer's Association, n.d.). A summary of the goals and strategies in those plans revealed initiatives that are congruent with the goals of the National Plan. There are sixteen common categories of initiatives that fit within the overarching goals of the National Plan. Those

categories are increased public awareness, early detection and diagnosis, care and case management, health system capacity, training, workforce development, home- and community-based services, long term care, caregivers, research, brain health, data collection, safety, and legal issues. Appendix A provides an overview comparison of the 22 state plans. Thirteen other states, including Indiana, are in the process of developing state plans.

The Indiana Alzheimer's Disease and Related Senile Dementia Task Force Act (IC 25-10-5) was established by the Indiana legislature in 1992. By statute, the Task Force consists of 13 voting members and 4 non-voting members including two representatives from an AD support organization, a physician with expertise in AD, a psychologist with expertise in AD, three other individuals with expertise in AD, two direct care providers for individuals with AD, a family member of an individual with AD, the deputy commissioner of the department of health, director of the family and social services agency, a representative from the division of mental health, and two members of the Indiana legislature. The Act expires in December 2013 (IC 25-10-5, 1992). According to Carol Kramer, Task Force consultant, the Task Force was active for many years with an annual appropriation of approximately $100,000 going toward research and services for individuals with ADRD (personal communication, February 7, 2012). The task force was then idle in recent years until 2010 when the General Assembly amended the code, charging the Task Force to develop a state plan for addressing ADRD. In early 2011 Governor Mitch Daniels reappointed the Task Force and work on the state plan began.

As part of their early initiatives, the Task Force launched an on-line survey to determine the perceptions about the accessibility and quality of dementia care services (Indiana Alzheimer's Disease and Related Senile Dementia Task Force, 2011). The survey link was distributed through a variety of networking avenues available to Task Force members, the

Indiana Alzheimer's Association, and the Indiana State Department of Health Long Term Care Newsletter and remained open from May 2011 through September 30, 2011. There were 946 respondents, including individuals with ADRD (1.2%), family caregivers (56.1%), non-related informal caregivers (1.7%), professional health and social service providers (29.5%), staff and administration of government agencies (1.5%), an "others" category (7.8%), and those with missing data (2.2%). Each satisfaction question provided an opportunity for open-ended responses and there were over 2500 open-ended responses collected. Findings of the survey indicated that the perceptions of Indiana residents match very closely with the concerns identified by and addressed in the other state plans, as well as the National Plan. Table 1 provides an overview of survey responses.

Table 1

Indiana Alzheimer's Disease and Related Senile Dementia Task Force Survey Findings

Satisfaction with:	Very Satisfied or Satisfied	Very Dissatisfied or Dissatisfied	Don't Know or NA	Number of Comments	Responses N=
Affordability of dementia care	18.6%	56.5%	24.8%	196	801
Dementia care service options	31.6%	52.4%	18.0%	263	844
Education and training	31.5%	52.4%	16.0%	226	787
Support for families/caregivers	39.1%	45.8%	15.1%	189	797
Safety measures	32.0%	42.2%	25.8%	170	784
Access to dementia care	36.7%	37.1%	26.2%	157	804
Access to public information	52.9%	31.8%	15.3%	212	847

Note: Adapted from Indiana Alzheimer's Disease and Related Senile Dementia Task Force. (2011). Unpublished raw data

Among the concerns was an explicit recognition that healthcare providers across all spectrums of care and at all provider levels lack sufficient knowledge to provide quality, evidence-based care for individuals suffering from dementia. Qualitative analysis demonstrated that the majority of respondents (52%) were dissatisfied or very dissatisfied with education and training related to ADRD. Comments related to the need for greater education for healthcare providers and improved quality of care were included in open-ended responses for every item on the survey (16% of all responses). Table 2 provides an overview of open-ended response themes.

Table 2

Response Themes Related to Quality of Care and Need for Improved Provider Education

Satisfaction Item	Response
Satisfaction with public information.	• Perception that primary healthcare providers should assist patients and caregivers with information resources; many provide no assistance • Perception that many healthcare professionals are uniformed and need to be better educated • Conflicting information
Satisfaction with dementia care service options.	• 43 of 288 responses mentioned experiences with substandard care (15%) • HCP professionals and unlicensed assistive personnel under-educated in care of individuals with ADRD, even in dementia (memory) care units • Suggestions to increase mandatory training for CNAs and require training for other licensed providers

Satisfaction Item	Response
	• Poor staffing ratios in long term care facilities; underpaid CNAs • Substandard care in both long term care facilities and in hospitals; need for more governmental oversight • Patient injuries, patient on patient violence, disrespectful treatment, elopement from locked facilities • Tendency to sedate and little emphasis on maintaining functional ability and quality of life • Failure of HCP to provide information on resources
Satisfaction with access to dementia care services	• Quality care lacking
Satisfaction with affordability of dementia care services	• High costs are not consistent with quality of care provided; charges too high for substandard care provided, LTC and in-home services • Quality care is more available to those who have the ability to go to private pay facilities

Satisfaction with safety	• Limited access to quality care, specifically facilities and services with expertise to provide care for unique needs of patients with dementia
	• Specific Safety Issues
	  ○ Substandard Care: LTC, Assisted Living Centers, and Hospital Care
	  ○ Failure to respond in a timely manner in event of distress

Satisfaction Item	Response
	○ Poorly trained HCP ○ Lack of knowledge related to managing unique needs of patients with dementia ○ Physical injuries caused by staff
Satisfaction with support for families & caregivers	• Little assistance from primary HCP in identifying support services • Substandard care
Satisfaction with dementia care education and training	• Increase education for HCP in all care settings • Increase educational requirements for CNAs - 6 hours not sufficient • Mandatory dementia care education needed for all licensed healthcare providers • Currently available training programs not paid for by employers and not readily available for HC professionals
Suggestions for Creative Solutions	• Better agency funding ○ Improve reimbursement to nursing homes: better staff training, improved pay for CNAs ○ Funding for HC employers to provide education to staff • Improve Care, Quality and Safety ○ Better educated healthcare workforce (physicians, nurses, CNAs, home health aides, community first-responders); specialized licensing for care providers ○ Greater emphasis on quality of life and maintaining functional

Satisfaction Item	Response
	ability to maximum extent possible; protection of patient dignity o Improved care coordination
Needed/Suggested Resources	• Perhaps scholarships/waived fees for dementia care course through community college • Student loan reimbursement/forgiveness for nurses in the state willing to work with the geriatric population and/or Alzheimer's/dementia • Promote education/training options for young people looking for and needing jobs. • Educate employees and officials in public agencies about communicating with patients and their families (e.g. ISDH surveyors, FSSA employees)

Note: Adapted from Indiana Alzheimer's Disease and Related Senile Dementia Task Force. (2011). Unpublished raw data

Purpose Statement

Provision of competent, evidence-based care to support individuals with ADRD and their family caregivers is an essential component in controlling individual, family, and societal costs associated with dementia care. The National Plan and published state plans address the importance of initiatives aimed at a more competent workforce across the spectrum of care. Twenty of the twenty-two completed state plans include initiatives focusing on training and/or workforce development (U.S. Department of Health and Human Services, 2012; Alzheimer's

Association, n.d.). The primary objective of this pilot project was to determine the effectiveness of a resource support program to motivate and prepare registered nurses working in long term care to achieve American Nurses Credentialing Center (ANCC) Gerontological Nursing Certification. The long term objective is to utilize lessons learned in the pilot project to develop a sustainable program to promote and support registered nurses within the system to achieve Gerontological Nursing Certification. The ultimate goal is to provide a more educated registered nurse workforce to effectively meet the healthcare needs of long term care residents, including those with ADRD. The questions to be addressed by this pilot project included the following:

1. Among registered nurses working in long term care, is a preparation program utilizing a variety of educational resources and individualized coaching effective in supporting achievement of gerontological nursing certification?
2. Among registered nurses working in long term care, is a gerontological nursing certification preparation program effective in increasing nursing knowledge of care of the gerontological population?
3. What incentives and benefits are perceived as important in encouraging registered nurses working in long term care to seek gerontological nursing certification?
4. Which program educational components are perceived as effective in preparing registered nurses working in long term care to achieve gerontological nursing certification?

