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Reducing Rehospitalizations of Nursing Home Residents through Telehealth: A Quality Improvement Program

Joana P. Bringas
jbringas@fiu.edu

Reducing Rehospitalizations of Nursing Home Residents through Telehealth: A Quality

Improvement Program

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Nicole Wertheim College of Nursing and Health Sciences

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For the Degree of Doctor of Nursing Practice

By

Joana P. Bringas

Supervised By

Dr. Ellen Brown EdD, MS, R.N., FAAN

DocuSigned by:

Dr. Charles Buscemi

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Abstract

Hospital readmissions in nursing home residents are a major problem affecting health care outcomes, resident quality of life, and costs. Telehealth has been shown to improve care delivery for persons with chronic conditions and has promise for reducing nursing home rehospitalizations. The purpose of this Doctor of Nursing Practice (DNP) project was to explore nurses' knowledge, attitudes, beliefs, and self-reported use of telehealth in caring for Skilled Nursing Facility (SNF) residents with the goal of developing an evidence-based educational program for the facility. A convenience sampling approach was used. Participants, all registered nurses (RNs), were recruited from a local SNF. A 35-item online survey was developed and modified from Kowitlawakul's (2008) eICU Acceptance Survey based on the Telehealth Acceptance Model (TAM). Twenty-four RNs of the eligible 75 RNs completed the survey (participation rate of 32%), a majority (75%, $n = 18$) were women, and worked the dayshift (75%, $n = 18$). Most of the nurses felt telehealth was easy to use ($n =16$, 72.7%), felt comfortable using telehealth ($n= 17$, 77.3%), and believed telehealth provides more time for patient care ($n =14$, 63.6%). Fifty percent ($n =12$) of the participants did not think telehealth would enhance job effectiveness and 48% ($n =11$) did not believe telehealth would increase job productivity. The primary finding from this quality improvement project (QIP) was that although most staff had a positive perspective toward the use of telehealth, approximately half of nurses reported telehealth does not increase productivity or enhance job effectiveness. These findings indicate staff may benefit from an evidence-based educational program focused on the value of telehealth in preventing SNF resident rehospitalizations.

Keywords: telehealth, virtual rounding, rehospitalizations, nursing homes, educational staff program

Significance

In 2018, there were 3.8 million adult hospital readmissions within 30 days of discharge, and 60.3% or 2.3 million were Medicare beneficiaries (Weiss & Jiang, 2021). Hospital readmissions are frequent, and for SNF residents, rehospitalizations are particularly problematic (Rantz et al., 2017). It is estimated that 20% to 25% of all SNF residents hospitalized are readmitted within 30 days (Kane et al., 2017); however, more than half of these rehospitalizations are avoidable (Rantz et al., 2017; Spector et al., 2013).

Nursing home residents account for 11.4% of Medicare Part A costs due to hospitalizations, and the cost is 33% more for each SNF resident hospitalization compared to all Medicare beneficiaries (Rantz et al., 2017). Approximately, 25% of all congestive heart failure (CHF) patients are readmitted within 30 days, and almost 50% at 6 months, the highest readmission rates compared to other chronic condition (Hale et al., 2016). The average cost of hospital readmission for a Medicare recipient is $15,500 (Weiss & Jiang, 2021).

A major contributing problem for rehospitalizations is a lack of continuity and appropriate coordination of care between healthcare providers and patients (Facchinetti et al., 2020). Several studies have determined a lack of accurate, timely communication between hospitals and SNFs leads to challenges in preventing rehospitalizations (Dolansky et al., 2016). Innovative approaches that connect the hospital and the SNF setting to prevent rehospitalizations are needed. For instance, telehealth involves the use of technologic devices such as video conference for consultations, monitoring devices, and diagnostics to care for people at a distance. A meta-analysis study focused on telehealth technology trials in CHF patients demonstrated a decrease in CHF hospitalizations by 21% and all-cause mortality by 20% (Hale et al., 2016). It would be beneficial for leaders of SNFs to consider leveraging telehealth technology as a tool to

reduce avoidable hospital readmissions, thereby improving patient outcomes and decreasing healthcare costs. Educating SNF nurses on how to appropriately use telehealth services and communicate about decompensating symptoms of chronic conditions through telehealth should be further explored.

<div align="center">**Background**</div>

The literature review conducted includes studies focused on the use of telehealth as well as virtual rounding in Long Term Care (LTC) and acute care facilities to improve patient care delivery and decrease hospitalizations and rehospitalizations. The utilization of telehealth and virtual rounding for the improvement of interprofessional communication between LTC and acute care professionals was a focus on the literature reviewed. A focus on most of the studies was healthcare provider satisfaction, perceived time efficiency, and future interest in working with telehealth and virtual. The majority of the studies reviewed were QIPs and continuous quality improvement (CQI) projects. The population involved in these studies were healthcare providers such as nurses, advanced practice nurses, and physicians from LTC facilities and hospital settings. Most of the studies were conducted during the COVID-19 pandemic when the need of telehealth increased. Appendix B provides study details for literature reviewed.

Low et al. (2020) conducted a prospective descriptive study focused on the use of telemedicine consultations in eight Singapore nursing homes in partnership with a 590-bed general hospital. The goal of the project was to increase access to geriatric specialty care and decrease hospitalizations (Low et al., 2020). The study found in using telemedicine there was an increase in medication adjustments (Low et al., 2020). The authors concluded that the videoconferencing system was feasible and cost-efficient for LTC facilities in the care of older adults by providing an additional tool for timely patient monitoring (Low et al., 2020).

Jen et al. (2021) also conducted a study with an older adult population, 15 residents from long-term custodial care and 51 from post-acute skilled nursing care. The QIP involved two phases. The first phase included identifying disruptions in telemedicine rounds using a cause-and-effect diagram procedure (Jen et al., 2021). Once the inefficiencies were identified, time was spent finding solutions for those inefficiencies (Jen et al., 2021). It was discovered that the most common reasons for inefficient or lack of virtual rounding was unfamiliarity with the technology, not having the needed at equipment at bedside, and issues with WiFi connectivity (Jen et al., 2021). Information technology departments had to adjust WiFi bandwidth to make tele-video platform a priority, and a device was made available with a larger screen and camera for better visuals (Jen et al., 2021). In the second phase of the project, education was provided to one staff member on operating the tele-video device, and this person was made a champion to train the other staff members that were assisting with virtual rounding (Jen et al., 2021). During tele-video rounding, priority was given to the urgent clinical issues (over non-urgent clinical issues) with the goal of improving efficiency (Jen et al., 2021). Additionally, it was discovered that pre-rounding was essential, as it informed the SNF staff in advance of the patients to be seen virtually and specific modifications needed during rounds such as language translator or special equipment (i.e., pulse oximeter, stethoscope, or other equipment) (Jen et al., 2021). These actions increased efficiencies in virtual SNF care delivery (Jen et al., 2021).

