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Geriatric Competency Training for Staff Providing Chronic Care Management Services

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Geriatric Competency Training for Staff Providing Chronic Care Management Services

Submitted in partial fulfillment of the requirements for the degree of Doctor of Nursing
Practice at Eastern Kentucky University

By

Brigette Holleran, MSN, APRN

Lexington, KY

2017

Abstract

Americans 65 and older are growing at an unprecedented rate. Older adults with complex needs are outpacing the number of healthcare providers equipped to care for them. In preparation for implementation of Chronic Care Management (CCM) service, it will be important to engage staff and motivate participation through planned education and training. The purpose of this project was to implement a staff training that included increasing basic knowledge of the CCM program and participant knowledge of age-based competency principles. A pretest posttest design evaluated participants (N=31) who attended the Older Adult Sensitivity Training (OAST) program. Knowledge was measured using an updated version of Palmore's Facts on Aging Quiz (FAQ) and summary questions developed to provide an overview of CCM services. There was a significant increase in CCM scores ($p=.000$) between the pre test ($M=3.19$, $SD=.98$) and post ($M=4.65$, $SD=.75$). There was no significant difference in mean FAQ scores between the pretest ($M=33.10$, $SD=3.42$) and the posttest ($M=33.39$, $SD=3.70$). Results from this project support a need to develop and implement educational programs for members of the healthcare team who are caring for older adults to improve patient outcomes and reduce healthcare costs.

Table of Contents

Abstract.....	2
Background and Significance of Proposed Project.....	7
<i>Problem Identification</i>	7
<i>Context and Scope of the Problem</i>	7
<i>Consequences of the Problem</i>	9
<i>Evidence-Based Intervention</i>	10
<i>Purpose of the Project</i>	10
Theoretical Framework.....	10
Review of Literature	12
Synthesis of Research Findings	21
Agency Description	22
<i>Setting</i>	22
<i>Target Population</i>	22
<i>Congruence of Capstone Project to Agency Mission, Goals, and Strategic Plan</i>	22
<i>Description of Stakeholders</i>	23
<i>Statement of Mutual Agreement with Agency</i>	23
Project Design.....	23
Project Methods	23
<i>Description of Evidence-Based Intervention</i>	24
<i>Procedure</i>	24

<i>IRB Approval</i>	24
<i>Measures and Instruments</i>	24
<i>Implementation Framework</i>	25
<i>Implementation and Data Collection</i>	26
Results.....	27
Discussion.....	29
Implications.....	31
Summary	32
References.....	33
Appendix A.....	37
Appendix B.....	38
Appendix C.....	38
Appendix D.....	38

GERIATRIC COMPETENCY TRAINING

Geriatric Competency Training for Staff Providing Chronic Care Management Services

By

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Geriatric Competency Training for Staff Providing Chronic Care Management Services

Background and Significance of Proposed Project

Problem Identification

Between 2005 and 2030, the number of adults aged 65 and older in the United States will almost double as the baby boomer generation retires (IOM, 2008). Ten thousand baby boomers are turning 65 every day (Bragg & Hansen, 2015). This trend will continue until 2030 (CDC, 2013). Two-thirds of people who are aged 65 and older have multiple chronic conditions which place them at a high risk of death and hospitalization (Dorr, 2015). Ninety six percent of healthcare spending is used for the treatment and management of chronic disease for this population (Alkema, 2007). Despite considerable efforts and attention to the problem over the last few decades, there are still not enough healthcare professionals with the preparation and knowledge to provide optimal care to this growing population older adults (Bragg and Hansen, 2010).

As part of an ongoing effort to enhance care coordination for Medicare beneficiaries and to meet the needs of this growing population, the Centers for Medicare & Medicaid Services (CMS) established a non-face-to-face Chronic Care Management (CCM) service for primary care practice's as an available benefit on January 1, 2015 (U.S. Department of Health and Human Services [HHS], 2015). CCM offers one alternative to traditional care that will minimize costs by focusing on proactive measures. Coordination of care will help to encourage patient adherence to individualized treatment plans. Coburn and colleagues (2012) support pre-service training as a facilitator in organizational decision-making.

Context and Scope of the Problem

The Institute of Medicine (2001) discussed the shortcomings with current healthcare

delivery, change in the needs of the patients, and strategies for system improvement.

Additionally, strategies were identified to reinvent the system in an effort to improve delivery of care. The United States is facing a healthcare crisis as older adults with complex needs are outpacing the number of healthcare providers equipped to care for them (IOM, 2008). Older adults have chronic illnesses that often necessitate frequent visits for follow-up care with multiple providers each year. Improved management of chronic conditions depends on better coordination and team-based care (IOM, 2008). The traditional model of healthcare has focused on acute, episodic needs of the patient rather than health promotion and disease management. Increased healthcare demands for this population require creative strategies for both system improvement and improved care delivery (IOM, 2011). The publication *Crossing the quality chasm: A new health system for the 21st century* reports that more than 40% of patients have more than one chronic conditions requiring more sophisticated mechanisms to coordinate care (IOM, 2011). It is urgent that the healthcare community implement measures that improve training and reimbursement of the clinical workforce to provide skilled chronic and geriatric care.