Literature Review

A review of the literature was conducted using Ebsco Host and Proquest databases. Other search sites included the National Institutes of Health, the Agency for Healthcare Research and Quality, and the Cochrane Database of Systematic Reviews. Search terms included nursing

certification, continuing education, staff development, certification review, gerontological nursing, dementia care, and patient outcomes. Additional primary sources were discovered from reference lists of previously acquired literature. Included articles were published after 2005, with the exception of one seminal study of perceived value of certification published in 2003. Only studies involving certification or continuing education of staff nurses were included. Articles that exclusively reported findings related to advanced practice nursing were excluded. Appendix B provides a detailed summary of included studies.

The literature search returned relatively few recent studies. There were three general categories of research focus related to certification: (a) the impact of certification on the nurse, (b) the impact of certification on patient outcomes, and (c) certification preparation and continuing education programs. The strongest evidence was related to the impact of certification in acute care settings, while evidence related certification in long term care was minimal. Further, there is little quality evidence related to the effectiveness of certification programs. Only two studies addressed certification of nursing staff in long term care, although several studies were noted related to certified nursing assistants. (Kuske, Hanns, Luck, Angermeir, Behrans, & Reidell-Heller, 2007; West Central Indiana Area Health Education Center, 2010).

Three studies examined continuing education in gerontological nursing or long term care settings, including one systematic review (Kuske, et al., 2007; Wendell, Durso, Cayea, Arbaje, & Tanner, 2010; West Central Indiana Area Health Education Center, 2010). No studies were identified that specifically addressed gerontological nursing certification. Strength of methodology was varied. Most studies were descriptive in nature, without randomized samples. Table 3 provides an overview of study settings and specific certifications.

Table 3

Summary of Settings and Certifications for Included Studies

Author(s)/Year	Clinical Setting	Certification
American Board of Nursing Specialties (2006); Niebuhr & Biel (2007)	Not specified	Multiple
Brown et al. (2010)	Not specified	Oncology Nursing
Fitzpatrick et al. (2011)	Critical care	Critical Care Nursing
Gaberson et al. (2003)	Not specified	Perioperative (CNOR) First Assistant (CRNFA)
Jenkins & Smith (2008)	Not specified	Nursing Professional Development Specialist
Kendall-Gallagher et al. (2011)	Non-federal hospitals	National certification; type not specified
Krapohl et al. (2010)	Intensive care	Not specified
Kuske et al. (2007)	Nursing homes	N/A (gerontological continuing education)
McCarthy (2010)	Not specified	Critical Care Registered Nurse
Sayre et al. (2010)	Multiple	Medical-Surgical Nursing
Sechrist et al. (2006)	Perioperative	CNOR CRNFA
Wade (2009)	Oncology (2 studies) Perioperative (3 studies) Public health (2 study) Mixed (6 studies)	Not specified
Wendell et al. 2010)	Hospital	N/A (gerontological nursing continuing education)
West Central Indiana Area Health Education Center (2010)	Hospital Long Term Care	N/A (continuing education)
Wyatt & Harrison (2010)	Multiple settings	Pediatric nursing
Zulkowski & Wexler (2007)	Multiple settings	Wound care certification Other specialty certifications (grouped together): medical-surgical nursing, geriatrics, oncology, nurse practitioner

Impact of Certification on the Nurse

The impact of certification on intrinsic rewards has been consistently demonstrated in study findings. Intrinsic rewards include such benefits as personal achievement, enhanced professionalism, and job satisfaction. While sample selection limits generalizability, findings demonstrate a growing body of evidence that certification has a positive impact on nurses (Wade, 2009).

Wade (2009) conducted a review of literature and found 12 studies published between 2001 and 2007 related to the perceptions of certified nurses regarding the benefits of specialty certification. The most consistent findings linked certification and perceived intrinsic benefits, a sense of empowerment, and strengthened collaboration with other professionals. Ten studies examined intrinsic value and nine of those found positive association with certification. Six studies examined the relationship between certification and nurses' perceptions of empowerment. Of the six, five found a significant relationship. Eight studies examined the relationship between certification and collaborative relationships with other professionals, including seven that reported a positive association.

Gaberson, Schroeter, Killen, and Valentine (2003) conducted a study to examine the perceived value of certification among registered nurses with Perioperative (CNOR) or First Assistant (CRNFA) certification using the Perceived Value of Certification Tool (PVCT). The value statements with the strongest agreement ($\geq$ 90%) were for the benefits of personal challenge and accomplishment, personal satisfaction, validating knowledge, professional growth, attainment practice standards, professional commitment, and professional credibility. The only items with less than 50% of respondents rating agreement or strong agreement were that certification increased pay and increased consumer confidence.

Sechrist, Valentine, and Berlin (2006) used the PVCT to examine similarities and differences among certified, non-certified, and administrative (certified and non-certified) perioperative nurses. Similar to the findings of Gaberson et al. (2003), more than 50% of respondents in all three groups agreed or strongly agreed with 16 of the 18 of the value statements. Only increased pay and increased consumer confidence had less than 50% agreement. Further, Sechrist et al (2006) found that non-certified nurse overall PVCT scores were significantly lower than certified or administrative nurses. Work role, age, and years of certification had no significant relationship to total PVCT scores. The most frequently cited barriers were cost, lack of institutional support, and lack of institutional reward for certification.

The American Board of Nursing Specialties (ABNS, 2006) conducted a study to examine the perceptions of the value of certification among certified, non-certified, and administrative nurses from multiple specialty organizations. Participants were randomly sampled from among ABNS member organization. There were high levels of agreement (71% to 98% of respondents who agreed or strongly agreed) with all value statements, except the statement that increased salary was a benefit of being certified (41%). While certified nurses had higher levels of agreement, both certified and non-certified nurses rated those value statements positively. Similar to the findings of Sechrist et al. (2006), the most commonly cited barriers to certification were cost of certification, lack of institutional support, and lack of institutional reward for certification. There was no clear link to missed work days or intent to stay employed (ABNS, 2006; Niehbur & Biel, 2007). Brown, Murphy, Norton, Baldwin, and Ponto (2011) extracted data from the ABNS study to conduct a secondary descriptive study on oncology nurse perceptions of the value of certification. Similar to the large study, there were high levels of agreement among both certified and non-certified nurses for all value statements except salary.

Krapohl, Manojlovich, Redman, and Zhang (2010) examined the relationship between certification and nurses' perceptions of conditions of workplace effectiveness. The sample included 866 nurses working in Michigan intensive care units. A positive relationship was found between certification and nurses' perceptions of workplace empowerment ($p = .05$).

Fitzpatrick, Campo, and Lavendero (2011) examined whether nurses' perceptions of empowerment and intent to leave a position or intent to leave nursing varied between certified and non-certified critical care nurses. No significant differences were found with regard to overall empowerment scores or intent to leave position or nursing. Certified nurses had significantly higher informal power, support, and opportunity subscale scores than did non-certified nurses.

Wyatt and Harrison (2010) studied the impact of pediatric nurse certification on job satisfaction and other nurse satisfaction variables. Eighty-eight percent of the certified pediatric nurses rated job satisfaction as good or excellent. Employer recognition of certification was an important factor in job satisfaction (57%). Forms of employer recognition included plaque ceremony, credential included on name badge, congratulatory notice in newsletter, reimbursement for certification, and clinical ladder advancement. Over 70% of respondents indicated that certification had a positive impact on patient and family satisfaction. Motivations for certifications included a personal sense of achievement (93%), professional recognition (63%), and validation of clinical competency (57%).

Impact of Certification on Patient Outcomes

The association between certification and patient outcomes is less clear in the literature. Findings on the impact of certification on patient outcomes have been inconsistent. In general,

there is little evidence that certification alone has a significant impact on improvement in patient outcomes.

Zulkowski, Ayello, and Wexler (2007) examined whether wound care certification and education affected pressure ulcer knowledge among nurses with wound care certification, other specialty certification, or no certification. Wound care certified nurses had significantly higher knowledge scores than those with other specialty certifications and non-certified nurses ($p < .00$) Further, wound care certified nurses were significantly more likely to utilize knowledge resources related to pressure ulcer ($p < .05$).

