Improving COVID-19 Transmission Rates in Long Term Care Facilities

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Notes from the Author

Dedication

This DNP paper is dedicated to my daughter, who was my number one cheerleader during this DNP journey; without you, this would not have been possible.

Acknowledgments

I would like to thank my daughter and mother for their unwavering support during this journey. To my DNP project student team members, Farrah, Roselynn, Cyrille, and Fuzail, thanks for your hard work and dedication to this project. To Diane and Farrah, there are no words to express how much you mean to me. Thanks for always believing in me when I did not even believe in myself. Thank you for never letting me quit, no matter how many times I threaten to do so. I am grateful to have gone through this journey with both of you. Lastly, I would like to thank Dr. David Campbell-O'Dell and Dr. Janet Tillman for their support and guidance during the planning and implementation of this project.

Abstract

Long-term care facilities (LTCFs) are at increased risk for outbreaks of COVID-19. Infection control measures have been an issue for LTCFs before the pandemic. The DNP project aimed to provide education to strike team members to facilitate and implement infection control protocols in long-term care facilities to mitigate the transmission risk to residents and staff. Education was provided to strike team members that included a review of COVID-19, suggested infection control protocols, and proper donning and doffing of personal protective equipment (PPE). Virtual return demonstrations were conducted by the DNP student team, which was followed by a Qualtrics survey to assess the strike team members' perception of the education. There was a 24% completion rate with 100% of the participants feeling confident in properly donning and doffing PPE after the educational presentation, 72 % felt they had enough PPE, and 78% felt they had enough time to don and doff PPE properly. Due to limited data, the project does not reveal whether the interventions were effective in decreasing transmission rates.

Keywords: COVID-19, long-term care facilities, nursing homes, personal protective equipment, PPE, strike teams, infection control, pandemic, staffing, nurses, SARS-CoV-2, occupational safety, clinical teams, nursing assistants

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Section I. The Problem

Background

The novel coronavirus (COVID-19) is a dangerous, highly contagious viral infection that has affected millions of people throughout the world (Center for Disease Control and Prevention [CDC], 2020a). The CDC estimates that as of June 21, 2021, there have been 33,368,860 total cases and 599,354 total deaths in the United States related to the coronavirus (CDC, 2020a). While this pandemic has affected many, the sick and elderly in long-term care facilities (LTCF) are particularly vulnerable (Gardner et al., 2020). Therefore, the need to mitigate transmission of the coronavirus in LTCF is of the utmost importance. In addition, these facilities are at an enormous risk for rapid spread given the congregate nature in which the residents live.

In 2016, Harris-Kojetin et al. (2019) estimated that 1,347,600 persons lived in LTCFs in the United States. This population is at high risk for morbidity and mortality related to complications of COVID-19 due to a higher number of chronic conditions and disabilities when compared to the larger community (D'Adamo et al., 2020). According to the Centers for Medicare and Medicaid Services (CMS), there were 655,623 confirmed cases of COVID-19 in LTCFs and 132,703 COVID-19 related deaths of residents in LTCFs in the United States as of June 21, 2021. In North Carolina, there were 638 LTCFs reporting cases of COVID-19, 36,789 confirmed cases, and 4,202 COVID-19 related deaths as of June 21, 2021 (Kaiser Family Foundation [KFF], 2021a). According to the KFF (2021a), COVID-19 accounts for 31% of LTCF deaths as a share of total state deaths in North Carolina, while it accounts for 22 % of LTCF deaths in the United States. Notable, this accounted only for CMS facilities and did not account for private facilities in North Carolina or the United States.

The Issue

Many LTCFs were short-staffed before the COVID-19 pandemic and the pandemic made it even harder to retain staff (Quintin, 2020; Xu et al., 2020). Staffing shortages have become all too real during this unprecedented time as the staff is fearful of contracting COVID-19 and transmitting the virus to their own families. To exacerbate the staffing issue, many employees are taking time off because they have contracted the virus themselves or have caregiving responsibilities at home. As of June 21, 2021, the total number of COVID-19 cases among LTCF staff was 584,596, and the number of deaths in this cluster was 1,934 (North Carolina Department of Health and Human Services [NCDHHS], 2020a). Thus, inadequate staffing in LTCFs is one of the biggest threats to transmission. Furthermore, as shortages persist and staffing is stretched thin, infection control practices have been impeded, putting staff and residents at risk (Hayashi, 2020; Quintin, 2020; Weisman, 2020).

While inadequate staffing contributes to transmission risk, the biggest threat in LTCFs is the lack of infection control procedures. There are several factors that contribute to the lack of infection prevention and control in LTCFs. First, staff of LTCFs are not educated on infection prevention and control. Therefore, compliance is low. Environmental issues also pose challenges as residents are in shared spaces, and isolation of infected residents can prove to be complicated. Furthermore, residents require frequent contact with healthcare workers as many have lost independence and depend on others for activities of daily living (Harrington et al., 2020; Houghton et al., 2020; Lee et al., 2020). Infection control issues in long-term care facilities have been an ongoing issue. (Davidson & Szanton, 2020; Harrington et al., 2020). Studies suggest that a lack of training on infection control and improper use of PPE play a crucial role in infection prevention and control in LTCFs (Houghton et al., 2020; Lee et al., 2020). In many

instances, healthcare workers were uncertain of using PPE or unsure which guidelines to use. Financial constraints, lack of PPE, or poor-quality PPE also play a role in infection control deficiencies (Herzig et al., 2016; Harrington et al., 2020; Houghton et al., 2020).

The Evidence

COVID-19 is a respiratory illness that appears to spread in the same fashion as the influenza virus, droplet transmission (CDC, 2020b). Coughs and sneezes by infected persons may contain droplet nuclei potentially traveling at least three feet through the air (D'Adamo et al., 2020). The coronavirus is thought to remain viable on skin surfaces and inanimate objects for several hours and other objects for several days. The primary portal of entry is the upper respiratory tract, which leads to the virus settling in the lower respiratory tract (CDC, 2020b; D'Adamo et al., 2020).