Chronic Care Management (CCM) is a service that was established by Medicare on January 1, 2015, providing one opportunity for practices to meet the challenges of beneficiaries with complex healthcare needs. The aim of this program is to improve coordination of care for Medicare beneficiaries with two or more chronic conditions in hopes to maintain quality care, lower costs, increase access to care, and capture revenue for the practice using a multidisciplinary approach. Highlights of the CCM service include structured recording of the patient health information, an individualized plan of care addressing health issues, access to care management services, managing care transitions, performing medication reconciliation,

oversight of self-management of medication, ensuring all recommended preventive services have been addressed, on-going monitoring of the beneficiary's conditions, and sharing patient information with practitioners and providers outside of the practice (HHS, 2015). The traditional fifteen-minute office visit limits the capability of providing efficient, cost effective care for seniors with multiple chronic conditions (Schram, 2010). As a complement to face-to-face services, practices, are now able to bill for time spent coordinating care by staff outside of the traditional office encounter. During the fall of 2016, Central Internal Medicine organized a team to plan and implement CCM service into the practice. The planning phase included identifying eligible patients and preparing staff. Coburn and colleagues (2012) support pre service training as a facilitator in organizational decision-making. The goal of this project was to increase basic knowledge of the CCM program and to increase participant knowledge of age related competency principles. Attitudes about aging can influence staff behavior and affect the quality of care provided to patients (Karner, 1998).

Consequences of the Problem

CMS reports predict that Medicare expenses will double to 1.1 trillion dollars by the year 2022 (Harter, 2015). As prospective payment systems have now become the standard, organizations and providers are required to deliver care with an additional priority, cost. Dunham-Taylor and Pinczuk (2015) define value-based reimbursement as reimbursement based on quality rather than quantity. Clinical outcomes are now the focus of reimbursement instead of the provision of care. Value-based care requires efficient use of resources that can be measured by the improvement of clinical outcomes for patients which include improved knowledge related to their conditions and self-management (Porter-O'Grady & Malloch, 2015). Consequences of continuing the traditional standard of care for seniors with multiple chronic conditions include an

increased overall cost burden on society as well as financial hardship for private practices already providing quality care for patients outside of the face-to-face visit.

Evidence-Based Intervention

Provide a one hour Older Adult Sensitivity Training (OAST) for clinical and non-clinical employees providing services to senior clients. This training will have two components, a review of the CCM program and an educational portion focused on age related competencies.

Purpose of the Project

The purpose of this project was to implement a sensitivity training for staff providing direct care to patients who are enrolled in a Chronic Care Management Program. Program goals included increasing basic knowledge of the CCM program and to increase participant knowledge of age based competency principles.

Theoretical Framework

Lewin's Model of Planned Change was used to guide the review of literature and the implementation of the Doctorate of Nursing Practice (DNP) project. Planned change should be a purposeful, calculated, structured and collaborative effort using a change agent. Evidence-based practice (EBP) encourages the integration of best evidence, clinical experience, and patient preferences (Sewell & Thede, 2013). When planning and implementing a new process it is important to choose a model of planned change to increase the likelihood of success. The ideal change agents at CIM were the APRN and BSN in the practice.

Kurt Lewin (1951) identified three stages through which change agents must proceed before change can become part of a system; (a) unfreezing; (b) changing; and (c) refreezing. Lewin describes unfreezing as a process of motivating individuals by preparing them for change. During the change stage individuals are encouraged to embrace new perspectives that enable

them to consider that the current situation can be improved. The refreezing stage involves reinforcing new patterns of behavior. Additionally, an understanding of force field analysis is included in the theory, which Lewin described as driving or restraining forces.

Determining the problem and developing a detailed plan or guideline for change begins in the unfreezing stage. Unfreezing involves a process of encouraging participants to let go of an old pattern that is counterproductive. During the unfreezing phase it is important that the leader prepares the team to accept the need for change. The planned educational training session occurred during this stage. During the unfreezing phase, the leader needs to give compelling evidence to the team on why the change is so important (Lewin, 1951). This can be achieved by increasing the driving forces that direct behavior away from the existing behavior and decrease the restraining forces that negatively affect the movement forward. Some driving forces in this context included aging populations, promotion of patient safety and wellness, patient satisfaction, and rising healthcare costs (Mitchell, 2013). Examples of restraining forces would include poorly developed action plans, under-motivated staff, resistance from patients, and ineffective communication or inappropriate leadership (Mitchell, 2013). The leader needs to motivate the team to accept responsibility in CCM participation and include team members that will be affected by the change early in the process. In the unfreezing stage, members require a clear, understandable description about why the change is necessary.