The QIP conducted by Harris et al. (2021) also involved the use of technology solutions. The primary aim of this QIP was to identify patients who required escalation of health care delivery in the LTC facility during the COVID-19 pandemic. After developing an interprofessional team, technology was implemented that included videoconferencing, remote physical examination, and vital sign monitoring (Harris et al., 2021). Through tele-video

conferencing, the status of COVID-19 patients were discussed, which determined if an immediate transfer was indicated, and if not, a telemedicine consult was scheduled with a neighboring hospital pulmonologist or geriatrician (Harris et al., 2021). A primary finding from this QIP was that the LTC facility's COVID cases had a significantly lower mortality and hospitalization rate than other facilities (Harris et al., 2021). It appears the telehealth monitoring was effective in deceasing the morbidity associated with a COVID-19 infection.

Similar to the previous project, this QIP conducted by Archbald-Pannone et al. (2021) utilized virtual daily rounds to rapidly identify patients with COVID-19 who were clinically decompensating. The project focused on decreasing care escalation, improving coordination of care, and using pulmonary telemedicine consultation and transfers between the LTC facility and hospital when indicated. Virtual rounds were conducted every morning, and vital signs were shared via encrypted email to the COVID-19 Outbreak Response team for review prior to virtual rounds (Archbald-Pannone et al., 2021). Virtual rounds were done through a videoconference platform with the patient's primary care provider, facility director of nursing (DON), and the COVID Response team (Archbald-Pannone et al., 2021). The hospital-based team included the pulmonary or critical care consultant, geriatrician, telemedicine nurse liaison, and telemedicine team (Archbald-Pannone et al., 2021). During an active COVID 6-week outbreak period, the hospitalization rate of this LTC facility was 31.5% and mortality rate was 25.6 %, substantially lower than other LTC facilities that had a reported 56.8% hospitalization rate and 28% mortality rate (Archbald-Pannone et al., 2021). This QIP demonstrated telehealth and the use of daily virtual rounds is effective and efficient in bringing an interdisciplinary healthcare team together to lower hospitalization rates and increase coordination of care (Archbald-Pannone et al., 2021).

Another QIP conducted by Becker et al. (2021) described the feasibility and provider experience utilizing the Virtual Team Rounding Program (VTRP) at Brigham and Women's Hospital in Boston, Massachusetts during the COVID-19 pandemic (Becker et al., 2021). The VTRP-trained medical students, residents, advanced practice providers, fellows, and multi-specialty attendings as "*virtual rounders*" (Becker et al., 2021). These *virtual rounders* and *inpatient teams* conducted patient rounds together via videoconference (Becker et al., 2021). A survey was conducted with 777 *inpatient team* members and 41 *virtual rounders* to assess their experience with the QI program including their satisfaction with the program, perceived time efficiency, and future interest in working with this program (Becker et al., 2021). Survey responses were overall positive amongst both *inpatient team* members and *virtual rounders,* 72.5% of the *inpatient team* members and 85.7% of *virtual rounders* were either satisfied or very satisfied with their experiences with the VTRP (Becker et al., 2021). The results of the QIP demonstrates this type of program is feasible and accepted by providers, and the authors recommended that this approach could be used successfully with other medical conditions (Becker et al., 2021).

Another QIP conducted by Bavare et al. (2021), in a different patient population, determined there was a need for bedside rounding to be optimized in a pediatric intensive care unit (PICU) due to the COVID-19 pandemic inefficiencies, including a lack of involvement of pharmacy personnel and other clinical supports (Bavare et al., 2021). Technological communication through tele-video conference for rounding was implemented and assessed to increase multi-disciplinary input for the patient's care (Bavare et al., 2021). Routine rounds, prior to use of tele-video conferencing, included the patient, family, bedside RNs, respiratory therapist, dietician, pharmacist, and consultant subspecialists (Bavare et al., 2021).

Once the initial needs assessments survey was completed, a Fishbone diagram was created to identify challenges (Bavare et al., 2021). The CQI methodology was implemented with hybrid rounds intervention to include tele-video communication platform and in-person bedside rounds with teams, as described above, and a e-Health personnel to facilitate any digital connection requirements (Bavare et al., 2021). It was found that hybrid rounds were adapted effortlessly and feedback from 114 provider surveys, 25 provider interviews, and 11 patient interviews found positive results indicating that rounds were more efficient, had few interruptions, and increase ancillary staff input during these rounds (Bavare et al., 2021). This hybrid rounds model was recommended to be applied to other medical centers and settings not limited to the PICU (Bavare et al., 2021).

Nursing Telehealth Education

The following articles were focused on nursing telehealth education and included descriptive studies, quasi-experimental studies, and qualitative studies. Surveys were administered to evaluate the intention to use telehealth by nurses, and interviews were conducted to assess nurses' confidence in using telehealth and factors that would increase their telehealth competencies. The telehealth education intervention programs were focused on increasing nurses' knowledge and self-efficacy for using telehealth. The majority of the populations studied were nurses working in the home health care, primary care, and hospital settings.

The purpose of this study conducted by Houwelingen et al. (2021) in the Netherlands was to evaluate the impact of a nurse educational intervention on telehealth competencies. A course on telehealth activities was created, and competencies were identified in three different settings: homecare, primary care, and a hospital (Houwelingen et al., 2021). A pretest-posttest design was used to evaluate the nursing telehealth program (Houwelingen et al., 2021). The study

demonstrated that in all three settings the nurses' knowledge was increased substantially after the training and in the primary care and home care setting the increased knowledge was maintained for 6 to 10 weeks post training (Houwelingen et al., 2021). Self-efficacy also increased significantly after the training and was maintained for 6 to 10 weeks for all three settings (Houwelingen et al., 2021). After the educational intervention, the telehealth consultations increased from two to 12 in primary care, 12 to 35 in home care, and decreased from 28 to 17 in the hospital (Houwelingen et al., 2021). Hospital nurses had more experience with telehealth before the training compared to the primary care and home care nurses, which could explain why they benefited less from the program (Houwelingen et al., 2021). The study focused on the importance of adequate telehealth education to increase telehealth knowledge and self-efficacy for nurses. This intervention study appears to have increased telehealth consultations conducted by primary care and home care nurses (Houwelingen et al., 2021).

In a mixed-methods, pre-post design study conducted in Australia by Bagot et al. (2019), a new acute stroke telehealth service (Victorian Stroke Telemedicine Program [VST]) was implemented in order to identify the intention to use these telehealth services. VST program provided services 16 hospitals with access to a neurologist for patients who presented to the hospital Emergency Department (ED) with suspected stroke symptoms (Bagot et al., 2019). These telemedicine consultations were completed through a mobile telemedicine cart in the hospital's ED using two-way audio-videoconferencing (Bagot et al., 2019). Educational training sessions including mock consults with feedback (Bagot et al., 2019).