Kendall-Gallagher and Blegan (2009) explored the relationship between nurse certification and adverse patient outcomes in intensive care units. Measurement of adverse patient outcomes included medication errors, falls, skin breakdown, urinary tract infections, central line infections, and sepsis. Data analysis included controls for hospital and nursing staff characteristics. The only significant finding related to certification was an inverse relationship between proportion of certified staff and fall rate ($p = .04$). Years of staff nurse experience was inversely related to frequency of UTI ($p = .01$). Total hours of patient care per patient day was positively related to medication errors ($p=.006$).

Kendall-Gallagher, Aiken, Slone and Cimiotti (2011) examined the association of percentage of nurses with specialty certification on risk-adjusted inpatient mortality and failure to rescue in acute care hospitals. Findings indicated that an increase of 10% in BSN and certified nurses resulted in 2%-6% decreased odds for 30-day inpatient mortality and failure to rescue. No significant association was found when certification was considered alone. Although the Kendall-Gallagher et al. study involved a very large sample, Blegan (2011) noted that limitations included potential confounding variables associated with hospital characteristics, including

physician board certification, quality improvement initiatives, patient hours, type of certification, and length of certification.

Krapohl et al. (2010) examined the relationship between nursing certification and nurse-sensitive outcomes of central line infection, ventilator assisted pneumonia, and pressure ulcers in intensive care units. No significant relationships were found between certification and nurse-sensitive outcomes. As previously noted, there was a positive significant association between certification and nurses' perception of workplace empowerment (p=.05).

Certification Preparation and Continuing Education Programs

The strength of evidence of the effectiveness of certification preparation and continuing education programs on improvement of nursing knowledge or patient outcomes was generally weak. Kuske, et al. (2007) conducted a systematic review of the literature on dementia care education in national and international long term care settings, including 21 studies published between 1990 and 2004. Although most studies reported positive results, the evidence on efficacy of educational programs on dementia care is weak due to an absence of rigorous evaluation methodologies.

The West Central Indiana Area Health Education Center (2010), in partnership with Indiana State University, sponsored a study of the continuing education needs of staff nurses working west central Indiana hospitals and long term care communities. Among other findings, nurse managers reported needs that might be associated with certification and continuing education. Those with highest priority (>50% high, very high priority) were motivating staff, teaching new staff, handling performance issues, and using a computer. There were many needs noted as high priority among staff nurses. Those that might be associated with certification and continuing education with > 50% high or very high priority included lifelong learning (67%),

utilizing on-line learning (50%), knowledge of facility standards of care (66%), implementing standards of care (58%), and implementing evidence-based care (59%).

Jenkins and Smith (2008) reported on the implementation of a two-day continuing education program to prepare nurses for certification for nursing professional development specialists. The program received good to excellent ratings from program participants on meeting overall objectives, facilities, and speakers. Comments provided information on potential areas for improvement, including more time to practice and discuss questions like those expected on the certification examination. Additionally, comments suggested that presenters should be certified. Only ten participants (42%) responded to a follow-up survey. Eight of those participants had passed the certification exam and two had not taken exam.

McCarthy (2010) described the process of development of a cost-effective, four-week critical care nursing certification review. Participant ratings of method of learning, teaching effectiveness, and timing of the course were all average to excellent. Among participants of the first class, six of seven reported they had passed the certification examination.

Sayre, Wyant, and Karvoven (2010) described the effects of a 14-week medical-surgical nursing certification preparation course on nurses' perceived self-confidence, competence, leadership, and initiative. Participants agreed or strongly agreed that the 14-week course had a positive impact on self-confidence (87%), competence (82%), leadership (60%), and initiative (82%); Seventy-six percent of participants agreed or strongly agreed that the course had a positive impact on all four areas.

Wendell et al. (2010) examined the impact of gerontological nursing education on knowledge and work satisfaction of hospital nurses. Baseline knowledge subscale scores were lower for control group than for treatment group ($p=.011$). However, no significant differences

were found in the pre-and post-treatment knowledge scores between the control or treatment groups. Participants reported general satisfaction with program.

Theoretical Framework

The organizing framework for this project was the Bandura's theory of self-efficacy (Bandura, 1997). Self-efficacy is an individual's perception of his or her ability to successfully achieve a specific outcome. Self-efficacy impacts cognition, motivation, and affect. An individual's level of self-efficacy is an effect of the reciprocal interactions between the person, behaviors, and the environment (Resnick, 2008).

According to Resnick (2008), the two major attributes of self-efficacy are self-efficacy expectations, or perceived capability, and outcome expectations, the perceived likelihood and benefits of being successful. While these are interdependent, each attribute can independently impact motivation. An individual's judgment of self-efficacy is derived from four sources of information: a) the individual's direct experiences with the activity, b) vicarious experiences attained from previous related experiences or observation of others in the activity, c) judgments of credible others, and d) physiologic feedback cues of comfort or anxiety.

Schunk (2001) identified strategies that foster self-efficacy. Goal-setting is important to reinforce a positive perception of the individual's experience. Project participants were guided in time-delineated formative and summative goal-setting to prepare for the certification examination. Other strategies include modeling of cognitive strategies, including positive self-efficacy self-talk; emphasizing the individual's focus on successful attainment of skill subsets; providing positive incentives; and encouraging individuals to identify and verbalize successful learning strategies. Table 4 provides an overview of the self-efficacy concepts and specific strategies used to frame project activities.

Table 4

Application of Self-efficacy Concepts as a Framework for Project Components

Self-efficacy Concepts	**Strategy**	**Project Components**
Direct experiences	Goal-setting	• Detailed preparation plan with formative and summative goals established
Direct experiences	Focus on attainment of skill sub-sets	• Individualized coaching • Journaling of end of chapter practice quizzes and topical areas for remediation • Attainment of 30 hours of continuing education credit • On-line practice examinations
Direct experiences	Providing incentives	• Paid 1-year ANA membership • Preparation and certification costs covered by employer • Monetary reward for certification and participating in mentoring peers • Recognition of certification on employee name badge • Recognition of certification in newsletter
Vicarious experiences	Modeling cognitive strategies	• Email networking with other project participants
Judgment of credible others	Modeling cognitive strategies	• Individualized coaching
Physiologic feedback	Modeling cognitive strategies	• Journaling affective experiences related to comfort level with content and progress in preparation

Methods and Procedures

Research Design

An outcome documentation, one group design was used for this project. The pilot project accomplished the first plan-do-study-act cycle of the model for improvement (Institute for Health Improvement, 2011). The outcome documentation study design allowed for initial evaluation of effectiveness of project strategies. Evaluation, including feedback from participants, was used to

guide development of a sustainable initiative to increase the number of certified registered nurses throughout the system.

The project occurred over a period of five months. Participants were provided continuing education and preparation materials, a detailed preparation plan, coaching, and financial support to cover the costs of preparation materials, required continuing education hours, and certification exam registration. Table 5 provides an overview of preparation content. Participants were provided monetary incentive to achieve certification. Further, as part of the post-pilot sustained program, the participants will be provided an additional monetary incentive to mentor other nurses through the certification process. Recognition of certification will be provided by acknowledgement on the employee name badge and recognition in organization's newsletters following completion of the pilot program.

Table 5

Content of Continuing Education and Certification Preparation

Discharge Planning in the Long Term Care Setting (3 hour CE)	
Gerontological Nursing Certification Review Manual (27 hour CE):	
Taking the Certification Exam	Medications
The Older Adult	Nutrition, Hydration, Electrolytes, & Acid-Base
Gerontological Nursing Practice	Health Promotion and Wellness
Theories of Aging	Chronic Illness
Gerontological Nursing Issues	Lifestyle, Health Changes, & Vulnerability
Mental Health	

Participants and Sampling

A convenience sample of six participants was selected from registered nurses working in long term care facilities in southern Indiana. These facilities are part of a health services company that operates senior health communities throughout Kentucky, Illinois, Indiana, Ohio and Michigan. Participants were required to have the equivalent of two years of work experience as a registered nurse and a minimum of 2000 hours clinical practice in gerontological nursing within the past three years in order to meet eligibility requirements for the gerontological nursing certification examination. The small sample size was appropriate to the purpose of this pilot project as the first cycle of a larger quality improvement initiative.

Setting

The workplace for project participants included three healthcare communities in rural southern Indiana communities. Each facility provides assisted living, long-term care, skilled nursing, and transitional care. Additionally, three offer adult day services, two provide memory care, and one provides respite care. All three communities provide services that impact individuals with Alzheimer's Disease and related dementias.