Following the unfreezing stage, the group will transition into the change stage. This stage involves a process of change in thoughts, feelings, behaviors or all three, that is in some way more productive (Lewin, 1951). The change will need to be supported with workflow training, problem solving resources and ongoing communication (Lehman, 2008). This changing stage encourages the staff to take ownership in the outcome. The movement stage includes

developing and testing the planned change. The implementation of CCM service in practice workflow best correlates to this stage. Continual communication, feedback on progress, teamwork and motivation must be present in this stage (Lewin, 1951).

The final stage is refreezing (Lewin, 1951). Ideally, after evaluation of the planned change the new behavior will become a permanent part of the organizational structure. This establishes the change as a new habit. Refreezing helps to avoid falling back into the pattern of old habits or behaviors. This stage includes finalizing policy and procedures and evaluation of the intervention. This maintenance stage will require reinforcement of the new behaviors until a feeling of comfort returns. Appendix A provides a simple and clear visual representation of the three stages of Lewin's model and includes a brief description of the purpose of each stage.

Review of Literature

The goal of this integrative review was to analyze and summarize research related to chronic care management of seniors with multiple chronic conditions as well as training to improve knowledge and attitudes of staff who will be providing services within the context of CCM implementation. Various programs and possible solutions are discussed that help support initiating a CCM service in practice as well as assessment and training of healthcare providers. A literature search was performed on this subject using electronic databases including PubMed, CINAHL, MEDLINE and Cochrane library. Keywords included "chronic care management" Medicare, "age based competency training", and Palmore's Facts on Aging Quiz. Studies focused on various factors related to this topic will be reviewed in the following paragraphs.

Davy et al. (2015) conducted a systematic review of quantitative and qualitative studies, published between 1998-2013. Subjects included patients with chronic disease and primary healthcare providers. Guided by the Chronic Care Model, authors focused on facilitators and

barriers to implementing CCMs within a primary healthcare setting. Thirty-eight published, peer-reviewed studies were examined and synthesized into four categories: (a) acceptability of CCM interventions; (b) preparing providers for CCM; (c) supporting patients; and (d) resources for implementation & sustainability. The authors also looked at the type of care the studies targeted, reporting a focus of diabetes (n=17), cardiovascular disease (n=30), depression (n=1), chronic obstructive pulmonary disease (n=3) and other (n=14).

Major variables studied included self-management support (SMS) including care guides and individualized action plans, individual counseling or coaching, education programs on disease management, web based patient portals, and programs on empowerment, goal-setting, and motivation. Critical appraisal of studies were reviewed independently based on Cochrane Handbook for Systematic Reviews of Interventions to assess bias for randomized and non-randomized control trials, cross-sectional and cohort studies. Joanna Briggs critical appraisal tool was used to measure quality of case studies and case series. Implementation of complex interventions such as CCMs requires careful consideration and planning. Ensuring appropriate resources to support implementation and sustainability and acceptability of the intervention for patients and healthcare providers contributed to the success of programs.

Sochalski et al. (2009) conducted a systematic review of ten RCTs conducted from 1990-2004 in four countries to see how program delivery methods contribute to patient outcomes in heart failure care management programs. Length of program varied in time between the studies (range=3-12 months). Combined participants across studies (N=2,028) were assigned to intervention groups (n=961) or routine care (n=1067). The mean age of participants was 74.1 ($SD \pm 10.1$).

Ten randomized control trials were analyzed by method of program delivery and method of communication. Six studies used a single heart failure expert and four used a multi-disciplinary team. Three studies used telephone communication and seven used a combination of in-person and telephonic communication, which they termed “in-person” communication. Regression analyses using linear mixed models measured all-cause hospital readmissions and readmission days per month for each person. Statistically significant ($p < 0.001$) percentage reduction in hospital readmission and readmission days (respectively) were found in participants enrolled in programs using multidisciplinary team delivery of care (2.9%, 6.4%), in-person method of communication (2.5%, 5.7%) and a combination of team delivery and in-person communication (2.9%, 6.4%). Key elements of this systematic review applicable to CCM service support the use of team-based, patient centered care delivered by staff when coordinating services for Medicare patients with multiple chronic conditions.

Coburn et al. (2012) conducted a longitudinal, prospective RCT over five years to evaluate the survival impact of a community-based nursing intervention developed by Health Quality Partners (HQP) versus usual care. Following the Transtheoretical Model of Behavior Change developed by Prochaska and DiClemente, the program was designed to compare all cause mortality in chronically ill older adults with one or more chronic condition. Medicare beneficiaries (N=1,736) were randomly assigned into either the intervention group (n=873) or the control group (n=863). The intervention group received monthly in-person, group, or telephone encounters. A comprehensive, integrated, tightly managed system of care coordination, disease management, and community-based nurse care managers working with PCPs provided preventive services. Incidence of mortality was collected from the online Social Security Death Master File (SSDMF). Sutter Health Questionnaire was used to analyze deaths

within subgroups. The researchers found that 86 (9.9%) of participants in the intervention group and 111 (12.9%) participants in the control group died during the study period, representing a 25% lower relative risk of death among the intervention group. Key elements of the intervention that are applicable to CCM service include support for providing care management for seniors including creating individualized care plans, symptom monitoring, medication management, counseling for adherence, and arranging and monitoring community health and social referrals.