A survey utilizing the Technology Acceptance Model (TAM) was administered from 2014 to 2017 before and 6 months following VST Program implementation (Bagot et al., 2019). At pre-implementation, the major predictor of intending to use telemedicine was perceived

usefulness by nurses and perceived ease of use (Bagot et al., 2019). The perceived usefulness of telehealth services is a key element in explaining intention to use by nurses prior to the implementation (Bagot et al., 2019). The ease of use was important to non-nurses as well prior to implementation (Bagot et al., 2019). At postimplementation, perceived usefulness was increased for both groups (Bagot et al., 2019). To maintain the use of telehealth, facilitating factors including education and training to increase confidence should be given to support nurses (Bagot et al., 2019). Training and support are needed to assure clinicians are confident in using the equipment and engaging with clinicians remotely (Bagot et al., 2019).

A qualitative study conducted by Honey and Wright (2018) in New Zealand investigated factors nurses found to be essential in confidently and competently participating in telehealth. Data was collected over 2 months in 2013 and included a semi-structured, face-to-face interview, by telephone or video conference using an interview guide (Honey & Wright, 2018). These data indicate that nurses' confidence in using telehealth is based on prior clinical experience, and their competence increased with more utilization of telehealth (Honey & Wright, 2018). The nurses believed that having protocols would increase their skills and proficiency with telehealth and multiple needed telehealth competencies were identified (Honey & Wright, 2018).

Literature Summary

Multiple QI projects (Archbald-Pannone et al., 2021; Bavare et al., 2021; Becker et al, 2021; Harris et al., 2021; Jen et al., 2021; Low et al. 2020) demonstrated that telehealth is feasible and cost-efficient for LTC facilities and acute care facilities to prevent rehospitalizations and improve patient care. Additionally, studies such as Houwelingen et al. (2021), Bagot et al. (2019), and Honey and Wright (2018) demonstrate that nurses are in need of telehealth related education to develop care competencies. Although telehealth has been around for many years,

the COVID-19 pandemic has significantly propelled its utilization. Virtual rounding and virtual huddles are a novel component of telehealth that is becoming more prevalent also due to the COVID-19 pandemic.

Nursing staff education, interdisciplinary rounding, and huddles have been shown to be effective in increasing communication between health care providers across settings, optimizing time efficiencies, and increasing patient safety and patient outcomes in the acute and post-acute care setting. The collaboration between a LTC facility and a hospital through telehealth technology has been demonstrated to be feasible, sustainable, and efficient in optimizing patient care by facilitating and increasing interdisciplinary communication to improve patient outcomes and decrease hospitalization rates during the COVID-19 pandemic. Implementing an educational intervention program for SNF nurses on telehealth to increase utilization may help reduce avoidable rehospitalizations of nursing home residents.

Purpose

The purpose of this Doctor of Nursing Practice (DNP) project was to examine knowledge, attitudes, beliefs and reported use of telehealth by a SNF nursing staff and to develop an educational program based on these findings.

Definition of Terms

For this DNP project, the following terms are defined as:

Long-Term Care Residents

The term long-term care residents is interchangeable with SNF resident and is defined as people who are not able to care for themselves and live independently who live in a facility for which they receive personal and medical care which can be a nursing home, SNF, and assisted living facility (Centers for Disease Control and Prevention [CDC], 2020).

Chronic Condition

Chronic condition is a term that is interchangeable with chronic disease, a condition that lasts 1 year or more and demands continuous medical attention or decreases the functional capacity for activities of daily living or both (CDC, 2022).

Telehealth

Telehealth, which is interchangeable with telemedicine, involves providing healthcare without an in-person visit completed online with the use of the internet accessible through a computer, smart phone, and tablet where a patient can speak with their healthcare provider live over the phone or video platform, send and receive messages from providers using secure messaging and file exchange, and/or use remote monitoring where the provider can assess vitals to be informed of patient progress (Health Resources & Services Administration [HRSA], 2021).

Rehospitalizations

Rehospitalization is a term interchangeable with hospital readmission and describes an unplanned hospital admission within 30 days of a hospital discharge from the initial admission (Centers for Medicare & Medicaid Services [CMS], 2021).

Interdisciplinary Rounds

Interdisciplinary rounds is a term interchangeable with multi-disciplinary rounds and characterizes the real-time structured meetings of interdisciplinary team members to discuss the patient's plan of care (Smith et al., 2019).

Virtual Rounding

Virtual rounding includes real-time structured meetings of interdisciplinary teams to discuss patient care via video display and sound accessed through the internet, allowing them to connect from anywhere.

Huddles

Huddles are short meetings that can last 10 minutes or less at the beginning of a workday in a healthcare setting in order to proactively manage quality and safety to ensure there are improvements in the processes (Institute for Healthcare Improvement, 2021).

Virtual Huddles

Virtual huddles are short meetings conducted at the start of a workday in a clinical setting to actively manage quality and safety to ensure quality improvements are being carried out via video conference platform through the internet

Telehealth Champion

A telehealth champion is a facility nurse trained by an expert telehealth provider in telehealth consults to be the expert in the process of using the video conference platform for virtual rounds and virtual huddles and assisting and educating the other facility team members.

<div align="center">Methodology</div>

The DNP project used a survey research design to examine nurses' knowledge, attitudes, beliefs and reported use of telehealth in caring for skilled nursing facility residents. The project protocol was approved by the Florida International University Institutional Review Board (IRB) (Appendix C).

Setting and Participants

The setting for this DNP project was a local medium to large sized skilled nursing facility (SNF) in Miami, FL with the capacity for 223 residents. This SNF has telehealth services access provided by a large South Florida hospital system. The potential participants were 75 registered nurses (RNs) from the SNF. Participants were asked to complete a survey to assess nurses'

knowledge, attitudes, and beliefs regarding telehealth. The online survey was administered after having several nursing staff meetings discussing the high rate of hospital readmissions and how telehealth may be helpful in addressing this problem. In the next section, detailed information regarding the project's procedures, measures, data management and analysis are described.

Procedures

The DON of the SNF invited the student investigator (J.B.) to two of their weekly nursing staff meetings (day shift and night shift) where the student provided the staff with details about the project that were included in the study informational letter. The DON emailed all of the SNF RNs the study informational letter and a link to the Qualtrics survey (described below). The nursing staff at the SNF were given 2 weeks to complete the survey after each meeting.