The infection and death rates in the United States were 10,051 per 100,000 persons and 180 per 100,000 persons as of June 21, 2021 (CDC, 2021a). In comparison, the infection and death rates for LTCFs in the United States were approximately 48,651 per 100,000 persons and 2,024 per 100,000 persons (CDC, 2021a). Furthermore, the infection rate and death rate in the United States for those of the same age not living in LTCFs is 27,030 per 100,000 people living in the U.S., and the death rate is 509 per 100,000 people (CDC, 2021a). In North Carolina, those aged 50 years old and older, the infection rate is 3,273 per 100,000 people; the death rate is 127 per 100,000 people (NCDHHS, 2021a). In comparison, the infection and death rates for those living in LTCFs in North Carolina were 442 per 1,000 persons and 114 per 1,000 persons (NCDHHS, 2021a). Thus, the data demonstrate that both infection and death rates among LTCF residents in the United States and the state of North Carolina are drastically higher when compared to those in the same age group and the general population.

To mitigate the spread of the virus in LTCFs, the CDC and the World Health Organization (WHO) provided guidance for these facilities. These strategies include regular and careful handwashing with soap or an alcohol-based antiseptic after contact with any resident or surface that may harbor the virus, frequent cleaning and disinfecting of bathrooms, showers, bedrails, hallway handrails, doorknobs, and equipment used on residents (CDC, 2020c; World Health Organization [WHO], 2020). Other measures include visitor restrictions, screening all staff for fever and symptoms of coronavirus before entering the building, social distancing, cancellation of communal dining and all group activities, active screening of residents and isolating those with suspected or confirmed COVID-19, identification of staff that works at multiple facilities and restricts them appropriately to avoid the risk of COVID-19 spread (CDC, 2020c). In addition, all staff was required to wear N95 masks, gowns, gloves, and face shields with any suspected or confirmed COVID-19 patient, and residents were expected to wear cloth masks as tolerated when leaving their rooms (CDC, 2020c).

Problem Statement

Nursing home populations are at substantial risk of being infected and dying from COVID-19. Poor staff retention, inadequate knowledge of infection control, and organizational barriers further exacerbated the higher infection and death rates for LTCF residents. These issues pose challenges for LTCFs that were already burdened.

Purpose Statement

The purpose of the project was to mitigate the transmission risk of COVID-19 among residents and staff by informing and empowering strike team members through the implementation of an educational program. Additionally, the educational program seeks to

improve North Carolina strike team member's knowledge of COVID-19 and infection prevention control strategies in long-term care facilities in North Carolina.

Section II. The Action

The Intervention(s)

The project partner implemented strike teams to help with decreasing the spread of COVID-19 in long-term care facilities (LTCFs). The duties of the strike team consisted of educating LTCF staff on infection control measures, proper use of personal protective equipment (PPE), and assisting with staff shortages. The DNP Student Team was tasked with educating strike team members on infection prevention and control measures based on recommended guidelines and evaluating strike team member's proficiency of donning and doffing through virtual online demonstrations. Data of transmission rates of residents and staff will be collected prior to the education and after education. Data analysis will be conducted as needed.

Ethical Consideration & Protection of Human Subjects

In preparation for this project, the Collaborative Institutional Training Initiative (CITI, 2020) training for research ethics and compliance was completed. In addition, East Carolina University Internal Review Board (IRB) approval was obtained prior to initiating the DNP Project. The official IRB determination Qualtrics survey was submitted when the proposal was approved. The role of IRBs is to enforce and track the principles of research to ensure the protection of all participants, as declared in the Common Rule (Bonnel & Smith, 2018).

There will be minimal risks in participating in this study. The participants' names will not be on the surveys, and all materials will be kept confidential and secure on a password-protected computer assessed by the project team. The project's information will only be shared as a

summary. There will not be any punitive actions taken for taking part in this project. There will not be any costs or payments made for participating in the study.

All information obtained in this study is strictly confidential unless disclosure is required. The study results will be shared with the project partner and will be done in a summary format upon completion of the project. No participant names will be used. Only the DNP project team will have access to the data.

Section III. The Project Design

The Setting

The setting of the project is long-term care facilities. Long-term care facilities (LTCFs) provide various services, both medical and personal care, to people who are unable to live independently (CDC, 2020d). There are several different types of LTCF's which include: skilled nursing facilities, assisted living facilities, and nursing homes. In 2014, there were approximately 420 nursing homes in North Carolina (CMS, 2015). Of the 420 facilities, 335 were for-profit, 74 were nonprofit, and 11 were government-owned (CMS, 2015). For this project, strike team members will be staffing skilled nursing facilities. The majority of these facilities are regulated by federal and state agencies, while only a few are regulated by state or federal agencies alone (CMS, 2015). Funding for residents who live in LTCF's is provided by Medicare, Medicaid, and private paying residents. However, the majority of funding is from Medicaid. Care in these facilities is provided by registered nurses (RNs), licensed practical nurses (LPNs), certified nursing assistants (CNAs), medical doctors (MDs), physician assistants (PAs), and nurse practitioners (NPs). The majority of the residents living in LTCFs are 65 years and older; however, some residents who require the care provided in SNFs are younger.

The Project Team

The project team will consist of the project partner, the project partner team members, the project site champion, and the East Carolina University DNP students. The project partner operates on both the state and federal levels. The site champion served as a liaison between the DNP Student Team and the project partner. The DNP faculty was comprised of two faculty members who supported the DNP Student Team throughout the process of the project. Finally, the DNP student team consisted of five students in varying stages of the DNP program.