Dorr et al. (2008) designed a cohort study to explore changes in mortality and hospital usage for chronically ill seniors enrolled in a multidisease care management program, Care Management Plus (CMP). Seven clinics were selected for intervention and six were used as controls. Participants included 3,432 Medicare patients 65 years or older, 1,144 were assigned to intervention and matched to 2,288 controls. Demographics were reported separately for the intervention and control group as well as for the total sample. In the intervention group over half of participants were female 64.6% (n=739), mean age 76.2, age greater than or over 85 was 14.8% (n=169), Caucasian 94.3% (n=1,079). More than half of control group was also female 64.6% (n=1,478), mean age 76.2, age greater than or older than 85 was 14.8% (n=338), Caucasian 96.9% (n=2,217). No significant differences existed between intervention and control group baseline data ($p=.05$). Participants were also stratified by conditions including diabetes, depression, hypertension, congestive heart failure, presence of two or more comorbidities, and presence of two or more comorbidities including diabetes. Outcome measures included hospitalization, emergency department visits and death between groups. Multivariate analysis included survival analyses for mortality using Cox proportional hazards; logistic regression models were used to compare risk of hospitalization and death. T-tests between groups were used and the authors found statistically significant differences in mortality (decreased) at one

year (-2.8; *OR*=.68) for participants in intervention groups compared with usual care.

Statistically significant decrease in Emergency Department visits at 2 years were found in the intervention group (6.1; *OR*=1.28). Additionally, for patients in the intervention group with diabetes there was significantly lower mortality rate at one year follow up (-4.4; *OR*=0.56).

Findings from this study support savings to healthcare resulting in \$17,384 to \$70,349 per clinic.

The number needed to treat (NNT) per one year to save one hospitalization was 90 (NNT=90), and for the diabetes subgroup NNT was 22 (NNT=22). These findings support intervention programs like CMP that focus on re-organizing primary care through a team-based approach for seniors with multiple chronic conditions. Limitations of this study included selection bias and limited data.

Alkema et al. (2007) conducted a RCT over twenty-four months to evaluate mortality of managed care members who participated in a Care Advocate Management Program. Following the Care Advocate Model of social care management, the program was designed to link Medicare beneficiaries with high healthcare utilization to home and community based services. Medicare beneficiaries (N=781) were randomly assigned into either the Intent To Treat (ITT, n=377) or control group (n=404). The mean age of participants was 83 years and range was aged 65-100, and two thirds of the sample were female.

The ITT group received telephonic social care management and follow up for twelve months.

Incidence of mortality was reported on a monthly basis from the health plan retention data.

During the intervention period the ITT group had significantly lower mortality risk than the control group (*OR* = 0.45; *p* =.006). In the post-intervention phase the mortality differences between the ITT and control groups were not statistically significant (*p* =.198). Significant predictors of mortality were age, gender, presence of three or more chronic conditions and

emergency department use. Key elements of the intervention that are applicable to CCM service include individualized assessment and links to appropriate services, consumer choice, control, and participant self-management, ongoing monitoring that provided formal support over time and bridging medical and social care delivery systems through direct linkage and communication channels.

Ross (1983) conducted a cohort study with a pretest and posttest design to explore the impact on baccalaureate nursing students' level of knowledge about aging after a planned learning experience with the elderly. Participants (N=64) completed Palmore's Facts on Aging Quiz (FAQ) pre and post intervention. The intervention included regular home visits over a three-month period that allowed opportunity for direct health assessment and health promotion of older adults (65 or older) and their families as part of the educational curriculum. Seventy percent of students had sufficient base knowledge to accurately answer 15 statements on pretest and 20 statements on post-test. Results included statistically significant improvement in scores ($p = 0.001$) between pre-test (M = 16.5, range 11-21) and post-test (20.0, range = 14-25). Average score increased by 14% ($t = 16.08$) between pre and post-test. Results support that level of knowledge about aging can be positively influenced by planned learning experiences. Findings from this study applicable to the project support the need to prepare healthcare staff with age-based competency education and training experiences to prepare them for implementation of the CCM program.