Participants were expected to complete most project activities on their own time, in their homes. However, with the approval of their supervisors, participants could spend down-time at work to study. The project director communicated with participants every one to two weeks, alternating phone/email contact and face to face meetings.

Instruments

Participants were asked to keep a journal on the progress made in certification preparation. This journal was used as a formative tool to guide participant-coach discussions and to make necessary process improvements during the program. As part of the program, participants completed the American Nurses Association continuing nursing education (CNE)

course associated with the ANCC Gerontological Nursing Review and Resource Manual. The 20-question Gerontological Nursing Review and Resource Manual Continuing Education Pretest, which is included in the CNE course, was used as one method to evaluate effectiveness of the program to increase gerontological nursing knowledge. No validity and reliability data are available for this test.

The Perceived Value of Certification Tool© (PVCT) was administered pre- and post-certification. Information gained from this tool provided information related to participant perceptions of the value of the program. Further, this information will be useful in recruitment of future participants in the long-term initiative to increase the number of certified nurses. The PVCT, developed by the Competency and Credentialing Institute, uses a 5-point Likert-type scale to measure level of agreement or disagreement with 18 value statements associated with perceived intrinsic rewards and extrinsic rewards of nursing specialty certification (American Board of Nursing Specialties [ABNS], 2006). Evaluation of internal consistency, using Cronbach alpha was not planned for this project due to the small sample size. According to Yurdugul (2008), the minimum sample size for Cronbach alpha is 100. Gaberson et al. (2003) reported strong internal consistency ($\alpha = 0.924$) in a pilot test of the PVCT with a sample of 239 certified perioperative nurses. Sechrist, Valentine, and Berlin (2006) also reported strong internal consistency of the tool in a study of 4500 randomly selected perioperative nurses. The overall alpha coefficient was 0.94. The alpha coefficients were similar among non-certified nurses, certified nurses, and administrators ($\alpha = 0.924$, 0.92, & 0.93 respectively).

In addition to the PVCT, an author-developed survey was used to gather data on participant prior education and work experience, perceived importance of program incentives, perceived effectiveness of the program, and open-ended questions to provide feedback for

improving the program processes. Evaluation instruments and copyright permission for PVCT are found in Appendix C.

Key Personnel and Stakeholders

Key personnel included the volunteer project director, the organization's regional director for campus support and clinical services, and the organization's vice president for the Foundation and Community Outreach. The volunteer project director also served as a preparation coach for project participants. In addition to project personnel, other key stakeholders included registered nurse participants, corporate management members, management team members at each of the involved facilities, other nursing staff members, and facility residents.

Potential Barriers to Implementation and Sustainability

The greatest potential barrier to implementation and completion was sustained motivation of the participants to complete preparation activities and take the certification exam. A major focus of coaching was to provide ongoing support and encouragement for formative and summative goal attainment. Other barriers included a delay for participants to purchase materials, as the result of initial confusion about financial reimbursement. However, ample time was built into the project plan and participants were able to complete project activities in a timely manner, despite the initial delay. Sustainability of the initiative beyond the pilot project will be dependent upon continued financial support, continued interest and support from administration, and commitment of the initial group of certificants to mentor and support other candidates.

Data Collection and Data Analysis

Data collection allowed for both formative and summative evaluation of project activities. Demographic data included nursing educational background, years of registered nurse experience, and years of long term care experience. In addition to demographic data, a pre-program questionnaire and a knowledge-based pre-test were collected at the initiation of the

project. Participants were provided a journal template to document self-assessment of formative goal achievement, including practice quiz performance and identification of remediation needs. Participants were asked to provide documentation of completion of 30 continuing education hours required for certification eligibility and documentation of completed certification application eight weeks prior to the target examination date. A post-program questionnaire and a knowledge-based post-test were collected at the conclusion of the project. Finally, data was collected on certification attainment as soon as it was available following examination. Analysis of pre- and post-questionnaire data involved a comparative descriptive analysis of participants' item agreement ratings. Data from the open-ended questions was categorized and used to identify strengths, weakness, and suggestions for improving program components.

Ethical Considerations

In addition to the intrinsic reward of personal and professional growth, benefits to participants included monetary assistance to cover certification preparation and registration costs, a one-year paid membership in the American Nurses Association (ANA), nominal paid time off to participate in the project activities, a $250 bonus upon successful attainment of certification, an additional $250 bonus at the completion of a follow-up year providing mentorship to other nurses in certification preparation, and recognition by employer on name badge and in organization newsletters.

Potential risks to participants were minimal. Participants were expected to experience mild performance anxiety related to the taking the certification exam. The stressor of additional time spent in preparation activities may have produce mild anxiety, depending on participants' personal and professional demands. There was a potential for participants to experience negative emotion in the event that the certification examination was not passed.

Participation in the program was voluntary. Participants were provided a letter outlining the nature of their commitments prior to the start of the program. Consent to participate was obtained prior to the participant's voluntary participation in program activities. The consent letter, including pre-program and post-program questionnaires, is included in Appendix C.

Budget

Project costs included ANA membership, purchase of the ANCC self-study manual, purchase of on-line practice questions and a test-taking strategies course through ANCC, continuing education credit fees, and the ANCC certification application fee. Additional costs included minimal copying costs, paid time off for participants, a $250 bonus for each participant that achieves certification, and outside the scope of the project is an additional $250 bonus for participants who complete mentoring to assist the next cycle of certification applicants. Appendix D provides a detailed copy of the project budget.

Approvals

Permission to conduct research associated with the project was granted from the Bellarmine University Institutional Review Board through an expedited approval review. Approval for the project was also granted by the Regional Director of Campus Support and Clinical Services of the health services company.

Evaluation

Evaluation of the project included five components. First, the journal template was intended to be reviewed regularly by the project director to provide coaching and to provide formative evaluation of progress and potential barriers to program completion. However, none of the participants consistently used the journal. Program adjustments were made as necessary to

address any problems or potential barriers reported by participants in electronic and/or face to face communications.

The other four components addressed in summative evaluation of the effectiveness of the program were pre- and post-project measurement of participant gerontological nursing knowledge, pre- and post-project measurement of perceived value of certification and program incentives, post-project measurement of participant perceptions of the effectiveness of specific learning resources to prepare for the certification examination, and percentage of participants achieving certification.

In addition to percentage of participants passing the certification examination, evaluation of increased gerontological knowledge occurred through analysis of the participants' scores on the pre- and post-program knowledge-based test. The evaluation included a descriptive analysis of the mean and the range of pre-test and post-test scores. Paired t-test analysis was conducted to determine the significance of change in participant pre- and post-program scores. Due to the small sample size, analysis of test reliability was not conducted and there were no citations found in the literature reporting reliability for this test.

Evaluation of participant perceptions of the program incentives and benefits to motivate nurses to seek certification was accomplished by analyzing participants' ratings on the pre- and post-program questionnaires and PVCT. Descriptive analyses were conducted to determine mean and range for scores on both tools. Due to the small sample size, no analysis of reliability for these tools was possible. As previously discussed, there are Cronbach alpha coefficients documented in the literature that support reliability of the PVCT in other samples; however, there is no reliability data available for the author-developed survey of perceived program incentives.

Effectiveness of program components to adequately prepare participants for the certification examination was measured by participants' ratings of program learning components and feedback obtained from the open-ended response items on the post-program questionnaire. Descriptive analysis of participant ratings included mean rating and range for each of the program components. Examination of participant feedback employed a typologic, content analysis qualitative approach.

Results

Participant Nursing Degrees and Years of Experience

All participants were registered nurses. One participant held a baccalaureate degree in nursing. One participant held an associate degree in nursing. Four participants had earned both a diploma in practical nursing and an associate degree in nursing. No participants reported completion of a hospital-based diploma nursing program, graduate nursing degree, or other degrees.

Among those participants with experience as a licensed practical nurse, years of experience in that role ranged from 1 year to 21 years, with a mean of 7.1 years. Years of experience in the registered nurse role ranged from 2.5 years to 15 years, with a mean of 8.1 years. Long term care experience ranged from 4 years to 28 years, with a mean of 11.3 years.