Project Participants

The project participants included strike teams developed by the project partner. The strike team was comprised of 11 full-time strike team members, who were the primary members of this project. The strike members consisted of Registered Nurses (RNs), Emergency Medical Technicians (EMTs), and paramedics. The participants were all adults over the age of 18. Most of the participants have been in their current role for four years or less.

Project Goals

The project aimed to increase the knowledge of strike team members to facilitate and implement infection control protocols in long-term care facilities. The desire of the project team was to empower the strike team members through education to become advocates for infection control in these facilities.

SWOT Analysis

A SWOT analysis was performed to ascertain any strengths, weaknesses, opportunities, and threats that may influence this project's intended goal (Moran et al., 2020). This analysis is summarized in Appendix A.

Moran et al. (2020) identified strengths as aspects of the project that improve the project's potential success and sustainability (Moran et al., 2020). These strengths include government buy-in. Government assistance will be critical in providing facilities with the necessary supplies to keep residents and staff safe. In addition, mitigating the spread of COVID-19 in facilities will require all stakeholders' collaboration. Another strength is the awareness of the need for infection control measures in long-term care facilities. Acknowledging the need for infection control will positively impact decreasing the spread of COVID-19.

Weaknesses are identified as factors that may challenge the creation and sustainability of the project. These include a lack of personal protective equipment. Without the proper equipment needed to keep residents and staff safe, this project will likely not be sustainable. Lack of time and knowledge of staff, as well as limited staff, is another weakness. Limited staff increases workload, which will negatively impact the time needed to address infection control measures adequately.

Opportunities are considered benefits of the project that generate other potential positive gains for long-term care facilities (Moran et al., 2020). As there is currently no vaccine for COVID-19, education is imperative. Providing education to strike team members in an effort for this information to reach the staff of long-term care facilities may prove to be beneficial in decreasing the spread of COVID-19 in these facilities.

Threats to the project are variables that may negatively influence the development, implementation, and change outcomes (Moran et al., 2020). Lack of engagement from strike team members will hinder participation, which will decrease the dissemination of knowledge to staff in long-term care facilities.

Driver Diagram

A driver diagram was created to determine the project partner's primary, secondary, and tertiary needs and display what will contribute to the success of the project aim. The driver diagram is graphically summarized in Appendix B.

Implementation Tools

For this project, the Plan-Do-Study-Act (PDSA) framework was used. The primary need of the project partner was assessed; based on the need for education, the DNP student team implemented an educational PowerPoint presentation that was disseminated to the strike team members. Virtual demonstrations were conducted to assess the proficiency of donning and doffing of strike team members. A checklist of the demonstration was performed, and the data was analyzed. Based on the results, the PDSA cycle was repeated as needed.

The DNP student team met weekly via WebEx during the implementation phase. There were also communications as needed using the GroupMe application. In addition, the student team met with the site champion and faculty advisors on a bi-monthly basis.

Process Measures

The primary focus of the project was to educate the project participants on infection control measures to include the donning and doffing of PPE. In addition, the strike team members were to disseminate the education to LTCF staff in the hope that the transmission risk of COVID-19 in LTCFs would decrease. Specific drivers in the project included the need for standardized infection control processes and education on these processes, proper use of PPE, and access to PPE. The process was measured by utilizing a Qualtrics survey that the strike team members completed after completion of the educational video and return demonstrations of PPE, which was done virtually.

Outcome Measures

The project's primary outcome was to increase knowledge of infection control measures as well as confidence of donning and doffing of PPE of strike team members. As a result, there would be an overall decrease in transmission risk of coronavirus among residents and staff in long-term care facilities. Strike team members were provided education via PowerPoint presentation. Evaluation of the provided education was conducted by demonstrating donning and doffing personal protective equipment to assess the team member's knowledge and confidence in infection control measures. Strike team members' perception of education was gauged by utilizing a nine-question Qualtrics survey that was emailed to the participant after the demonstration was completed.

Implementation Plan

The DNP students developed an educational PowerPoint presentation that included background information on coronavirus, infection control measures, environmental controls, and best practices per CDC for donning and doffing personal protective equipment. Information was also provided on how long-term care facilities can request PPE from the project partner. A Qualtrics survey was created to measure the strike team member's perception of the educational program (See Appendix C). A Doodle Poll schedule was arranged for strike team members to schedule appointments for PPE demonstrations. The project partner disseminated the PowerPoint presentation to strike team members as well as information to sign up for PPE demonstrations. Strike team members were instructed to watch a PowerPoint presentation, after which they were to sign up for a PPE demonstration using Doodle Poll. Strike team members informed DNP students of appointments via a Gmail account only accessible to DNP students. Once the meeting was scheduled, the strike team member was sent a WebEx invite for PPE demonstration. After

the PPE demonstration was completed and the strike team member was deemed proficient at donning and doffing PPE, the survey was emailed to the member. After completion of the survey, the strike team member was awarded 1.0 contact hour of continuing education.

Timeline

A timeline of the project was created. This timeline begins with the planning stages and goes through the evaluation of outcomes. The timeline is graphically summarized in Appendix D.

Section IV. Results and Findings

Results

The goal of the project was to decrease the spread of COVID-19 in long-term care facilities (LTCFs) by educating strike team members on infection control processes and donning and doffing of personal protective equipment (PPE). While the initial goal was to decrease the spread of COVID-19 in LTCFs through education of the strike team members, the goal ultimately evolved to measuring the strike team's perception of knowledge and confidence of donning and doffing of PPE after the virtual education.

A total of eleven strike team members participated in the PPE demonstration surveys. These strike team members were all adults working with the project partner. The participates ages ranged from 18 to 56 years. Professions of the participants varied, with 45% being EMTs, 9.1% were LPNs, 18.2% were paramedics and RNs, and 9.1% were classified as other. Many of the participates have practiced in their current position for many years; 27.3% have practiced greater than 20 years, 18.2% 5-9 years, and 45.5% 0-4 years.