Zahner and Henriques (2014) conducted an academic practice partnership project to improve competency for providing essential public health services among public health nurses. This cohort study measured competency for public health practice at baseline, identified factors

associated with higher competency, documented change in competency over four years, and assessed differential effects associated with project participation. Baseline survey participants (N = 299) were comprised of staff level nurses (n = 230, 84%) and nurse managers (n = 42, 16%). Of those who were contacted for follow up over half responded (N = 102, 55%). Survey participants at four year follow up (N = 102, 55%) were comprised of staff level nurses (n = 75, 74%) and nurse managers (n = 26, 26%). Perceived competency was assessed using a validated instrument administered through online surveys at baseline (2007) and 4-year follow-up (2011). Baseline competency levels were low in most domains. Managers reported higher competency in all domains compared to staff. Mean scores in all domains were higher on follow-up than baseline. Participants in project activities had higher mean competency scores than those who did not, with statistically significant differences ($p < 0.05$) observed in four of nine domains. Participation in workforce development can contribute to improved competency for public health practice among nurses. Continued investment in workforce development aimed at improving competency and additional research on competency assessment is warranted. The key element of this study that are applicable to the project is the support of competency training for healthcare staff.

Flood and Clark (2009) conducted a cross-sectional exploratory cohort study to examine knowledge and attitudes towards aging individuals. Following Bandura's (1986) social cognitive theory of self-efficacy, the program was designed to compare knowledge and attitudes of nursing and non-nursing college students. Participants (N = 110) were recruited from one senior-level nursing (n = 53) and two freshman/sophomore-level non-nurses (n=57) courses within the College of Health and Human Services. There was a statistically significant difference in mean ages ($p < .00$). The mean age of nursing students was 25.6 years (range = 20-47, SD = 6.33) and

19.61 years for non-nursing students (range = 18-26, SD = 1.56). The nursing student group had completed more coursework in aging (n = 52, 98%) compared to the non-nursing student group (n = 17, 29.8%) and nursing students perceived more adequate understanding of older adults and their health needs (n = 48, 90.6%) compared with non-nursing students (n = 38, 66.7%). Both groups had comparable prior or current experience (45%) in providing care to older adults.

Participant knowledge was obtained anonymously using the Palmore's multiple-choice format FAQ (1998). Attitudes toward the elderly were measured using the Perspectives on Caring for Older Patients Scale (PCOP) [2002]. Paired t-tests indicated a significant difference in knowledge ($p < .005$) between groups. Mean scores on the FAQ were higher for nursing students (11.8, SD = 2.2, range = 7.0-16.0) compared with non-nursing students (10.56, SD = 2.38, range = 5-16.0). Paired t-tests indicated a significant difference in attitudes ($p < .001$) between groups. Mean scores on the PCOP were higher for nursing students (3.72, SD = 0.38, range = 2.65-4.4) compared with non-nursing students (3.49, SD = 0.33, range = 2.8-4.4).

Qualitative data for the open-ended question was categorized into 7 broad categories: health (n = 30), independence/functionality & health (n = 26), quality of life (n = 16), independence/functionality and mental characteristics/outlook (n = 9), mental characteristics/outlook (n = 9), health & relating (n = 7), health/functionality and relationships (n = 4). Findings from this study suggest that providing geriatric content in curricula increases knowledge and favorable attitudes towards the care of older adults (Ross, 1983). Education and training will help prepare future caregivers of this population. Key elements of this study support the use of the FAQ to assess participant knowledge about older adults as well as the need for providing age-based competency training for staff providing direct care to this population.

Beling (2004) used the original FAQ and the Watson-Glaser Critical Thinking Appraisal (WGCTA) to measure general attitudes about aging to evaluate the impact on service learning opportunity on physical therapist students' knowledge of and attitudes about the older adult and on their critical thinking ability. They compared groups of students enrolled in a Master of Physical Therapy degree program into two groups, one received traditional coursework (control) vs. experimental service learning group. A total of 40 participants ($N = 40$) were evaluated at the beginning and end of a semester. Participants ranged from 23 to 59 years with the mean age being 29.6 years ($SD = 7.1$). Twenty-one participants were assigned to the service learning group ($n = 21$) and 17 were in the control group ($n = 17$). Data analyzed included the total correct number of responses on the FAW, incorrect negative bias items on the FAQ, incorrect positive bias items on the FAQ, and total number of correct items on the WGCTA. Two-way ANOVA revealed all students increased their knowledge about aging ($P < .05$). Students who initially had negative attitudes toward older adults significantly improved their attitudes only after the service-learning experience ($P < .05$).

Karner and colleagues (1998) evaluated the impact of a hospital wide educational program on staff's knowledge and misconceptions about aging. A two-hour workshop was planned for small groups (maximum 15 participants) that included simulation games and experiential learning activities designed to encourage participants to experience some of the feelings that older people face. After the *Into Aging* game a debriefing period that is focused on clarification of misconceptions about aging took place. Outcome measures were evaluated with the Palmore's FAQ (1977) quiz pre- and post- training. Ninety-five participants representing administration, nursing, social work, occupational therapy, physical therapy, dietary, maintenance, and pastoral care staff was chosen for the pilot program ($N = 95$). The majority of

participants were female (89%) and more than half (63%) were between the ages of 31 and 50 ($n = 60$). Analysis of covariance (ANCOVA) showed significant between pretest and posttest mean scores for all participants ($F = 64.08, p < 0.0001$) and for the effect size ($F = 6.89, p < 0.0001$). Findings suggest that a planned educational learning experience can be effective in increasing knowledge about and influencing attitudes toward older adults.