Measures

The 35-item online nursing survey included the following items: demographics, shift assignment, professional experience, and four domains: perceived usefulness, perceived ease of use, nurses' attitudes towards telehealth, and intention to use telehealth (see Appendix G). The DNP student modified the eICU Acceptance Survey (EAS) (Kowitlawakul, 2008) to address the present study aim. The eICU survey has been established to be valid and reliable (Kowitlawakul, 2008). The technology acceptance model (TAM) (Davis, 1986) guided the development of the EAS. The TAM is focused on understanding the process of acceptance from the user's perspective in using new technology (Davis, 1986). Additionally, the TAM is used in designing and implementing systems to assess "user acceptance" (Davis, 1986, p. 2).

Davis (1986) postulated that *perceived ease of use* contributes to *perceived usefulness*. For instance, easy-to-use technology requiring decreased physical and mental effort should lead to better job performance (Davis, 1986). *Perceived usefulness* "involves the degree to which an

individual believes that using a particular technology would enhance his or her job performance"

(Davis, 1986, p. 26). The *attitude* towards the technology refers to how an individual evaluates

using the target technology in his or her job (Davis, 1986). Use or *intention to use* indicates

actually using the technology in one's perspective job (Davis, 1986). In the present study, the

eICU survey was modified to assess SNF nurse willingness to accept and use telehealth in their

daily workday.
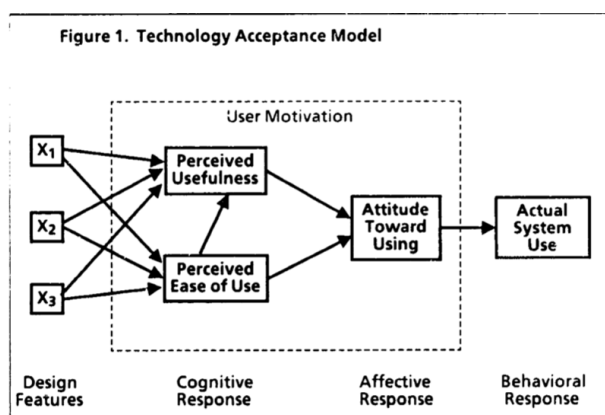
Note. (Davis, 1986, p. 24)

Data Collection

FIU Qualtrics Survey Software was used to administer the project survey. The Qualtrics

survey (Appendix E) was made available to all RNs at the SNF via an email link sent by the

DON. An informational letter (Appendix D) was provided to all potential participants prior to

viewing the survey. The survey items included demographics and statements to measure their

perceived usefulness, perceived ease of use, nurses' attitudes towards telehealth, and intention to

use of the post-acute care telehealth program. The four telehealth domain items used a 5-point

Likert response scale (*strongly disagree, disagree, uncertain, agree,* and *strongly disagree*).

Data Analysis and Management Plan

The data for this DNP project were obtained from the survey described previously.

Descriptive statistics were used to calculate values for all variables. The telehealth item

responses were combined into two categories for analysis as these categories represent readiness

to use telehealth in practice. The two categories were "strongly disagree," "disagree," and

"uncertain" and the other response category was "agree" and "strongly agree."

<p style="text-align:center;">**Results**</p>

Twenty-four (32%) of the eligible nurses completed the survey. Table 1 displays

the demographics for the survey participants ($n = 24$). The nurses completing the survey

were all RNs ranging from age 20 years old to 60 years old, 75% ($n = 18$) were women,

45.8% ($n = 11$) worked 11 plus years as a licensed nurse, almost half of all participants

45.8% ($n = 11$) have a Bachelor of Science in Nursing (BSN), and 87.5% ($n = 21$)

reported comfort using telehealth.

This section of the report highlights the survey responses displayed in Table 2. The

number of participants completing each survey item varied (see Table 2 note). The table provides

the survey results for the four domains. As shown in Table 2 (Perceived Usefulness Domain

Questions (Q) Q1 to Q7), most respondents agreed (i.e., agreed, strongly agreed) that use of

telehealth enables accomplishment of tasks quickly, improves job performance, increases

productivity, makes the job easier to do, is useful in the job, and improves communication in job.

More than half ($n = 12$, 52.2%) of respondents did not think telehealth would enhance job

effectiveness.

As shown in Table 2, Perceived Ease of Use (PEOU) domain Q1 to Q6 found a majority

of the nurses felt that telehealth was easy to operate ($n = 16$, 72.7%) or easy to be skillful in

using telehealth ($n = 16$, 69.6%). For most respondents, Attitudes Towards Telehealth (NATT) Q1 to Q16 was positive, as a majority felt comfortable using telehealth ($n = 17$, 77.3%), more than half felt it gives more time for patient care ($n = 14$, 63.6%) and decreases costs by decreasing workload ($n = 13$, 59.1%). Intention to Use (ITU) Q1 to Q6 demonstrated a majority or nurses ($n = 14$, 70%) intended to use telehealth with patient care when it became available in their department and intended to use telehealth routinely ($n = 15$, 68.2%). Demographics and all survey findings are displayed in Table 1 and Table 2. See Appendix E for the survey.

Table 1

Demographics Characteristics of Survey Respondents

Descriptor	$n =24$ (32%)
Age	
20-30 years	3 (12.5%)
31-40	12 (50%)
41-50	8 (33.3%)
51-60	1 (4.2%)
61+	0
Shift	
Day	18 (75%)
Night	6 (25%)
Gender	
Women	18 (75%)
Men	6 (25%)
Years Worked as licensed nurse	
0 to 5	8 (33.3%)
6 to 10	5 (20.8%)
11 +	11(45.8%)
Education level	
Associate Degree	10 (41.7%)
BSN	11 (45.8%)
MSN	1 (4.2%)
Ph.D.	1 (4.2%)
Other	1 (4.2%)

Years worked in SNF

    Less than 1   1 (4.2%)

    1 to 5 years   10 (41.7%)

    6 to 10 years   11 (45.8%)

    11 + years   2 (8.3%)

Awareness of telehealth availability from

Nurses from other departments with prior use of telehealth	8 (33.3%)
Nurses from other departments without prior use of telehealth	1 (4.2%)
Both 1 and 2	5 (20.8%)
Physicians/NPs/PAs	3 (12.5%)
Unit managers/Administrators	5 (20.8%)
Internet	2 (8.3%)
Television	0
Other	0

Attended a previous telehealth conference

    Yes   19 (79.2%)

    No   5 (20.8 %)

Overall Comfort with technology

    Good   21 (87.5%)

    Fair   3 (12.5%)