After implementation of the project, 100 percent of the participants felt that the education improved their knowledge of donning and doffing, and 82% felt confident in donning and doffing of PPE. In addition, most participants felt they had enough PPE. (See Appendix E)

The project did not determine whether there was a decrease in infection rates in LTCFs, nor did the DNP student team determine if the interventions were effective due to the lack of data on infection rates in LTCFs. As a result, the goal was to educate the strike team members on their perception of knowledge and confidence in donning and doffing PPE after virtual education. Of the 45 strike team members (N=45), 11 participated in the project. This resulted in a 24% completion rate.

Discussion of Major Findings

The virtual education proved to be effective in improving the strike team member's perception of donning and doffing PPE. Most members reported that they had enough PPE in the facilities where they were staffed. They reported feeling more confident in donning and doffing of PPE after the education. The majority of the members reported that they knew where the equipment was located and had enough time to use PPE properly. In contrast, 18% reported that they did not have enough time to use PPE correctly, citing that using PPE was time-intensive and added approximately 20% more time to do routine duties. (See Appendix F)

Section V. Interpretation and Implications

Costs and Resource Management

Much of the cost involved in this project was time on behalf of the DNP students. The educational sessions were conducted individually with each strike team member. Educational sessions lasted approximately sixty minutes. Education was provided virtually, and the project partner absorbed the cost of PPE for strike team members as well as the DNP students. The cost

to the project partner included purchasing PPE equipment for all five of the East Carolina University DNP students for the purpose of PPE demonstrations. Each student received a pack of blue isolation gowns from the Dukal Corporation part number 301BL, a box of nitrile gloves from the Diamond Glove Corporation, and 3M 8210 N95 masks from the Global Source Company. Without accounting for discounts, five packages of blue isolation gowns cost $89.99 (Prime Dental Supply, 2021). The cost of nitrile gloves for five students was $21.25 (Vitality Medical, 2021). The price of the 3M N-95 masks for five students was $ 27.60 (Bound Tree, 2021). The total spent to supply all five students was $ 138.84. Assuming that strike team members were all supplied with return demonstration PPE equipment, the total cost for eleven strike team members was $305.45. The overall total cost to NCDHHS, to include strike team members and students, was $444.29. See Appendix G for Proposed Budget

Cost-Benefit Analysis

The financial cost of COVID-19 to LTCFs in the United States has not yet been determined. Several financial institutions have estimated an economic loss of close to $323.1 billion dollars to healthcare systems due to rapid hospitalizations and the decrease in the number of primary care visitations (Blumenthal et al., 2020). There are several assumptions and limitations when it comes to the cost-benefit analysis of this project. The first limitation is there is a lack of financial information when it comes to the cost of COVID-19 to LTCFs. The second limitation is there is no method to link the team's interventions to a decrease in transmission. Previous research on return demonstrations has established that this education decreases self-contamination and transmission of other healthcare-acquired infections (Suen et al., 2018). Assuming that the previous research on return demonstrations is applicable to COVID-19, decreased transmission and self-contamination would be beneficial in decreasing cost to the

overall health care system. Reflecting on the overall loss of $323.1 billion to the health care system, the cost of PPE equipment for the purpose of education is far less. Given the above limitations and assumptions, it is assumed that the benefit of education outweighs the cost of COVID-19 to the healthcare system.

Implications of the Findings

Implications for Patients

Based on the increased knowledge and confidence of the strike team members with the proper strategies to mitigate the spread of COVID-19 in long-term care facilities, patients of long-term care facilities will benefit from having procedures in place that will protect them from contracting the disease. However, the outcomes measures data in this project was unable to directly link interventions to decreases in transmission. In addition, greater knowledge concerning infection control by health care workers may also improve the patients' confidence.

Implications for Nursing Practice

Systematic processes in place in long-term care facilities and increased education on the proper use of PPE and environmental control practices in long-term care facilities will improve nursing practices in these facilities. As nursing staff members' knowledge and confidence increase, it is the hope that staff retention will also be positively impacted. Increased knowledge on appropriate techniques as well as demonstrating appropriate techniques can decrease the risk of self-contamination to health care workers (Suen et al., 2018). Therefore, this directly impacts the personal health of health care workers in LTCFs. Several studies have also demonstrated that isolated patients in isolation protocols affect their work environment and emotional state (Kagan et al., 2017; Houhgton et al., 2020). Proper isolation techniques effects workload, time management, ease, and comfort of wearing PPE while performing patient care, and the ability to

approach patients who feel isolated. The above affects the emotional, cognitive, and physical stamina of health care workers.

Implications for Healthcare Systems

Due to increased knowledge regarding the proper use of PPE and environmental controls, long-term care facilities will be in a better position to handle any future outbreaks. These findings suggest that health care systems could benefit from enforcing educational programs and return demonstrations. Thus, healthcare systems should place more emphasis on staff development and education (Gerontological Advanced Practice Nurses Association [GAPNA], n.d.). Policies should be in place for standardized infection control protocols, and these protocols should be monitored and enforced. Employees want and need to feel safe at work, and employers should ensure that staff has the education and supplies available to do their jobs safely. Policies should be in place to mandate the patient-staff ratio as this would improve the quality of care for those living in LTCFs. Finally, to retain and attract staff, the salaries of direct care workers should be improved.

Dissemination Plan

A DNP poster presentation was presented to the East Carolina University College of Nursing faculty and students on July 13, 2021. The project was uploaded to the ScholarShip, East Carolina University's online repository for graduate scholarship. The project will be submitted for consideration to Geriatric Nursing, American Journal of Infection Control, and Journal of Infection Prevention. This presentation will also be presented to long-term care facilities in which this DNP student is employed.

Section VI. Conclusion

Limitations

The sample size for this project may have been too small to see any significant effect and does not allow for generalization to other populations. The sample size could have been increased by expanding the project to more sites or increasing the length of the project. However, there were limitations due to the pandemic—lack of direct communication with project participants, limited participation.