Synthesis of Research Findings

Following review of these studies, a consistent theme emerged. The problem of managing chronic conditions for seniors in the U.S. to improve outcomes and decrease cost is an issue that demands attention. Currently, there is more literature that supports the need for chronic care management programs than there is research to test interventions. The studies reviewed vary in their level of evidence, but all include worth to practice and to the project. All of the studies support continued research and development of new interventions for seniors. Half of the articles provided support for implementing CCM programs for seniors (Alkema et al., 2007, Coburn et al., 2012, Davy et al., 2015, Door et al., 2008, Sochalski et al., 2009). Findings from the Dorr (2008) and Alkema (2007) studies included practical suggestions that could be translated immediately for implementation to practice. This is understandable since the CCM service is relatively new program. The remaining studies by Ross (1983), Zahner et al. (2014), Flood and Clark (2009), Beling (2004) and Karner et al. (1998) supported training and education for healthcare providers who are caring for older adults. Flood & Clark (2009), Beling (2004) Karner et al. (1998), and Ross (1983), used a version of Palmore's Facts on Aging Quiz as part of their evaluation of knowledge of participants. The studies discussed in this paper support the need to find alternative ways to care for seniors with chronic conditions. Several of the studies

also discussed outcomes for participants in various intervention groups that support programs designed to manage and coordinate care.

Agency Description

Setting

Central Internal Medicine (CIM) is an independent practice in Lexington, Kentucky comprised of five physicians, one Advanced Practice Registered Nurse (APRN) and two physician assistant's (PA) serving almost 1,300 Medicare beneficiaries. This small practice has 34 employees including providers, administrators, clinical and non-clinical staff. Internal data reflects that 23% of the active patient population are Medicare beneficiaries. This population was responsible for 63% of face-to-face encounters in 2016 (Atterbury, 2017). These data are consistent with the literature supporting that patients with multiple chronic conditions consume more healthcare resources and are responsible for the majority of healthcare spending.

Target Population

The target population for the Age-Based Competency training was the staff at CIM. Staff members included providers, administrators, nurses, certified medical assistants, and clerical staff. All paid employees, both full and part time, were invited to participate.

Congruence of Capstone Project to CIM's Mission, Goals, and Strategic Plan

The mission of the organization outlines "The goal of the physicians and all the staff of Central Internal Medicine is to provide competent, efficient, compassionate care, in a family-oriented environment while honoring the privacy of our patients. Our patients are our top priority". The implementation of the CCM service as well as the age-based competency training aligned with the mission, goals and strategic plan of the agency. The intent to implement CCM services in the practice was the motivation for this project.

Description of Stakeholders

Stakeholders included Medicare beneficiaries at CIM, staff, administration, and providers. Additional stakeholders include patients, the healthcare economy as a whole, Medicare, and the Accountable Care Organization that partners with CIM. The practice manager at CIM completed the statement of mutual agreement.

Project Design

The project was a pretest and posttest design conducted to evaluate the effectiveness of Older Adult Sensitivity Training (OAST) on staff's knowledge and attitudes about older adults as well as staff's knowledge of CCM service provision.

Project Methods**Description of Evidence-Based Intervention**

The goal of this project was to prepare the staff at CIM to work with older adults as part of the CCM implementation plan. The purpose of this project was to implement a planned educational training to increase staff's knowledge about aging individuals and CCM service. There is a need for continuing education to guide care so that all healthcare providers are skilled in caring for older adults (Bragg & Hansen, 2010).

Staff's baseline knowledge of CCM service as well as their baseline knowledge about aging individuals was assessed followed by a one-hour staff training. This presentation was provided during a monthly mandatory staff meeting during work hours to encourage participation.

The training began with a brief review of CCM objectives by the Nurse Practitioner. The remainder of the hour was devoted to the Older Adult Sensitivity Training (OAST) training, presented by a clinical pharmacist that serves as the Medical Outcomes Specialist in the

Kentucky region. OAST includes the following topics: (a) effective communication skills for professionals, (b) psychosocial needs of the older adult, (c) support for caregivers, and (d) multidisciplinary care with pharmacy professionals. Some pertinent problems that are addressed include incontinence, pain and behavior challenges in the senior population. (Pfizer, 2012)

Procedure

IRB Approval

IRB exempt status approval for the project was received from ECU IRB on July 11, 2017 following a deferral from the clinical agency.