    Poor   0

Table 2

Survey responses

	Strongly Disagree to Uncertain n (%)	Agree to Strongly Agree n (%)
Perceived Usefulness (PU) [a]		
Q1. Enables to accomplish tasks quickly	10 (43.5%)	13 (56.5%)
Q2. Improves job performance	10 (43.5%)	13 (56.5%)
Q3. Increase productivity	11 (47.8%)	12 (52.2%)
Q4. Enhance job effectiveness	12 (52.2%)	11 (47.8%)
Q5. Make job easier to do	8 (34.8%)	15 (65.2%)
Q6. Useful in job	9 (39.1%)	14 (60.9%)
Q7. Improves communication in job	7 (30.4%)	16 (69.6%)
Perceived Ease of Use (PEOU) [b]		
Q1. Easy for me to operate	6 (27.3%)	16 (72.7%)

Q2. Easy to get it to do what I want it to do	8 (34.8%)	15 (65.2%)
Q3. Clear and Understandable	8 (34.8%)	15 (65.2%)
Q4. Flexible interaction	8 (34.8%)	15 (65.2%)
Q5. Easy to be skillful at	7 (30.4%)	16 (69.6%)
Q6. Easy to use	7 (30.4%)	16 (69.6%)
Nurses' Attitude Towards Telehealth (NATT) [c]		
Q1. Provides more time with patients	8 (36.4%)	14 (63.6%)
Q2. Adapt to assist nurses	6 (27.3%)	16 (72.7%)
Q3. Improves patient care	7 (31.8%)	15 (68.2%)
Q4. Not a violation of patient privacy	7 (31.8%)	15 (68.2%)
Q5. Gives more time to patient care	8 (36.4%)	14 (63.6%)
Q6. Decrease costs by decreasing workload	9 (40.9%)	13 (59.1%)
Q7. Creates more solutions to problems	9 (40.9%)	13 (59.1%)
Q8. Humanizes nursing care	8 (36.4%)	14 (63.6%)
Q9. Does not increase health costs	10 (45.5%)	12 (54.5%)
Q10. Comfortable using	5 (22.7%)	17 (77.3%)
Q11. Not make nervous	7 (31.8%)	15 (68.2%)
Q12. Not threatened	6 (27.3%)	16 (72.7%)
Q13. Does not scare me	5 (22.7%)	17 (77.3%)
Q14. Not hostile to telehealth	7 (31.8%)	15 (68.2%)
Q15. Does not make feel uneasy/confused	6 (27.3%)	16 (72.7%)
Q16. Self-Confidence in telehealth	7 (31.8%)	15 (68.2%)
Intention to Use (ITU) [d]		
Q1. Intend to use with patient care when available	6 (30%)	14 (70%)
Q2. Intend to use to provide healthcare as often	8 (36.4%)	14 (63.6%)
Q3. Intend to use routinely	7 (31.8%)	15 (68.2%)
Q4. Intend to use in patient care and management	7 (31.8%)	15 (68.2%
Q5. Intend to use for different things	6 (27.3%)	16 (72.7%)
Q6. Intend to use frequently	7 (31.8%)	15 (68.2%)

Note. Q (Question from Survey). Participant responses varied.
Out of 24 participants, [a] for PU, one respondent failed to respond to Q1-Q7 of the survey. [b] For PEOU, two respondents failed to respond to Q1 and one respondent failed to respond to Q2-Q6. [c] Two respondents failed to answer NATT Q1-Q16. [d] In ITU, four respondents failed to respond to Q1 and two respondents failed to respond to Q2-Q6.

Discussion

The primary finding from the staff survey administered for this DNP Quality

Improvement Project was most staff held a positive standpoint toward the use of telehealth. It is

promising that a majority of nurses felt telehealth was easy to operate and felt comfortable using

this technology, provided more time to patient care, and decreased healthcare costs. However,

half of the nurses also reported telehealth does not improve job performance or enhance job effectiveness; therefore, it is not surprising the overall use of telehealth services over the past few months according to the DON remains low.

This may be due to a number of factors such as a lack of evidence-based information, no local champion to support use of telehealth, lack of time, patient-nurse ratios, and resident clinical characteristics. For example, the majority of residents are older adults and most have cognitive impairment and sensory dysfunction (i.e., hearing, vision). Nurses may have a belief that due to these reasons; telehealth consults may be challenging to accomplish taking up too much time in to have value. Additionally, coordinating the time of virtual consults may be difficult, as many residents require rehabilitation services that can occur at various times of the day.

The current underutilization of the telehealth for high-risk residents (i.e., a risk for rehospitalization) and survey results findings suggest an intervention and staff support are needed. Lack of education was found to be a barrier to the delivery of telehealth by nurses in related research (Houwelingen et al., 2021). A study guided by the TAM for implementation of a telemedicine program demonstrated that *perceived usefulness* was a predictor of intending to use telemedicine by nurses (Bagot et al., 2019). The *perceived usefulness* of telehealth services of patient care is an important factor in explaining potential future use of telehealth by nurses (Bagot et al., 2019). Other studies such as Molfenter et al. (2021) suggested that *perceived usefulness* as well as *perceived ease of use* are the major influential factors in healthcare providers applying telemedicine services. In a study conducted by Alipour et al. (2019) found that *perceived usefulness*, social influence, system quality, *perceived ease of use*, and management support were key factors in the utilization information systems by healthcare

providers including nurses in public hospitals (Alipour et al., 2019). In the current study, a

significant number of participants did not perceive telehealth (30% to 52.2%) as being useful in

caring for SNF residents. Therefore, further work may be needed to understand and address

nursing attitudes toward use of telehealth.

Successful adoption of an innovation includes a positive viewpoint towards the adoption

within the system's culture, effective and productive communication between the members of

the system, and involvement of stakeholders in the decision making process in implementing an

innovation (Cervero, 1985). The social system should provide the staff with incentives or at least

no disincentives in regards to a new innovation such as this telehealth program. The initial plan

for this DNP project was to implement a telehealth educational program for SNF nurses to

increase the use of telehealth in order to prevent hospital readmissions. The DNP student (J.B.)

spent extended time immersed with the stakeholders, reviewed the relevant literature, facility

procedures, and conducted facility observations in developing an educational program.

Unfortunately, due to staffing issues, availability of the staff, and other barriers, it was not

possible to provide staff education. However, an educational program was developed (described

in the next section of this report) and informed by the current study findings. There is a plan in

place by the facility to implement the educational program in the future.

Limitations

In interpreting these findings, a number of limitations should be considered. First, less

than half of eligible nurses participated. It is unknown if participants view telehealth differently

from those who did not respond to the survey. Although, it may be simply that being present on

the days study information (i.e., random staffing) was provided impacted survey completion.

Second, several nurses who participated did not respond to all of the survey items. This may

indicate uncertainty regarding the usefulness and confidence for using telehealth. Lastly, the setting of this QI project was one SNF. It is unknown whether these findings would be generalizable to other SNFs.