Formative Evaluation

Because participants did not consistently use the journal template to document preparation activities, formative evaluation was accomplished by anecdotal feedback received during electronic and face-to-face communications. A delay was encountered at the onset of the project related to the method of disbursement of payment for project expenses. This was resolved

within one week and participants were provided with a lump sum disbursement to cover all recommended program expenses.

Participants indicated a need for additional study resources related to interpretation of laboratory values, including interpretation of arterial blood gas results, theoretical models related to gerontological nursing, and alternative therapies. Additional study resources were developed and disseminated to participants during the course of the program, based on this feedback regarding learning needs. Additionally, one participant experienced difficulty registering for the certification exam and required assistance from the coach for resolution of the problem.

Communication between the coach and participants was difficult. Email for one-way communication was effective to distribute information; however, responses to emails by participants were inconsistent. Phone communication often required coach and participants to leave multiple messages before communication was successful.

Summative Evaluation

Achievement of Gerontological Nursing Certification

Five of the six participants passed their certification exam on the first attempt. One participant did not pass the exam and indicated intent to re-test. Five of the six participants indicated they felt prepared to coach other nurses in preparing for certification. All six participants indicated they would recommend the program to other nurses.

Nursing Knowledge

Pre-project test scores ranged from 45% to 70% correct responses, with a mean of 59%. Post-project test scores ranged from 65% to 90% correct responses, with a mean of 73%. A paired t-test was conducted to compare pre-program scores and post-program scores. There was a significant increase from pre-program to post-program scores, as shown in Table 6.

Table 6

Comparison of Pre- and Post-Program Knowledge Test Scores

Pre-Program $N = 6$		Post-Program $N = 6$				
M	*SD*	*M*	*SD*	*t*	*df*	*p*
59	8.612	73	8.756	-3.782	5	.013

Perception of Incentives and Value of Certification

Perception of the importance of program incentives was measured on a 4-point scale from strongly agree (4 points) to strongly disagree (1point). Participants strongly agreed or agreed that each of the program incentives was important as a motivator to achieve certification, with the exception of paid time off for participation. On the pre-project survey all participants strongly agreed that paid time off was important. However, on the post-project survey, two participants strongly agreed, two participants agreed, one participant disagreed, and one omitted the item noting that none was provided. A composite scale score was calculated for the eight questions, with a possible score range of 7 – 28 and higher numbers representing stronger agreement. Because there was missing data from one participant on one item, there were five participants included in the sample for the composite score. Paired t-tests were conducted for all items related to program incentives, as well as for the composite scale. No significant differences were found between pre-program and post-program ratings of program incentives. Table 7 provides paired t-test findings for the composite scale scores.

Table 7

Comparison of Pre- and Post- Program Perceptions of Program Incentives

Pre-Program $N = 5$		Post-Program $N = 5$				
M	*SD*	*M*	*SD*	*t*	*df*	*p*
27.4	.894	26.2	2.168	1.177	4	.305

Perception of value of certification was measured by the PVCT on a 4-point scale from strongly agree (4) to strongly disagree (1). Although there were none in this sample, "no opinion" responses would be excluded. For both the pre-program and post-program PVCT, participants strongly agreed or agreed with all perceived values of certification statements. However, participants rated several statements lower on the post-program survey. Participants tended to rate value statements associated with intrinsic values as strongly agree on both pre- and post-program surveys. Table 8 provides a comparison of pre- and post-program means for PVCT items.

Table 8

Pre- and Post-Program PVCT Mean Ratings

	M	
	Pre-Program	Post-Program
Validates specialized knowledge	4.0	3.83
Indicates level of clinical competence	3.83	3.67
Indicates attainment of a practice standard	3.83	3.5
Enhances professional credibility	4.0	3.83
Promotes recognition from peers	4.0	3.67
Promotes recognition from other health professionals	3.83	3.83

	M	
	Pre-Program	Post-Program
Promotes recognition from employers	3.83	3.83
Increases consumer confidence	4.0	4.0
Enhances feeling of personal accomplishment	4.0	4.0
Enhances personal confidence in clinical abilities	4.0	3.83
Provides personal satisfaction	4.0	4.0
Provides professional challenge	4.0	4.0
Enhances professional autonomy	3.83	3.67
Indicates professional growth	4.0	4.0
Provides evidence of professional commitment	3.83	4.0
Provides evidence of accountability	4.0	3.67
Increases marketability	4.0	3.67
Increases salary	4.0	3.83

A composite scale score was calculated, with possible range of 18-72 and higher numbers representing stronger agreement. Paired t-tests were conducted for each of the PVCT items, as well as the composite scale score. No significant differences were found. Table 9 provides paired t-test findings for the composite scale scores.

Table 9

Comparison of Pre- and Post- Program Perceptions Value of Certification

Pre-Program $N = 6$		Post-Program $N = 6$				
M	*SD*	*M*	*SD*	*t*	*df*	*p*
71	2.0	68.83	3.6	1.391	5	.223

Perception of Program Preparation Resources

Perception of program preparation resources was measured on a 4-point scale from strongly agree (4 points) to strongly disagree (1point). Most participants strongly agreed or agreed that program preparation components were effective in preparing them for the certification. One response of dissatisfied was noted for each of the following items: effectiveness of the preparation manual, networking with other participants, and paid time off to study. Table 10 provides an overview of ratings for each of the components.

Table 10

Satisfaction with Program Preparation Resources

	Mean	Median	Mode
Examination preparation guide and timeline	3.67	4	4
Transition to Home continuing education program	3.67	4	4
Access to the ANCC on-line practice questions	3.83	4	4
Access to the ANCC Test Taking Strategies on-line course	3.67	4	4
Test preparation assistance provided by the coach	3.83	4	4
Networking with other participants	3.33	3.5	4
Paid time off for preparation	3.2	4	3
American Nurses Credentialing Center (ANCC) Gerontological Nursing Review and Resource Manual	3.5	4	4

Post-Program Open-Ended Responses

Five of the six participants indicated that the practice questions were the most helpful element of the program. One indicated that support from co-participants was most helpful. Suggested changes included more practice questions, more frequent face-to-face meetings for participants to study together, and more detailed instructions on registering for the certification

examination. One participant purchased a set of flash cards for the gerontological certification examination and suggested those be provided as part of the program. One participant noted that the certification preparation manual did not adequately address the content of the examination. Since this pilot was implemented in June 2012, a notation on the ANCC Web site indicates that a new edition of the preparation manual will be available fall 2012. Five of the six participants indicated that the only challenge or barrier to seeking certification was finding sufficient time to study with work and personal commitments. One participant reported there were no challenges or barriers encountered.

Discussion

Analysis of Findings

Although one participant was not successful on the certification examination, participant feedback and successful attainment of certification for five participants provides evidence that the program components were effective in motivating and supporting registered nurses in long term care to achieve gerontological nursing certification. These findings are consistent with reports of satisfaction with certification preparation programs in other clinical settings and continuing education in gerontological care (Jenkins & Smith, 2008; McCarthy, 2010; Sayre et al., 2010; Wendel et al., 2010). Further, a significant increase in knowledge test performance suggests that engagement in preparation activities increased knowledge related to gerontological nursing.

Findings related to participant perceptions of the importance of the program's incentives are also consistent with findings in the literature that identified perceived barriers to seeking certification. The most commonly cited barriers to seeking certification were cost, lack of institutional support, and lack of institutional reward for certification (American Board of

Nursing Specialties, 2006; Sechrist et al.,2006). For this program, the employer provided scholarship funds for all costs associated with preparation resources and registering for the certification examination. Rewards included a paid 1-year membership for the American Nurses Association and recognition in the form of monetary bonuses, inclusion of the certification credential on the employee's name tag, and acknowledgement of the accomplishment in organization newsletters. Participant responses indicated that these incentives were positive motivators in seeking certification. The only barrier reported by participants in this project was having adequate time for preparation due to work and personal demands.

Findings related to the perceived value of certification were consistent with previous studies in some aspects and dissimilar in others. Unlike previous studies, 100% of these participants strongly agreed or agreed with all values statements on both the pre- and post-program surveys. Sechrist et al. (2006) found that PVCT scores were significantly lower for non-certified nurses than for certified nurses. However, in this pilot there were no significant differences in pre- and post-program agreement with certification value statements in this pilot. These finding are very likely associated with the small sample size and a ceiling effect with mean scores ranging from 3.5 to 4.0 on a 4-point scale. Interestingly, similar to previous studies, participants tended to strongly agree with statements associated with intrinsic values and with impact on consumer confidence on both the pre- and post-program surveys, while some items related to extrinsic values and rewards were rated lower on both pre- and post-program surveys (Gaberson, et al., 2003; Sechrist et al., 2006; Wade, 2009; Wyatt & Harrison, 2010).