The project was also limited due to time constraints. The project was conducted in real-time; therefore, adjustments were made as new developments occurred. As vaccines became available, our project site's focus changed to vaccination administration. The major limitation to this project was the lack of access to data to measure how the DNP Student Team interventions impacted the infection rate of COVID-19 and staff retention.

Recommendations for Others

For those planning on similar projects, this DNP student would recommend a better approach to communicate with the project partner and participants. Lack of direct communication with participants impacted low participation. Another recommendation is communication with the project site partner. Mandated meetings would have allowed the DNP students to gain further insight into the organization’s needs and shift focus as needed to accommodate changes.

Recommendations Further Study

While the education of proper use of PPE and environmental control issues proved to be beneficial in reducing the spread of COVID-19, there was no way to determine how the interventions of this study impacted transmission rates; future studies should prioritize how

education on infection control measures as well as proper use of PPE affected transmission rates in LTCFs. Another option for future studies would be determining the financial impact COVID-19 had on LTCFs, which would prove beneficial in supporting the need for ongoing education and demand for staffing regulation. Lack of resources and staffing were significant infection control issues in LTCFs; this is directly linked to underfunding of these facilities. Further studies should look at reimbursement rates to LTCFs and how these rates affect staffing stability and infection control. Ownership also plays a pivotal role in staffing, and staffing plays a role in infection control practices. Further studies should examine for-profit and nonprofit staffing practices and if these practices played a role in outbreaks in for-profit facilities. Lastly, studies should determine how vaccines affected the transmission of COVID-19 in LTCFs.

Final Thoughts

The purpose of this DNP project was to empower staff by implementing an educational program to improve staff knowledge of the coronavirus and infection prevention control strategies in long-term care facilities. Education was provided virtually, followed by demonstrations for properly donning and doffing PPE. As a result, knowledge of donning and doffing of PPE was improved. The findings provide insight that additional education may be necessary to provide support and resources to the staff of long-term care facilities; this training should be ongoing. We have learned painful lessons from the COVID-19 pandemic. The most vulnerable population paid the ultimate price. It is far time for the healthcare community to invest more for the safety of our older population.

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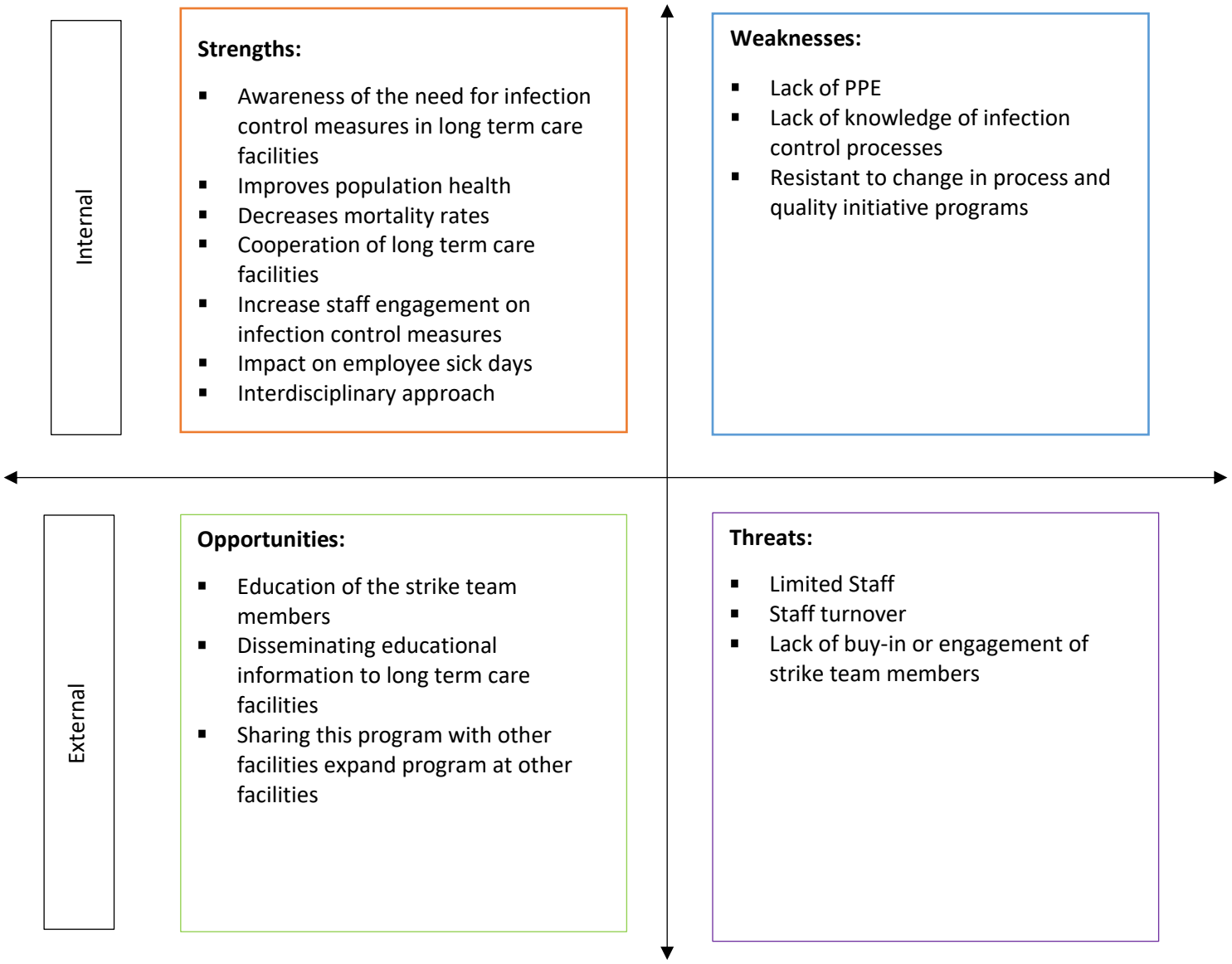
Appendix A