Measures and Instruments

Palmores' FAQ has been used across disciplines over the last forty years to assess knowledge of physical, psychological, social and economic factors. It has also been used to measure misconceptions regarding elderly people, with higher scores reflecting greater knowledge about aging as well as evidence that suggests indirect measure of bias by participants (Palmore, 1977). Palmore proposed that the quiz could be used for a variety of purposes which include stimulating discussion about aging, to provide education, to measure knowledge, to test knowledge, and to measure attitudes of respondents (Palmore, 1977;1998). The FAQ is used most often to measure changes in knowledge resulting from some type of educational intervention (Beling, 2004) across disciplines. The FAQ has been the most widely used instrument to measure nursing students' knowledge (Elst, Deschodt, Welsch, Milisen & Dierckx de Casterle, 2014). Unwin and colleagues (2008) compared results of the FAQ on ageing-related knowledge and attitudes of young adult medical students using the same measurement tool (FAQ) created 30 years prior and found that results were largely unchanged from his original report.

The two most commonly used versions are the original FAQ, often referred to as the FAQ1 (1977) and the FAQ2 (1988), which was created as a re-test version of the original. Reliability between the two forms has been acceptable, with correlations ranging from .50 to .80 (Palmore, 1981). Palmore's quizzes have been described having face validity, known, group validity, and good internal consistency (Elst, 2014). A systematic review by Samra and colleagues (2017) identified 37 studies that discussed relationships between variables of interest and attitudes toward older patients. All studies reporting a relationship between attitudes and knowledge about aging in their review as well as a systematic review of nursing literature used Palmore's FAQ to measure knowledge (Samra, Cox, Gordon, Conroy, Lucassen, & Griffiths, 2017).

An updated revision of Palmore's Facts on Aging Quiz was used for this project pre and post intervention for data collection (Breyspraak & Badura, 2015). This quiz contains 50 questions in true/false format (see Appendix B). About half of the questions in the quiz are similar or identical to Palmore's. The questionnaire is public domain; therefore, no permission was required. Reliability or validity for this particular version of Palmore's FAQ has not been established. Ross (1983) described several uses for this tool including measuring knowledge and bias about aging, use as a stimulus for discussion and clarifications of misconceptions, as a measure to compare different groups' overall level of information about aging, and to measure the effects of lectures and training experiences.

Participation was voluntary and data was obtained anonymously. Demographic data of participants as well as answers to the aging questionnaire and CCM objectives was collected on paper. In the current program sample the Cronbach's alpha for these 31 participants.

Implementation Framework

The Plan-Do-Study-Act (PDSA) Model for Improvement provided the framework for this project. The PDSA provides a template to facilitate a process change in real work settings (Sewell and Thede, 2013). The first step in the process is to “plan”. This involves stating the objectives, making predictions about what will happen and why, and developing a plan to test the change. Next is the “Do” step. This is when you try out the test on a small scale and document any problems or unexpected observations. In this part of the cycle you also begin analyzing the data. This step correlates to the implementation of the educational training for staff. Step three includes “Study”. This includes completing analysis of the data and comparison to your hypothesis. At this time you also summarize and reflect on findings. The final step includes action. The “Act” step of the cycle provides an opportunity to refine or revise your process and prepare for the next phase of testing.

Implementation and Data Collection

All full and part-time employees which consisted of providers, licensed clinical staff, non-licensed staff, and administrative staff were invited to participate. Data was collected anonymously. At the beginning of the staff training, envelopes with numbered, color coded pretest and posttest survey packets were provided to each participant. A cover letter was included and reviewed by the principal investigator at the beginning of the presentation. The principal investigator collected returned survey envelopes at completion. To encourage participation in this project, a raffle drawing for a gift certificate was available to employees that attended the presentation, regardless of completion of the questionnaire.

Participant demographic data was collected including gender, age in years, race, and role in which they function (clinical vs. non-clinical). Overall knowledge about CCM service was measured with five CCM questions developed by the principal investigator. Overall knowledge

and bias toward aging individuals was measured with the Revised Palmore's FAQ (2015) before and after the planned OAST educational training.

Results

Data from participants were analyzed using SPSS software version 24. Total scores for the CCM Questions and FAQ were calculated using SPSS software. A paired t-test was conducted to compare the scores pre- and post-test for each of the quizzes completed by participants during the training/workshop.

The study sample was comprised of 31 participants. Eighty seven percent of the participants were female (n = 27; see Table 1). Most of the participants, 74.2% (n = 23), function in a clinical role (see Table 2). The respondents' age ranged from 21 years to 75 years with a mean age of 42.5 years; the mean years of experience ranged from 0-43 years with a mean of 11 years (range 0-43, SD \pm 13.63; see Table 3).

Table 1

Frequency of Gender of Participants

Gender	Frequency	Percent
Female	27	87.1
Male	4	12.9
Total	31	100

Table 2

Frequency of Role of Participants

Role	Frequency	Percent
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Clinical	23	74.2
Non-clinical	8	25.8
Total	31	100

Table 3

Demographic Characteristics

Variable	N	Mean	SD	Minimum	Maximum	Range
Age	31	42.5	16.6	21	75	54
Experience	31	11	13.6	0	43	43

A paired samples t-test (see Table 4) was conducted to evaluate the impact of the training program on participants CCM scores. There was a significant increase in post-test scores of participants on the CCM questions after the training compared with scores before training, Pre ($M = 3.19, SD = .98$) to Post ($M = 4.65, SD = .75$), $t(30) = -7.87, p = .000$ (two tailed). The mean increase in CCM quiz scores was -1.45 with a 95% confidence interval ranging from -1.83 to -1.07. The magnitude of difference (eta squared = .67) indicated a medium effect size.