Findings related to perception of the program's educational materials and preparation resources suggest overall satisfaction with program components. Anecdotal feedback and open-ended responses were helpful in identifying possible areas for program revisions. Findings

suggest a need for more detailed instructions on registering for the examination, potential additional study aids, changes in certificant networking opportunities, and the need to plan the next Plan-Study-Do-Act cycle around the availability of the next edition of the ANCC study manual.

Limitations

Although a small sample size was the most appropriate design for this initial pilot, a small sample creates multiple limitations. Due to the small sample size, findings may not be generalized to other groups of participants. Findings were intended only to inform decisions about program components for future Plan-Study-Do-Act cycles.

Second, a small sample size limits statistical analysis of data. For example, analysis of internal consistency of the measurement tools was not possible. While reliability data for the PVCT was available in other studies, because the tool has not been used for gerontological certification, the appropriateness of the tool for this program cannot be assumed.

Third, the risk of a Type II error is high with small sample sizes (Polit, 2010). While there was no statistically significant difference in pre- and post-program perceptions of program incentives and value of certification, there were decreases in ratings on individual items from pre- to post-program surveys. This may indicate that the time and effort spent in preparing for certification may change perceptions of perceived value, which could be statistically significant if a larger sample was used. Overall rating of perceptions remained high; however, there is a potential that changed perceptions of participants could affect the quality of their participation as coaches for other nurses.

Barriers to Sustainability

The greatest potential barrier to success of a sustainable program is a lack of motivation and focus of the participants to complete preparation activities and take the certification exam. Other potential barriers include lack of support from participant supervisors and other key administrative stakeholders. Sustainability of the initiative will be dependent upon continued financial support, continued interest and support from administration, and commitment of the initial group of certificants to mentor and support other candidates.

Recommendations

Process Recommendations

One recommendation for the sustainable program is to formalize program processes. A formal application process that (a) delineates program incentives and educational components, (b) participant responsibility and accountability for engaging in program activities, and (c) the method and timing of scholarship disbursements would be valuable in preventing delays to participant engagement in program activities. Some consideration should be given to incorporating a disbursement process that minimizes the financial impact when participants fail to follow-through with the program. One approach might be to disburse scholarship funds at specified intervals as those funds are needed. A second approach might be to disburse all scholarship funds at the onset of the program, but to have participants sign an agreement to repay funds in the event of discontinued participation. Scholarship funding should not be contingent upon passing the certification exam; however the subsequent monetary bonuses for certification and participation in coaching would not be provided in the event that certification is not achieved.

One individual should be identified to serve as coordinator for each group. This individual's role would be to provide overall direction and to monitor progress. This would allow

coaches to focus on helping participants with preparation activities. Participants should be required to submit documentation of completion of specific required program activities in order to maximize use of program resources. Dates and times of electronic and face-to-face meetings should be established at the start of the program. Alternate forms of communication should be explored, including electronic texting and social media.

Additional Resources

The next program cycle should be scheduled when the next edition of the preparation manual is available. Consideration should be given to adding American Nurses Association (2010) *Gerontological Nursing: Scope and Standards of Practice* to the resource materials provided by the scholarship funding. Availability of other study aid resources should be included in program resource materials as they are identified.

Evaluation Recommendations

A second recommendation is to refine the program evaluation process. The need for continued documentation of pre- and post-program knowledge test results should be evaluated if subsequent plan-study-do-act cycles continue to document significant changes in knowledge. Results of the certification examination document an established level of knowledge attainment and may be sufficient as the project moves into the sustained program phase.

The value of collecting both pre- and post-program surveys on program incentives and benefits is questionable, given the ceiling effect noted in the pilot findings. Administering those surveys post-program only would continue to provide valuable program evaluation data. Since the PVCT has not been used in a gerontological care setting, continued use of this tool post-project could add to an understanding of the perceived value of certification among nurses engaged in gerontological care.

Consideration should be given to expanding demographic data collection to include other demographic variables, such as age and role within the organization, which might impact the participant's engagement in program activities.

As the number of certified nurses within the organization begins to expand, evaluation of program effectiveness should include data collection to examine the impact of certification on patient outcomes. Examples of outcomes that may be influenced by certification include rate of hospitalizations for pneumonia and urinary tract infection, fall and pressure ulcer rates, resident satisfaction surveys, and positive findings on health department survey visits. The relationship between certification of nurses providing care and patient outcomes has not been well-established in the literature. Evaluation of programs to improve quality, safety, and cost-effectiveness of care for older adults will be essential in managing projected healthcare issues that will arise as the population of the United States ages.

Conclusion

The pilot project provided important information to create an effective, sustainable program to increase the number of certified nurses working within the organization. Research evidence suggests that specialty certification may lead to improved outcomes for residents living in extended care facilities and results in intrinsic rewards for nurses. There is little high quality, evidence-based literature available in the area of gerontological certification and certification preparation programs (Kuske et al., 2007). Further research is needed to determine the effectiveness of certification preparation programs and the impact of increased nursing knowledge and the availability of a certified registered nurse workforce on patient outcomes. The resulting benefits to the organization include a more positive corporate image, improved public relations, and a potential for increased retention of a competent nursing workforce.

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Appendix A

Common Elements of State Alzheimer's Plans

	Public Awareness	Early Detection and Diagnosis	Care and Case Management	Quality of Care	Health Care System Capacity	Training	Workforce Development	Home- & Community-Based Services	Long-Term Care	Caregivers	Research	Brain Health	Data Collection	Safety	Legal Issues	State Government Structure
Arkansas			X				X	X	X		X		X	X		X
California	X		X	X	X	X	X	X	X	X	X	X	X	X	X	
Colorado	X		X			X	X		X	X	X		X	X	X	X
Illinois			X	X	X	X	X	X	X	X	X		X	X		X
Iowa	X	X	X	X	X	X	X	X		X		X	X			X
Kentucky	X		X	X	X	X	X	X	X	X	X		X	X		X
Louisiana	X		X		X	X	X	X	X	X	X		X	X	X	X
Maryland	X		X										X			X
Michigan	X	X				X		X	X	X			X			
Minnesota	X	X	X	X		X				X	X		X			
Mississippi	X	X	X	X	X	X	X	X		X						
Missouri	X	X	X	X		X	X	X	X		X					
New York	X	X	X	X		X	X	X		X	X	X	X	X	X	
North Dakota			X													
Oklahoma		X	X	X	X	X	X	X	X	X		X	X	X		X
South Carolina	X		X	X	X	X		X	X	X	X	X	X	X		X
Tennessee	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Texas	X	X	X	X	X	X				X	X	X	X	X		X
Utah	X	X	X	X		X	X	X		X	X	X	X	X	X	X
Vermont	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Virginia	X		X	X	X	X		X	X	X	X	X	X	X		X
West Virginia			X	X		X	X	X	X	X	X		X	X		

Note: Adapted from "State Alzheimer's Disease Plans" by the Alzheimer's Association (n.d). Retrieved from http://www.alz.org/documents_custom/state_plan/STATE%20AD%20PLANS.pdf

Appendix B

Review of Literature Matrix

Quality of Evidence Definitions:								
Level I: Systematic reviews (integrative/meta-analyses/clinical practice guidelines based on systematic reviews); evidence synthesis; article synopsis								
Level II: Randomized control trials; cohort studies; case control studies								
Level III: Expert opinion, descriptive with small sample size or very limited methodology								
Citation	Purpose	Study Design	Instruments Used	Sample Size	Results and Findings	Limitations	Conclusions	Quality of Evidence
American Board of Nursing Specialties (2006); Neibuhr & Biel (2007)	validate nurses' perceptions, values, & behaviors related to specialty certification' development of research priorities	descriptive	Perceived Value of Certification Tool	11,427 nurses; 75% certified; 14% nurse managers and of nurse managers 77.3% were certified	high percentage of agreement among both certified and non-certified nurses on value statements, except increase in salary barriers for non-certified nurses: cost, lack of institutional support and reward identified benefits: reimbursements from institution for certification and continuing ed; being able to display credential on name badge no clear link to missed days or retention	sample randomly selected, but limited ABNS member organizations limiting generaliz-ability no statistical comparison of mean PVCT scores for non-certified and certified nurses	healthcare organizations can implement strategies to overcome barriers to certification	Level 2