Implications for Advanced Practice Nursing

Advanced Practice Registered Nurses (APRNs) are often placed in leadership and educator roles. Based on the National Organization of Nurse Practitioner Faculties' (NONPF, 2022), Nurse Practitioner Role Core Competencies domains, the APRN should have the most current scientific knowledge in order to integrate and translate evidence into practice with the goal of improving quality of care, safety, and health outcomes. Additionally, APRNs should have the "professional acumen" (NONPF, 2022) to mentor and educate peers, students, and other members of the interprofessional healthcare team members effectively. Therefore, an experienced and skilled APRN should be considered to lead in the development and implementations of a quality improvement program for the SNF staff. Furthermore, related research supports the positive impact of APRNs on cost-effectiveness, management of chronic diseases, and reducing rehospitalizations, as well as patient satisfaction (Htay & Whitehead, 2021). APRNs are well positioned to develop, implement, and evaluate evidence-based practice programs such as health technology protocols.

Conclusions

These survey study results indicate that a significant minority of nurses do not perceive the overall usefulness of telehealth technology. Therefore, staff may benefit from an evidence-based educational program focused on the value of the use of telehealth in preventing SNF resident rehospitalizations. As a next step, these survey findings will be used in refining the developed educational program (described in next section of this report). Previous research

supports the need for education and social system support in implementing a telehealth program

to reduce SNF rehospitalizations.

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Appendix A: Literature Search Tablet

Search Items	Description
Search terms	Telehealth in preventing readmissions, telemedicine, virtual rounding, virtual huddles, Telehealth and chronic conditions, nursing home readmissions, skilled nursing facility readmissions, long term care facility readmissions
Searched databases	MEDLINE Guide, PubMed Guide, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, and Cochrane Library.
Boolean operators	AND, NOT, or AND NOT were applied.
Journals/articles searched	Full text with abstracts, English.
Journal/articles years searched	A period within the last six years (2015-2021).
Types of the included studies	Qualitative, systematic literature review, and quality improvement projects

Inclusion criteria	Studies within the last 5 years, peer reviewed, with full text and with abstract.
Exclusion criteria	Article not peer-reviewed, not in the last 6 years, without full text and an abstract.

Appendix B: Literature Matrix

Authors/Year	Study Design	Sample	Intervention	Study Findings
Alipour, J., Mehdipour, Y., & Karimi, A. (2019)	Survey of hospital staff to determine elements affecting acceptance of Health Information System (HIS) by the users.	550 healthcare providers in public hospitals	N/A	The greatest impact on the user's intention to accept a HIS was perceived usefulness of the system, social influence, system quality, perceived ease of use of the system, and management support.
Archbald-Pannone, L., Harris, D., Steele, R., Kaur, J., Albero, K., Mutter, J., Cattell-Gordon, D., and Rheuban, K. (2021)	QI project	LTC team: Nursing staff, primary care providers, facility director of nursing; hospital-based team: pulmonary/critical care specialist, geriatrician,	Virtual daily rounds implemented to facilitate communication between providers to rapidly identify decompensating patients that need	Virtual rounding and the use of telemedicine in LTC facilities was shown to be an efficient and effective approach in optimizing clinical communication

		telemedicine nurse liason, telemedicine team.	consultations via telemedicine	resulting in decreased hospitalizations and mortality rates.
Bagot, K., Moloczij, N., Arthurson, L., Hair, C., Hancock, S., Bladin, C.F., & Cadilhac, D. A. (2019)	Mixed-methods, pre-post design	77 nurses (preimplementation surveys) and 92 (postimplementation surveys), 90 non nurses (preimplementation) and 44 non nurses (postimplementation)	An acute stroke telehealth service was implemented to identify elements that predicted the intention to use telehealth and provide nurses' perspectives of acute telehealth.	To succeed telehealth needs to be identified as beneficial to patient care by all clinicians involved. Training and support are needed to increase confidence while using telehealth for consults.
Bavare, A.C., Goldman, J.R., Musick, M.A., Sembera, K.A., Sardual, A.A., Lam, A.K., Tume, S.C.,Thammasitboon, S.X., and Williams, E.A. (2021)	Continuous QI project	13 ICU teams, including frontline providers, bedside RN, RT, dietician, pharmacist, consultant subspecialists	Implemented patient-centered rounding through technological communication with multidisciplinary involvement.	E-Health team videoconference platform increased efficiency, decreased interruptions, data optimization, visualization, improved the nurses' ability to communicate with teams.
Becker, N.V., Mendu, M.L., Martin, K.L.,Hirner, J.P.,Bakshi, S., and Carlile, N. (2021)	QI project	777 inpatient providers; and 41 providers served as virtual rounders	To evaluate virtual team rounding program feasibility and provider experience	Virtual team rounding was found to be highly acceptable and feasible in assisting inpatient providers; and high satisfaction rates were observed.
Harris, D.A., Archbald-Pannone, L., Kaur, J., Cattell-Gordon, D.,	QI project	Interprofessional team of two physicians, telehealth engineers, nurses	Intervention focused on using telehealth to identify patients requiring escalation of	Telehealth technology used for consultations effectively decreased COVID related

Rheuban, K.S., Ombres, R., Albero, K., Steele, R., Bell, T.D. and Mutter., J.B.(2021)			health care delivery in the LTC facility during the COVID-19 pandemic.	hospitalizations and mortality compared to other facilities.
Honey, M., & Wright, J. (2018)	Survey focused on factors essential in utilizing telehealth	9 nurses using telehealth	N/A	Nurse's confidence in using telehealth is based on prior clinical experience and their competency increases with continued use of telehealth.
Houwelingen, T.V., Ettema, R.G.A., Bleijenberg, N., Os-Medendorp, H.V., Kort, H.S.M., & Cate, O.T. (2021)	Pretest-Posttest Design	37 nurses	To evaluate the effectiveness of an educational intervention focused on nurses telehealth competencies in homecare, primary care, and hospital setting	Educational intervention helped increase remote consultations contributing to the nurses' knowledge and self-efficacy.
Jen, S.P., Bui, A., and Leonard, S.D. (2021)	QI project	66 patients; 2 medical provider teams (acute care facility and SNF)	Optimize virtual rounding by creating a streamlined protocol to increase efficiency of virtual rounding in a SNF.	Decrease familiarity with the technology, not having needed equipment at bedside or staff at bedtime during rounds, and issues with WiFi connectivity results in inefficient or lack of virtual rounding.