Table 4

Paired T-test Comparison of Chronic Care Management (N=31)

Score	Mean \pm SD	t	df	p
CCM, Time 1	3.19 \pm .98	-7.865	30	.000
CCM, Time 2	4.65 \pm .75			

A paired samples t-test (see Table 5) was conducted to evaluate the scores on the FAQ pre and post training. The change in scores from pre ($M = 33.10$, $SD = 3.42$) compared to post ($M = 33.39$, $SD = 3.70$) was nonsignificant, $t(30) = -.57$, $p = .58$, two tailed). The magnitude of difference was small (eta squared = .01).

Table 5

Paired T-test Comparison of Facts on Aging Quiz (FAQ) before and after

(n=31)

Score	Mean \pm SD	t	df	p
FAQ, Time 1	33.10 \pm 3.42	-.566	30	.575
FAQ, Time 2	33.39 \pm 3.70			

Discussion

The mean CCM scores of the participants post intervention were higher which indicates the sample had improved knowledge about CCM basics after the intervention. CCM questions were developed internally and were specifically aimed at the CCM objectives that were reviewed during the training. Total scores increased from an average of 64% pre intervention to 93% post intervention.

The mean FAQ scores of the participants post intervention increased than before the intervention but the difference was not statistically significant compared with the pre test scores. Over half of participants (56%) stayed the same or improved their number of correct answers from pre to post following the OAST presentation. Overall scores (both pre and post intervention) from this sample were higher than average scores compared with those found in the literature, suggesting that this sample was more informed at baseline. Palmore (1980) reported that the average person with a high school degree gets about half of the answers correct, which is what they would get by chance alone. In a study by Baumbusch and colleagues (2012), 43 nursing students enrolled in an accelerated undergraduate program scored an average of 53% before completing a course focused on adult and older content and an average 67% after course completion. A study by Unwin and colleagues in 2008 reported average scores on the original version of the FAQ by first year medical students of 60%. Another study by Flood and Clark in 2009 reported average scores of nursing students of 47% compared with non-nursing students who averaged 42% on the FAQ.

Limitations of this program include a small convenience sample. It cannot be assumed the participants of this study would represent a larger sample population of healthcare workers providing services to seniors with multiple chronic conditions. Other limitations included self-report of information, time constraint of one hour, and a crowded warm environment.

Another potential consideration when analyzing results includes the response burden of the FAQ. This questionnaire was long (50 questions) and participants were asked to complete before and after the one-hour training which took place during the work day lunch hour. Perhaps a survey that was directly related to the presentation and contained less questions would be more appropriate for this situation. Although benefits for using the FAQ included minimal cost to the

agency for use of the instrument and ease of use by participants, choosing an instrument with higher degrees of reliability and validity would also strengthen the results of the study.

Instruments with established validity and reliability that measured the variable of interest for this program were limited.

More research is needed to develop reliable instruments that evaluate the relationship of age sensitive training programs on participant knowledge. Also, more research on what types of age specific competency interventions are most suitable for healthcare personnel providing care to seniors with multiple chronic conditions would be beneficial.

Implications

This project was feasible for a small independent practice with limited resources and was conducted in a reasonable amount of time. There were an adequate number of potential subjects for recruitment, good accessibility within the setting, sufficient expertise in the role of the principal investigator, and adequate resources available within the institution to conduct the study. There were no apparent major ethical or legal constraints. This type of training is sustainable for practice, and can be provided as an annual age-related competency in-service for employees in the practice.

The literature review supports the need to develop non-traditional interventions and programs to complement the traditional face-to-face office visit with the provider. The studies discussed in this paper support implementation of CCM Services for Medicare beneficiaries and age competency training for healthcare professionals providing the care. There is potential growth within the healthcare community to create more services that encourage quality while decreasing costs.

Summary

The publication of the IOM report “Crossing the Quality Chasm” brought attention to the need for safe, effective, patient-centered, timely, efficient and equitable health care (IOM, 2001). This focusing event along with escalation of health care costs propelled the issue of care coordination in healthcare systems. Ideally, clinicians should implement programs that improve quality without an increase in spending (Schram, 2010). Flood & Clark (2009) suggest that geriatric education will help break down generational stereotypes and boundaries for those providing direct care to seniors. This staff-training program nested in the larger CCM implementation will ideally improve patient outcomes, decrease healthcare spending, and generate revenue for the practice.

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Appendix A

Lewin's Theory of Planned Change