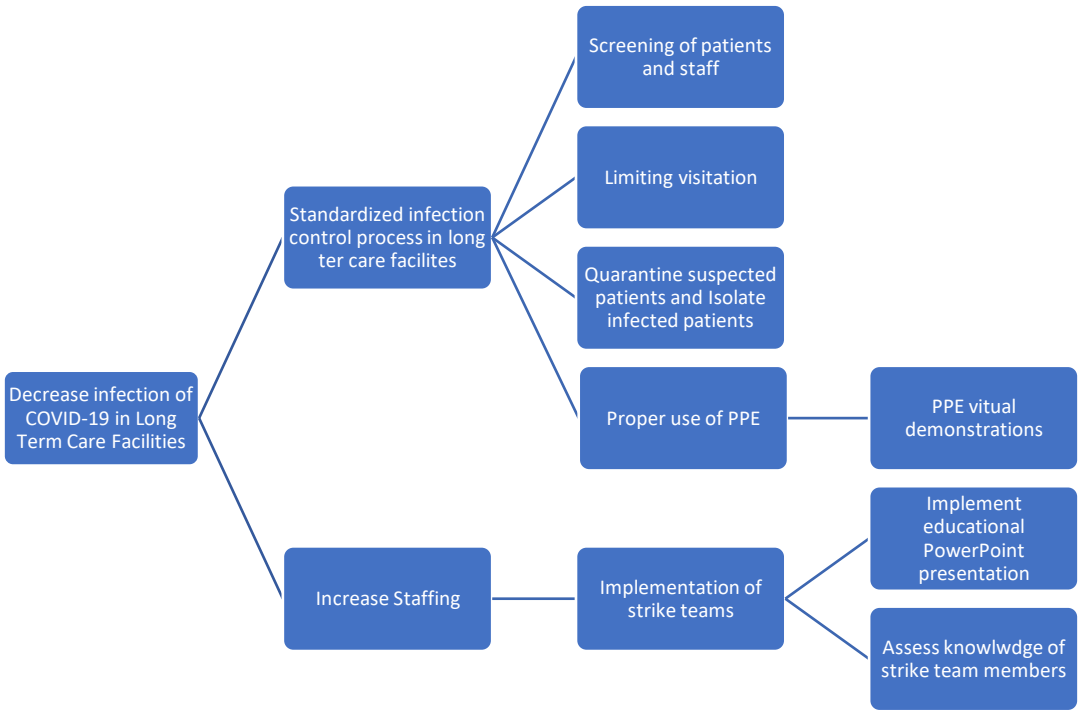
SWOT Analysis of Infection Control Processes in Long Term Care Facilities



Note. This figure illustrates the SWOT analysis performed during the implementation of the project.

Appendix B

Driver Diagram for Decreasing Infection Of COVID-19 in Long-Term Care Facilities



Note. This figure illustrates the primary, secondary, and tertiary drivers involved in the project.

Appendix C

Qualtrics Survey

1. Select the age range that best fits you.
   - 18 to 25 years old
   - 26 to 35 years old
   - 36 to 45 years old
   - 46 to 55 years old
   - 56 years old +
   - Prefer not to answer
2. What is your current professional role?
   - Administrative Staff (including Shift Supervisor, Nurse Manager, or Administrative Assistant)
   - Certified Nursing Assistant
   - EMT
   - Licensed Practical Nurse
   - Paramedic
   - Registered Nurse
   - Other [ ]
3. How long have you had your current licensure or certification?
   - 0 to 4 years
   - 5 to 9 years
   - 10 to 14 years
   - 15 to 19 years
   - 20 years or more
4. What is your highest level of education completed? Choose the option that best fits you.
   - GED
   - High School Diploma
   - Some College
   - Technical Degree or Certification

- Associate Degree
- Bachelor's Degree
- Graduate Degree

5. The virtual education I received improved my knowledge about putting on and taking off personal protective equipment (PPE).
   - Strongly agree
   - Somewhat agree
   - Neither agree nor disagree
   - Somewhat disagree
   - Strongly disagree
6. On a scale of one to nine, after the in-service, how confident are you in putting on and taking off personal protective equipment (PPE)? (1- not confident to 9- very confident)
7. I have plenty of personal protective equipment at the facilities where I have staffed.
   - Yes
   - Uncertain
   - No
8. I have always been able to locate personal protective equipment at the facilities where I have staffed.
   - Yes
   - Uncertain
   - No
9. I feel like I have time in my schedule to correctly use personal protective equipment.
   - Strongly agree
   - Somewhat agree
   - Neither agree nor disagree
   - Somewhat agree
   - Strongly disagree?
10. What other information would you like to share?