Low, J. A., Toh, H., Tan, L. L., Chia, J., and Soek, A.T.S.S. (2020)	Prospective, descriptive study	850 nursing home residents	Telemedicine was used for consultation and QI programs in nursing homes to avoid unnecessary ED transfers and hospitalizations.	Virtual rounding by nursing home nurses is highly feasible and provides positive impact in LTC facilities resulting in efficient, cost-effective, high-quality care.
Molfenter, T., Roget, N., Chaple, M., Behlman, S., Cody, O., Hartzler, B., Johnson, E., Nichols, M., Stilen, P., & Becker, S. (2021)	Online survey of telephonic and video services use.	457 regional Addiction Technology Transfer Centers in 43 states	N/A	Perceived ease of use and usefulness of telemedicine were the driving factors in the use of this technology by healthcare providers.

Note. N/A (Not Applicable)

Appendix C: IRB Exemption Approval Letter

MEMORANDUM

To: **CC:**

From:
Date:
Proposal Title:

Dr. Ellen Brown Joana Bringas

Carrie Bassols, BA, IRB Coordinator July 28, 2022

"Reducing Rehospitalizations of Nursing Home Residents through Telehealth: An Educational Quality Improvement Program"

Ceb

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the **Exempt Review** process.

IRB Protocol Exemption #: IRB-22-0348 **IRB Exemption Date:** 07/28/22 **TOPAZ Reference #:** 111544

As a requirement of IRB Exemption you are required to:

1. 1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
2. 2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.

1) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

Special Conditions: N/A

For further information, you may visit the IRB website at http://research.fiu.edu/irb.

Appendix D: Informational Letter

FIU | FLORIDA INTERNATIONAL UNIVERSITY

INFORMATIONAL LETTER

Reducing Rehospitalizations of Nursing Home Residents through Telehealth: An Educational Quality Improvement Program

Hello, my name is Joana P. Bringas. You have been chosen because you are a nursing staff member at Riviera Health Resort to partake in a quality improvement project about an educational program on the utilization of telehealth to reduce hospital readmissions. The purpose of this project is to evaluate the impact of a telehealth virtual rounding educational intervention on nurses' knowledge, attitudes, beliefs, and use of telehealth to prevent rehospitalizations of nursing home patients. If you decide to be in this project, you will be 1 of 75 people in this project. Participation in this educational program will take about 40 minutes of your time. If you agree to be in the project, we will ask you to do the following things:

1. *Complete and pre-intervention survey prior to the educational program.*
2. *You will view a short educational video on the process of using telehealth and applying virtual rounding for post hospital discharge patients being admitted into a nursing home.*
3. *Complete a post-intervention survey 2 weeks after viewing the telehealth educational video.*

There are no foreseeable risks to you for participating in this study. It is expected that this project will benefit society by reducing resident hospital readmissions from nursing homes due to certain chronic conditions improving their quality of life and decreasing healthcare costs.

There is no cost or payment to you. If you have questions while taking part, please stop me and ask.

You will remain anonymous as your answers to the survey involved are confidential.

If you have questions for one of the researchers conducting this study, you may contact Joana P. Bringas, APRN at 305-562-4892 or Dr. Ellen Brown FIU Associate Professor at ebrown@fiu.edu.

If you would like to talk with someone about your rights of being a subject in this research study or about ethical issues with this research study, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

Your participation in this research is voluntary, and you will not be penalized or lose benefits if you refuse to participate or decide to stop. You may keep a copy of this form for your records.

Appendix E: Survey

The Post-Acute Care Telehealth Acceptance Survey (PACTAS)

Section I: Demographic Data Direction: Please fill out each item and select the item that best describes you.

1)   Age: 20-30_____ 31-40_____41-50_____51-60_____ 61+_____
2)   Which shift do you usually work_____(1) day shift   ____(2) night shift
3)   Sex: _____(1) Man _____(2)Woman
4)   Years worked as a licensed nurse?
5)   Educational Level: Check highest degree obtained
        (1)_____ Second Degree Nursing program (2) ____Diploma(3)_____Associate Degree
        (4) _____BSN (5)_____MSN (6) _____ Ph.D (7) _____other (describe)
6)   How many years have you worked in this Skilled Nursing Facility? _____
7)   I have heard about telehealth technology from
        (1)___Nurses from other departments who have used telehealth
        (2)___Nurses from other departments who have not used telehealth
        (3)___Both number 1 and 2
        (4)___Physicians
        (5)___unit managers or administrators
        (6)___Internet
        (7)___Television
        (8)___ other
8)   Have you ever attended a conference on telehealth (1)___ Yes (2)   ____No
9)   Overall comfort with technology (1) Good _____ (2) Fair_____ (3) Poor_____

This survey consists of five sections. Please complete all questions.

Section II: Perceived Usefulness (PU)

Direction: The following statements refer to whether telehealth can enhance patient care. Please read each statement carefully, and then circle only one answer for each statement.
1= Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree

Items	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1. Using telehealth technology would enable me to accomplish tasks more quickly.	1	2	3	4	5
2. Using telehealth technology would improve my job performance.	1	2	3	4	5
3. Using telehealth technology in my job would increase my productivity.	1	2	3	4	5
4. Using telehealth technology would enhance my effectiveness on the job.	1	2	3	4	5
5. Using telehealth technology would make it easier to do my job.	1	2	3	4	5

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
6. I would find telehealth technology useful in my job.	1	2	3	4	5
7. Using a telehealth technology would improve communication on my job.	1	2	3	4	5

Section III: Perceived Ease of Use (PEOU)

Direction: The following statements refer to whether a telehealth system is easy to use. Please read each statement carefully, and then circle only one answer for each statement.
1= Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree

Items	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1. Learning to operate telehealth technology would be easy for me.	1	2	3	4	5
2. I would find it easy to get telehealth technology to do what I want it to do.	1	2	3	4	5
3. My interaction with telehealth technology would be clear and understandable.	1	2	3	4	5
4. I would find telehealth technology to be flexible to interact with.	1	2	3	4	5
5. It would be easy for me to become skillful at using telehealth technology.	1	2	3	4	5
6. I would find telehealth technology easy to use.	1	2	3	4	5

Section IV: Nurses' Attitudes toward Telehealth (NATT)

Direction: The following statements refer to your attitude toward telehealth. Please read each statement carefully, and then circle only one answer for each statement.
1= Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree

Items	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1. The use of telehealth technology improves patient care by giving the nurse more time with the patients.	1	2	3	4	5
2. A telehealth technology can be adapted to assist nurses in many aspects of patient care.	1	2	3	4	5
3. A telehealth data system offers nurses a remarkable opportunity to improve patient care.	1	2	3	4	5
4. A telehealth technology DOES NOT represent violation of patient privacy	1	2	3	4	5
5. A telehealth technology causes nurses to give more time to quality patient care.	1	2	3	4	5
6. A telehealth technology decreases costs by decreasing the nurse's workload.	1	2	3	4	5
7. A telehealth technology creates more solutions to problems in nursing practice.	1	2	3	4	5
8. The use of telehealth technology humanizes nursing care.	1	2	3	4	5