Citation	Purpose	Study Design	Instruments Used	Sample Size	Results and Findings	Limitations	Conclusions	Quality of Evidence
Blegan (2011)	commentary on Kendall-Gallagher et. Al	N/A	N/A	N/A	N/A	N/A	noted limitations of Kendall-Gallagher et al study: potential confounding variables: hospital chararacte-ristics, including physician board certification, quality improvement initiatives, patient hours, type of certification, length of certification	Level 3
Brown et al. (2010)	validate oncology nurses' perceptions, values, & behaviors related to specialty certification' development of research priorities	secondary analysis of ABNS study data: compar-ative descriptive	Perceived Value of Certification Tool	13709 oncology nurses; 80% certified; 19% nurse managers; higher percentage of certified nurses than overall study	similar to larger study findings; high levels of agreement with value statements among certified and non-certified nurses with the exception of salary; only 1/3 had high agreement with value of increased salary	sample limited to oncology org – limited generaliz-ability no statistical comparison of mean PVCT scores for non-certified and certified nurses	healthcare organizations can implement strategies to overcome barriers to certification	Level 2

Citation	Purpose	Study Design	Instruments Used	Sample Size	Results and Findings	Limitations	Conclusions	Quality of Evidence
Gaberson et al. (2003)	determine the perceived value of certification for registered nurses with perioperative nursing (CNOR) or first assistant (CRNFA) certification.	descriptive	Perceived Value of Certification Tool	1367	strong internal consistency for PVCT (α = .924) value statements with ($\geq$ 90% agree or strongly agree: personal accomplishment, personal satisfaction, validating knowledge, professional growth, attaining a practice standard, professional commitment, personal challenge, professional credibility; items < 50% respondent agreement: pay increase and consumer confidence. three factors identified: personal value, recognition by others, professional practice (factor loadings .519 to .822)	non-randomized sample cannot be generalized to other certification specialties; CNOR and CRNFA combined for statistical analysis	findings consistent with literature further research needed in area of perceived value to other perioperative stakeholders and other nursing certification specialities	Level 2

Citation	Purpose	Study Design	Instruments Used	Sample Size	Results and Findings	Limitations	Conclusions	Quality of Evidence
Kendall-Gallagher & Blegan (2009).	explore relationship between nurse certification and adverse patient outcomes in intensive care units: medication errors, falls, skin breakdown, UTI, CLI, sepsis	secondary analysis; descriptive correlational, cross-sectional, unit-level design; controlled for organizational and other nurse characteristics	author-developed survey from parent study	data from 29 hospitals included 48 adult ICUs,	proportion of certified nurses and fall rate ($p = .04$); fall rate decreased .04 for every 1 SD increase in percentage of certified unit staff nurses; no other significant findings related certificationyears of staff nurse experience inversely related to frequency of UTI ($p = .01$) and total hours patient care per patient day positively related to medication errors ($p=.006$)	authors noted type of certification unknown, large amount of missing data, small sample sizenumbers of staff nurses and patients represented not included in report	nurse certification may be related to patient safety	Level 2
Kendall-Gallagher et al. (2011)	examine association of percentage of nurses with specialty certification on risk-adjusted inpatient mortality and failure to rescue	secondary analysis; descriptive	AHA annual survey data; investigator-developed nurse survey on effects of nursing factors	California, Florida,New Jersey, Pennsylvania; 652 hospitals; 28,107 nurses; 1,283,241 patients	increase of 10% in BSN and certified nurses resulted in 2%-6% decreased odds for 30-day inpatient mortality and failure to rescue; no significant association if certification considered alone	limited to 4 states; wide variation in nurse demographics among hospitals; lack of control for some hospital and nurse characteristic variables may introduce bias	investment in increasing educational level may be more beneficial than investment in certification in the absence of BSN or higher degree	Level 2

Citation	Purpose	Study Design	Instruments Used	Sample Size	Results and Findings	Limitations	Conclusions	Quality of Evidence
Kuske et al. (2007)	examine the strength of evidence on the effectiveness of dementia care education programs for staff in long term care settings	systematic review of literature	classification systems for type of interventions, nature of training programs, and methodological quality	21 studies	all studies reported positive satisfaction with programs weak methodology in all studies	included studies published 8-22 years prior to 2012	further research needed on the effectiveness of dementia care continuing education programs	Level 1
McCarthy (2010)	describe the process of development of a cost-effective, 4-week certification review	descriptive, primarily post-evaluation of a teaching intervent-ion	author-developed satisfaction survey	not provided in report	ratings of method of learning, teaching effectiveness and timing of course were all average to excellent 6 of 7 in first class passed certification exam	intent of report was to describe process and lacked sufficient report of method-ologies, evaluation	certification support can be provided on a small budget	Level 3
Sayre et al. (2010)	describe the effects of med-surg certification preparation course on nurses' Perceived self-confidence, competence, leadership, and initiative	descriptive	investigator-developed Likert-type scale survey rating self-confidence, competence, leadership, initiative; definitions of concepts included on the tool	38	demonstrated positive impact (agree or strongly agree) of 14-week course on perceptions of practice in the areas of self-confidence (87%), competence (82%), leadership (60%), initiative (82%); 76% agree or strongly agree on all four areas	commitment level of nurses may have been confounding variable; impact of coaching, mentoring, and peer-support not studied relatively small sample size	demonstrates that this staff development activity had a positive impact on nursing practice	Level 2

Citation	Purpose	Study Design	Instruments Used	Sample Size	Results and Findings	Limitations	Conclusions	Quality of Evidence
Wade (2009)	review evidence associated with nurse perceptions of certification	librarian-assisted review of literature	N/A	12 studies	positive association between certification and intrinsic value, sense of empowerment, and sense of collaboration with other professionals. • 10 of 12 looked at intrinsic value: association found in all but 1 • 6 of 12 looked at certification & empowerment: 5 found significant relationship • 8 o 12 looked at certification & collaboration with other professionals: 7 found significant relationship • 3 of 12 examined patient satisfaction: 1 showed significant relationship • 8 of 12 looked at nurse perception of competence and expertise: 7 found significant relationship	included articles date back to 2001; changes in healthcare environment in recent years may limit generaliz-ability	findings of studies indicate potential for impacting nurse retention.	Level 3

Citation	Purpose	Study Design	Instruments Used	Sample Size	Results and Findings	Limitations	Conclusions	Quality of Evidence
Wyatt & Harrison (2010)	determine the perceptions of pediatric nurse certification on job satisfaction and other factors	descriptive	investigator-developed 4-point Likert-type scale survey on factors related to job satisfaction, factors associated with motivation to seek certification, factors associated with improving care, & nurses' perception of relationship of certification to family and patient satisfaction with care	1354 nurses with pediatric nursing certification working in a community hospital or regional medical center	88% rated job satisfaction excellent or good important factors for job satisfaction: relationship with co-workers (82%), supportive work environment (79%) important for job satisfaction: employer recognition of certification (57%), employer financial support for certification (48.5%) motivation for certification: personal sense of achievement (93%), professional recognition (63.4%), validation of clinical competency (57.1%) forms of recognition: plaque ceremony, credential on name badge, notice in newsletter, reimbursement for certification, clinical ladder advancement 77.2% responded certification had a positive impact on patient & family satisfaction	not discussed by authors limited to pediatric nursing in acute care settings little detail included on the survey tool	certification has a positive impact on job satisfaction; employers can incentivize certification through a variety of measures; encouragement of certification should be seen as potential strategy to promote retention	Level 2

Citation	Purpose	Study Design	Instruments Used	Sample Size	Results and Findings	Limitations	Conclusions	Quality of Evidence
Zulkowski et al. (2007)	examine whether wound care certification and education affect pressure ulcer knowledge among nurses with wound care certification, other specialty certification, or no certification	descriptive	Peiper Pressure Ulcer Knowledge Tool	460 RNs	wound care certified nurses had significantly higher knowledge scores than those with other specialty certifications and non-certified nurses ($p < .00$) wound care certified nurses significantly more likely to utilize knowledge resources related to pressure ulcer ($p < .05$) frequently missed content identified	confounding variables may include characteristics of workplace & nurse characteristics; e.g. nurse educational level reported but no report of controlling for this variable	results may be useful in designing education programs employers should encourage wound care certification	Level 2