Appendix D

Timeline

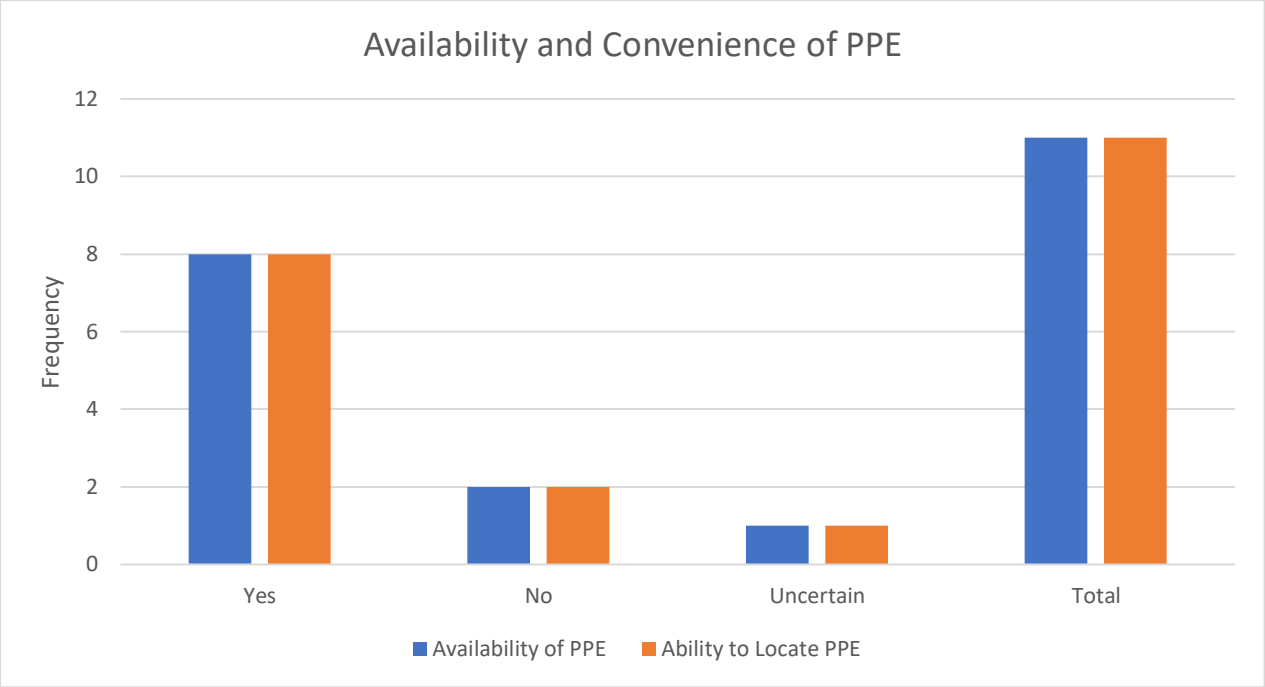
Completion Date	Planning	Pre-implementation	Implementation	Evaluation
8/12/2020	First planning meeting			
8/26/2020	Meet with ECU faculty advisors and DNP students group members			
8/27/2020	Meet with DNP II student group members and faculty advisor			
8/31/2020		CITI Modules completed		
9/3/2020		Meet with DNP student members to discuss PPT presentation and development of survey		
9/7/2020		PPT presentation completed and shared with faculty advisors		
9/10/2020		PPT presentation shared with project partner for approval		
9/11/2020		Qua submitted to faculty advisor feedback		
9/15/2020		Meet with DNP student members to review the survey		
9/17/2020		Meet with faculty advisors and DNP student members for		

		final approval of the survey		
9/18/2020			PPE WebEx demonstrations began	
10/25/2020			PPE WebEx demonstrations ended	
10/26/2020				All data collected and analysis of results began

Note. Projected timeline of the DNP Project Implementation.

Appendix E

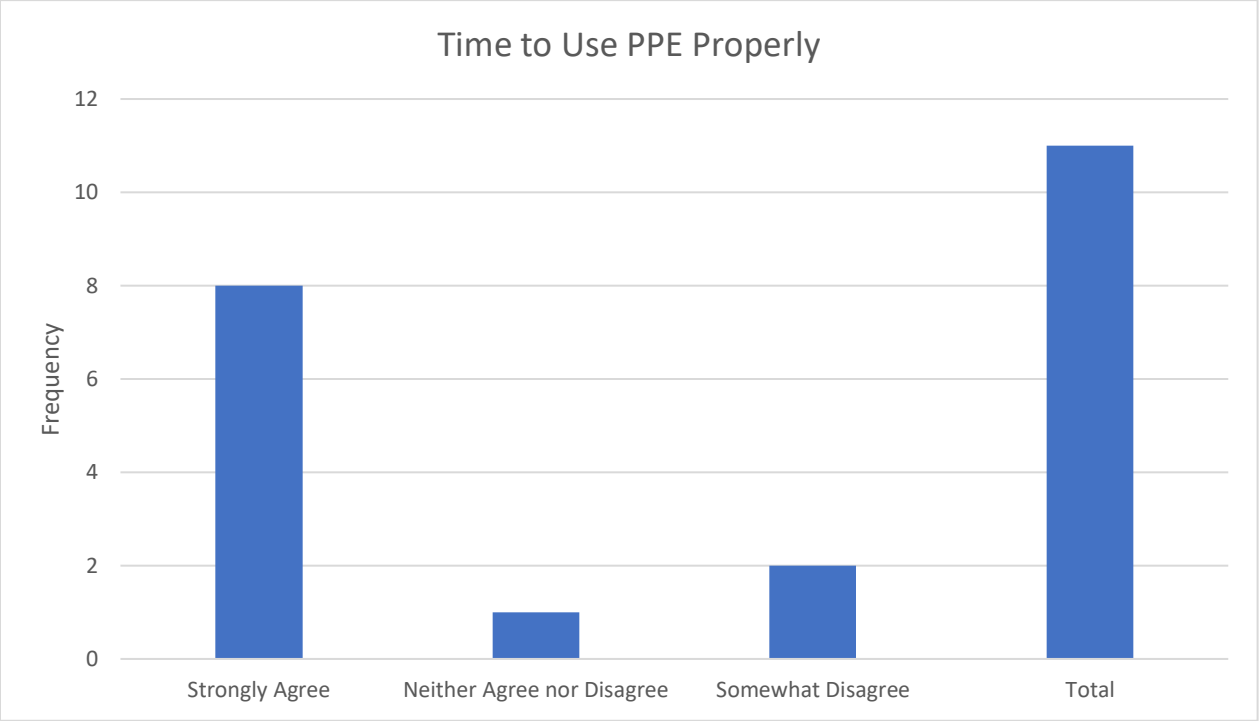
Availability and Convenience of PPE



Note. This figure illustrates the strike team member's perception of the availability of PPE.