9. Part of the increase in costs of health care is NOT because of telehealth technology.	1	2	3	4	5
10. I would be comfortable using a telehealth technology.	1	2	3	4	5
11. Working with telehealth technology will NOT make me very nervous.	1	2	3	4	5
12. I DO NOT feel threatened when others talk about telehealth	1	2	3	4	5
13. A telehealth technology does not scare me at all.	1	2	3	4	5
14. I do not feel hostile toward telehealth.	1	2	3	4	5
15. Telehealth Does not make me feel uneasy or confused.	1	2	3	4	5
16. I have a lot of self-confidence when it comes to working with a telehealth technology.	1	2	3	4	5

Section V: Intention to Use (ITU)

Direction: The following statements refer your intention to use a telehealth system with patient care. Please read each statement carefully, and then circle only one answer for each statement. 1= Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree

Items	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1. I intend to use telehealth technology with my patient care and management when it is available in my department.	1	2	3	4	5
2. I intend to use telehealth technology to provide health-care services to patients as often as needed.	1	2	3	4	5
3. I intend to use telehealth technology in my patient care and management routinely.	1	2	3	4	5
4. Whenever possible, I intend to use telehealth technology in patients care and management.	1	2	3	4	5
5. To the extent possible, I would use telehealth technology to do different things, clinical or non clinical.	1	2	3	4	5
6. To the extent possible, I would use a telehealth technology in my patient care and management frequently.	1	2	3	4	5

1. Did you have an opportunity to utilize telehealth services with a resident in the past month?
   (if no skip to item 4)
   ____Yes _____No

2. If yes, were there any barriers with using telehealth technology?
   _____Yes _____No   (if no skip to item 4)

3. If so what were the barriers? Check all that apply.
   ___Lack of time ____Technology challenges ____ Lack of tech support ___ Uncertain how to use ___ Other

reasons

4. Overall, how helpful was the telehealth utilization educational program?

_____Very Helpful   ____ Somewhat Helpful _____Not Helpful

Appendix F: Quality Improvement Program

Conceptual Underpinning and Framework of the Project

The Continuing Professional Education (CPE) and Behavioral Change model developed by Cervero in 1985 was used to guide the development of the telehealth educational intervention program. This framework is focused on how to change nursing behaviors with CPE programs (Cervero, 1985).The framework includes four attributes to be considered in developing and facilitating implementation of innovations and producing long-term behavior changes (Cervero, 1985). The four attributes of a CPE program to consider are the (1) *characteristics of the program*, (2) *characteristics of the individual professional*, (3) *type of proposed behavior changes*, and (4) *characteristics of the social system in which the professional operates* (Cervero, 1985). In regards to the proposed behavior change, the CPE program includes:

1. *Relative Advantage* "is the degree to which an innovation is perceived as being better than the idea it supersedes" (Rogers & Shoemaker, 1981, as cited in Cervero, 1985, p. 87).

2. *Compatibility* "is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of the receiver" (Rogers & Shoemaker, 1981, as cited in Cervero, 1985, p. 87).

3. *Complexity* or " the degree to which an innovation is perceived as relatively simple to understand and use (Rogers & Shoemaker, 1981, as cited in Cervero, 1985, p. 87-88).

4. *Trialability* "is the degree to which an innovation may be experimented with on a limited basis (Rogers & Shoemaker, 1981, as cited in Cervero, 1985, p. 88).

5. *Observability* "is the degree to which the results of an innovation are visible to others (Rogers & Shoemaker, 1981, as cited in Cervero, 1985, p. 88).
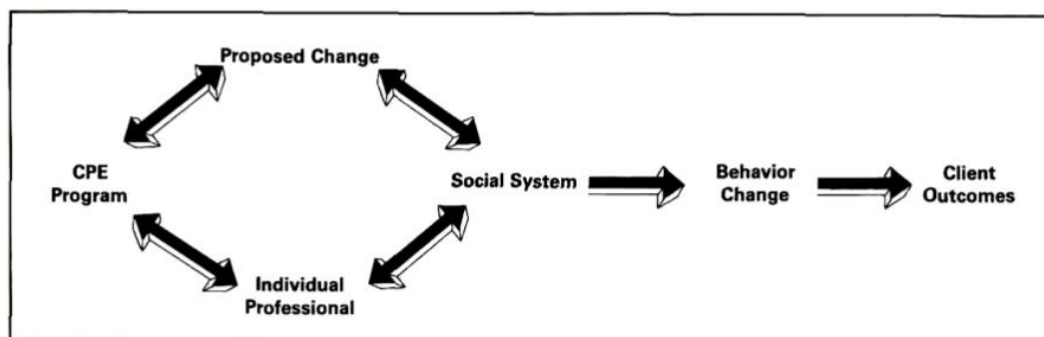

FIGURE: *Framework linking CPE and behavioral change.*

(Cervero, 1985, p. 86)

A telehealth educational video created by the DNP student (J.B), and guided by the recommendations of the DON at the SNF and a hospital-based telehealth nurse. The video focused on three case-based scenarios described below. The video content was approved by the DON and hospital-based telehealth nurse. The narration describes the importance of preventing hospital readmissions in nursing home residents with the use of telehealth technology. The three vignettes portrayed:

- Vignette 1: A male patient in stable condition is readmitted to the SNF. The bedside APRN and charge RN perform a telehealth virtual round which appears disorganized and the staff actors appears unprepared. An SBAR (Subjective, Background, Assessment, Recommendation) communication tool sheet was introduced to provide an organized communication approach during virtual rounds and telehealth consults.

- Vignette 2: Demonstrates a patient going into a CHF decompensation and the RN identifying the symptoms and ultimately performing a well prepared telehealth consult. Proper use of the telehealth cart, SBAR communication, and updated orders from the telehealth team helped prevent a rehospitalization.

- Vignette 3: Portrays a patient doing well and how a telehealth consult avoided a rehospitalization with a final narration and describing the steps performed.

The CPE video vignettes portray the *Relative Advantage* of using telehealth in preventing hospital readmissions, the low *Complexity*, provides nurses with the opportunity to observe (i.e. *Observability*) how quickly and easy telehealth connectivity is accomplished, and the process of telehealth virtual rounding. In implementing the CPE program, it is recommended that nurses are provided with the opportunity to try it out (i.e. *Trialability*) by actually using the telehealth cart with mock telehealth virtual rounds. Finally, the CPE program should have *Compatibility* with the delivery approach of previous facility in-services. For example, a decision was made that a video was needed so that it could be used for small groups of nurses (i.e., there are multiple nursing shifts), be available for new staff, and the video is brief making it feasible to view during regularly scheduled staff meetings.