Appendix C
Participant Consent for Program Participation and Use of Questionnaire Data

Effectiveness of a Pilot Gerontological Nursing Certification Preparation Support Program for Registered Nurses Working in Long Term Care

Date: _____

Dear _____:

You are being invited to participate in a program to prepare you for the American Nurses Credentialing Center (ANCC) Gerontological Nursing Certification examination. Your participation in the program involves a commitment to the following activities:

- Pre-program assessment of your educational and professional work experience.
- Pre- and post-program gerontological nursing knowledge assessment .
- Pre- and post-program assessment of your perceptions of the incentives and benefits for seeking certification.
- Post-program assessment of the effectiveness of program components in preparing your for the certification examination.
- Completion of the planned examination preparation plan, including regular contact with the Coach.
- Completion of the 30 continuing education hours included in the preparation plan.
- Completing the ANCC Gerontological Nursing Certification examination.

There are no anticipated risks and no penalties for your participation in this program evaluation study, with the exception of potential mild anxiety associated with studying for and taking the certification. The information collected may not benefit you directly. The information learned in this study may be helpful to others. The information you provide will be used to guide the development of a larger initiative to assist other nurses in your organization to achieve gerontological certification**.** Your completed pre-and post-test answers and survey questionnaires will be stored at your workplace, as is customary for all continuing education evaluations in your organization. The questionnaires will take approximately 15-20 minutes time to complete.

Individuals from the Bellarmine Doctorate of Nursing Program and the Bellarmine University Institutional Review Board may inspect these records. In all other respects, however, the data will be held in confidence to the extent permitted by law. Should the data be published, your identity will not be disclosed.

Please remember that your participation in this study is voluntary. By completing and returning the attached questionnaire, you are voluntarily agreeing to participate. You are free to decline to answer any particular question that may make you feel uncomfortable or which may render you prosecutable under law.

You acknowledge that all your present questions have been answered in language you can understand. If you have any questions about the study, please contact Gail Sprigler at 502-931-8371.

If you have any questions about your rights as a research subject, you may call the Institutional Review Board (IRB) office. You will be given the opportunity to discuss any questions about your rights as a research subject, in confidence, with a member of the committee. This is an independent committee composed of members of the University community and lay members of the community not connected with this institution. The IRB has reviewed this study.

Sincerely,

Pre-Program Questionnaire

Participant Name_____

Contact Information:

Email_____

Work Phone _____

Alternate Phone (optional) _____

Which method of contact do you prefer (in addition to face to face meetings)? _Email __ Phone

Educational and Work Experience

Indicate below your prior educational experience (indicate all that apply):	Year Earned
Practical Nursing Diploma	
Associate Degree in Nursing	
Diploma in Nursing	
Bachelor's Degree in Nursing	
Graduate Degree in Nursing	
Other Degree (please indicate specific degree)	

Indicate below your practice experience:	Years

How many years have you practiced as a registered nurse?	
How many years did you practice as a licensed practical nurse (if applicable)?	
How many years have you worked in a long term care setting?	

Perception of the Importance of Specific Program Incentives

Directions: Below are the components that were built into your Gerontological Nursing certification preparation program. Please indicate your level of agreement that each of the following program components is important in encouraging you to achieve certification.

Program Component	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
Scholarship money to pay for preparation materials and certification exam	SA	A	D	SD
1-year paid membership to the American Nurses Association	SA	A	D	SD
Paid time off for preparation	SA	A	D	SD
Monetary bonus for completing certification	SA	A	D	SD
Monetary bonus for agreeing to mentor other nurses	SA	A	D	SD
Recognition of certification on employee name tag	SA	A	D	SD
Recognition of certification in corporate newsletters	SA	A	D	SD

Perceived Value of Certification: complete the attached Perceived Value of Certification Tool ©.

Effectiveness of a Pilot Gerontological Nursing Certification Preparation Support Program for Registered Nurses Working in Long Term Care

Post-Program Questionnaire

Participant Name _____

Perception of the Importance of Specific Program Incentives

Directions: Below are the components that were built into your Gerontological Nursing certification preparation program. Please indicate your level of agreement that each of the following program components was important in encouraging you to achieve certification.

Program Incentives	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
Scholarship money to pay for preparation materials and certification exam	SA	A	D	SD
1-year paid membership to the American Nurses Association	SA	A	D	SD
Paid time off for preparation	SA	A	D	SD
Monetary bonus for completing certification	SA	A	D	SD
Monetary bonus for agreeing to mentor other nurses	SA	A	D	SD
Recognition of certification on employee name tag	SA	A	D	SD
Recognition of certification in corporate newsletters	SA	A	D	SD

Perception of the Effectiveness of Examination Preparation Plan Components

Directions: Below are the components that were built into your Gerontological Nursing certification preparation plan. Please indicate your level of agreement that each of plan components was effective in preparing you to take the certification examination.

Program Component	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
Examination Preparation Guide and Timeline	SA	A	D	SD
Transition to Home Continuing Education Units	SA	A	D	SD
American Nurses Credentialing Center (ANCC) Gerontological Nursing Review and Resource Manual	SA	A	D	SD
Access to the ANCC On-line Practice Questions	SA	A	D	SD
Access to the ANCC Testing Taking Strategies On-line Course	SA	A	D	SD
Test preparation assistance provided by your coach	SA	A	D	SD
Networking with other certification preparation program participants	SA	A	D	SD
Paid time off for preparation	SA	A	D	SD

What was most helpful in your preparation program?

What would you change if the program is provided to other nurses?

What challenges or barriers did you encounter in seeking certification?

Do you feel prepared to participate as a Coach for other program participants? ___ Yes ___ No
If no, what would help prepare you for that role?

Would you recommend the program to other Nurses? ___ Yes ___ No

Perceived Value of Certification: complete the attached Perceived Value of Certification Tool ©.

PERCEIVED VALUE OF CERTIFICATION TOOL (PVCT)©

DIRECTIONS: Below are statements that relate to perceived values of certification. Please indicate the degree to which you agree or disagree with the statements by circling SA for strongly agree, A for agree, D for disagree, SD for strongly disagree, or NO for no opinion.

	Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion
Validates specialized knowledge	SA	A	D	SD	NO
Indicates level of clinical competence	SA	A	D	SD	NO
Indicates attainment of a practice standard	SA	A	D	SD	NO
Enhances professional credibility	SA	A	D	SD	NO
Promotes recognition from peers	SA	A	D	SD	NO
Promotes recognition from other health professionals	SA	A	D	SD	NO
Promotes recognition from employers	SA	A	D	SD	NO
Increases consumer confidence	SA	A	D	SD	NO
Enhances feeling of personal accomplishment	SA	A	D	SD	NO
Enhances personal confidence in clinical abilities	SA	A	D	SD	NO
Provides personal satisfaction	SA	A	D	SD	NO
Provides professional challenge	SA	A	D	SD	NO
Enhances professional autonomy	SA	A	D	SD	NO
Indicates professional growth	SA	A	D	SD	NO
Provides evidence of professional commitment	SA	A	D	SD	NO
Provides evidence of accountability	SA	A	D	SD	NO
Increases marketability	SA	A	D	SD	NO
Increases salary	SA	A	D	SD	NO

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Appendix D

Budget

Certification Pilot Costs		
	Cost Per Participant	**Total Cost**
ANA Membership	$183.00	$1,098.00
ANA Member Certification	$270.00	$1,620.00
ANCC Self-Study CE Manual/shipping	$97.00	$582.00
ANCC CNE	$44.00	$264.00
ANCC Certification Practice Questions	$99.00	$594.00
ANCC Test-taking Techniques	$25.00	$150.00
Certification Bonus	$250.00	$1,500.00
Mentoring Bonus (post-project)	$250.00	$1,500.00
Paid time off for professional development	To be determined by employer	
Copying of Resources Packet and Questionnaires	$5.00	$30
Totals	**$1,223.00**	**$7,338.00**