Appendix F

Time to Use PPE Properly



Note. This figure illustrates the strike team member's perception if they had enough time to use PPE properly.

Appendix G

Proposed Budget for Personal Protective Equipment

Line Item	Unit cost	Quantity	Total
Virtual PPE Check-Off Return Demonstration Materials[1]			
Box of Glove	$4.25	16[2]	$68.00
N-95 Masks	$5.52	16	$88.32
PPE Gowns	$18.00	16	$288.00
Total	$27.77		$444.32

Note. Proposed budget for PPE supplies.

[1] Cost of PPE check-off return demonstration materials, including box of gloves, N-95 mask, PPE gown, and face shield.

[2] Quantity includes the 11 strike team members and the five DNP Student Team members.

Appendix H

Doctor of Nursing Practice Essentials

	Description	Demonstration of Knowledge
Essential I ***Scientific Underpinning for Practice***	**Competency** – Analyzes and uses information to develop practice **Competency** -Integrates knowledge from humanities and science into context of nursing **Competency** -Translates research to improve practice **Competency** -Integrates research, theory, and practice to develop new approaches toward improved practice and outcomes	• Conducted research on COVID-19 and its effect on LTCF • Researched strike teams and how they could aid LTCFs
Essential II ***Organizational & Systems Leadership for Quality Improvement & Systems Thinking***	**Competency** –Develops and evaluates practice based on science and integrates policy and humanities **Competency** –Assumes and ensures accountability for quality care and patient safety **Competency** -Demonstrates critical and reflective thinking **Competency** -Advocates for improved quality, access, and cost of health care; monitors costs and budgets **Competency** -Develops and implements innovations incorporating principles of change **Competency** - Effectively communicates practice knowledge in writing and orally to improve quality **Competency** - Develops and evaluates strategies to manage ethical dilemmas in patient care and within health care delivery systems	• Created PowerPoint presentation to educate strike team members on COVID-19 and proper donning and doffing techniques • Created Doodle poll for strike team members to sign up for return demonstration sessions. • Created Qualtrics survey to evaluate strike team members perception of education
Essential III ***Clinical Scholarship & Analytical Methods for Evidence-Based Practice***	**Competency** - Critically analyzes literature to determine best practices **Competency** - Implements evaluation processes to measure process and patient outcomes **Competency** - Designs and implements quality improvement strategies to promote safety, efficiency, and equitable quality care for patients	• Developed education for proper technique of donning and doffing. • Developed education on infection control training for strike team members • Collaboration with DNP student team,

	Competency - Applies knowledge to develop practice guidelines **Competency** - Uses informatics to identify, analyze, and predict best practice and patient outcomes **Competency** - Collaborate in research and disseminate findings	faculty advisor, and site champion through methods of Outlook Webmail, GroupMe, Phone calls
Essential IV ***Information Systems – Technology & Patient Care Technology for the Improvement & Transformation of Health Care***	**Competency** - Design/select and utilize software to analyze practice and consumer information systems that can improve the delivery & quality of care **Competency** - Analyze and operationalize patient care technologies **Competency** - Evaluate technology regarding ethics, efficiency, and accuracy **Competency** - Evaluates systems of care using health information technologies	• Created PowerPoint presentation for educational purposes for project partner • Communicated with DNP student team, faculty advisor, site champion, and project partner via Outlook Webmail, GroupMe, WebEx, Doodle Poll, Text messaging, and Phone calls.
	Description	**Demonstration of Knowledge**
Essential V ***Health Care Policy of Advocacy in Health Care***	**Competency**- Analyzes health policy from the perspective of patients, nursing, and other stakeholders **Competency** – Provides leadership in developing and implementing health policy **Competency** –Influences policymakers, formally and informally, in local and global settings **Competency** – Educates stakeholders regarding policy **Competency** – Advocates for nursing within the policy arena **Competency**- Participates in policy agendas that assist with finance, regulation and health care delivery **Competency** – Advocates for equitable and ethical health care	• Researched mandates for LTCFs as it related to COVID-19. • Educated strike members in infection control and proper use of PPE.
Essential VI ***Interprofessional Collaboration for Improving***	**Competency**- Uses effective collaboration and communication to develop and implement practice, policy, standards of care, and scholarship	• Collaborated with members of DNP student team, project partner, and DNP faculty advisor to

Patient & Population Health Outcomes	**Competency** – Provide leadership to interprofessional care teams **Competency** – Consult interprofessional and interprofessionally to develop systems of care in complex settings	develop educational video • During the project's implementation, the project lead was able to build and support interprofessional relationships with the site champion and the nursing team members.
Essential VII ***Clinical Prevention & Population Health for Improving the Nation's Health***	**Competency**- Integrates epidemiology, biostatistics, and data to facilitate individual and population health care delivery **Competency** – Synthesizes information & cultural competency to develop & use health promotion/disease prevention strategies to address gaps in care **Competency** – Evaluates and implements change strategies of models of health care delivery to improve quality and address diversity	• Developed PowerPoint educational video on COVID-19, infection control protocols, and donning and doffing of PPE, and resources for LTCF
Essential VIII ***Advanced Nursing Practice***	**Competency**- Melds diversity & cultural sensitivity to conduct systematic assessment of health parameters in varied settings **Competency** – Design, implement & evaluate nursing interventions to promote quality **Competency** – Develop & maintain patient relationships **Competency** –Demonstrate advanced clinical judgment and systematic thoughts to improve patient outcomes **Competency** – Mentor and support fellow nurses **Competency**- Provide support for individuals and systems experiencing change and transitions **Competency** –Use systems analysis to evaluate practice efficiency, care delivery, fiscal responsibility, ethical responsibility, and quality outcomes measures	• Attended meetings with the DNP student team and faculty advisors to discuss the progress of the project • Developed a cost-benefit analysis of the project