

**Collaborative Training Strategies to Reduce COVID-19 Propagation in Long Term Care  
Facilities**

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**Author Note**

Fuzail Ul Haq is now at the College of Nursing, East Carolina University.

There were no conflicts of interest to disclose. This DNP Project received PPE supplies through the North Carolina Department of Health and Human Services to be used in virtual check-off return demonstration sessions. I would like to extend thanks to Dr. Janet Tillman for her mentorship and unwavering support throughout this process. I dedicate this project to my son, Humza, whom I hope shall grow up to one day be proud of his father and excel beyond my accomplishments.

### **Abstract**

The COVID-19 pandemic greatly impacted the health of our community. There were a disproportionate number of deaths in long-term care facilities. The purpose of this DNP project was to prepare COVID-19 Strike Team members to educate long-term care facility staff about evidence-based knowledge and practices which reduced health, economic, and personnel burden during the COVID-19 pandemic. An educational in-service provided resources for facility managers to control outbreaks. The DNP Student Project Team evaluated the Strike Team's proper PPE use via virtual return demonstrations. A Qualtrics Survey gathered pertinent demographic data, such as whether the Strike Team member could locate PPE supplies, determine adequate PPE inventory, and have time for proper PPE use. Results showed a 90% implementation completion rate, with 100% of respondents reported that implementation improved knowledge and promoted confidence with proper PPE use.

Furthermore, 78% of respondents found adequate PPE supplies, 56% reported the ability to locate PPE supplies, and 67% were confident with adding proper PPE use to the daily routine. One recommendation for PPE time management promoted collaborative efforts based on CDC guidelines for proper PPE use. Other recommendations included a dedicated COVID-19 staff per shift, temporarily quarantined COVID-19 positive residents, and bundle care with daily living activities to limit exposure. The DNP implementation streamlined training for COVID-19 Strike Teams to support long-term care facility staff, increased staff confidence during outbreaks to benefit resident populations, and finally, increased the long-term care facility administration's ability to manage future outbreaks.

*Keywords:* Strike Team, pandemic, COVID-19, PPE, long-term care facility, outbreaks

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## **Section I. The Problem**

### **Background**

The Coronavirus Infectious Disease-2019 (COVID-19) pandemic resulted in hundreds of thousands in deaths, billions of dollars in healthcare-related costs, and changed daily existence. According to the Johns Hopkins University & Medicine Coronavirus Resource Center, over 25% of the confirmed 13.4 million global cases and approximately one in four COVID-19 deaths occurred in the United States alone (JHU, 2020). While less than 0.5% of U.S. residents live in nursing homes or long-term care facilities (LTCFs), over 25% of all documented deaths occurred at these sites (Grabowski & Mor, 2020). Grabowski & Mor noted that these facilities were locked down to curb the infection; however, it caused further spread, and increased death rate as communal dining and social activities still contributed to a higher mortality rate.

In contrast, other facilities saw stricter visitation rules and residents confined to their private rooms. COVID-19 affected resident populations in LTCFs across the country, but they were not alone when faced with adverse outcomes. Grabowski & Mor (2020) also showed that staff members who cared for residents also feared infection in an environment where it had spread rapidly.

Lack of protective equipment for the care of COVID-19 positive residents increased the staff's unwillingness to report for their shifts. The staff shortage led to heightened safety concerns and included the inability of the LTCF to prevent the spread of the illness (Behrens & Naylor, 2020). The Doctor of Nursing Practice Scholarly Project introduced strategies to assist LTCFs that mitigated the effects of the pandemic outbreak.

### **Define the Issue**

The effects of COVID-19 were far-reaching across the spectrum of healthcare, especially in long-term care facilities (LTCFs), where a spike in cases added a significant burden to the system. The communal setting and residents' chronic conditions created a scenario fraught with problems (Gaur et al., 2020). The authors found that LTCFs provided routine medical care but were not equipped or staffed to handle acutely ill COVID-19 populations' needs.

Numerous factors presented barriers to the delivery of safe and effective care for COVID-19 residents in LTCFs. One concern involved LTCFs having adequate staff, a problem in the pre-pandemic era, as noted by the American Geriatrics Society (AGS, 2020). They found that there had been no movement in long-term care human resource policies that offered increased wages, benefits, or support to an already-taxed workforce. The AGS also stated that lack of incentives, a higher expectation by the facility administration for residential care during the pandemic, and the unknown nature of the contagious condition added to the natural fear of the staff becoming infected, especially for staff who cared for children or sick family members at home. Finally, the AGS illustrated the inability of many facilities to provide personal protective equipment (PPE) to protect staff and residents from becoming infected.

The North Carolina Department of Health and Human Services (NCDHHS) statistics showed as of July 17, 2020, there were approximately 7,135 COVID-19 positive cases in NC LTCFs with approximately 863 deaths (NCDHHS, 2020j). On average, these numbers were equivalent to almost 32 cases and approximately four deaths per LTCF based on a total of 223 NC facilities; however, many facilities had not sufficiently reported data (NCDHHS, 2020c). Facilities reported approximately 133,351 cases to the Centers for Medicare & Medicaid Services (CMS), with approximately 37,213 deaths (CMS, 2020a). The calculated averages were approximately 2,647 cases in LTCFs across the country and 743 deaths related to COVID-19, as

noted by the CMS. Therefore, it became necessary that the implementation was introduced to reduce pandemic outbreaks in LTCFs.

### **Define the Evidence**

According to the Centers for Disease Control & Prevention (CDC), the transmission of COVID-19 occurred when individuals were within six feet or close contact with one another (CDC, 2020d). Further CDC guidance showed that transmission could occur when the infected individual talked, sneezed, or coughed, through droplets in the proximity of others; these droplets infected by landing on nasal and oral pathways and spread to the lungs. Finally, the CDC noted that infected individuals may or may not exhibit symptoms for days, which contributed to the quicker infection rate and confusion related to spreading across communities.

Knowledge regarding COVID-19 changes every day; however, congregate living settings were highly susceptible to the spread of older residents' chronic conditions (Cook & MacFarquhar, 2020). The COVID-19 tracker showed the demographics of adults 50 years and older account for 40 % of all reported cases in the U.S. (CDC, 2020a). However, this same CDC data showed the equivalent age group, 50 years and older, accounted for over 95.1% of all COVID-19 related deaths.

There was limited data on the spread rate without precautions in an indoor facility; however, one outbreak offered insight into this scenario's devastating effects. During the early days of COVID-19 transmission, a nursing home facility in King, Washington, saw 129 cases (81 of 130 residents, 34 staff members, and 14 visitors) infected in 12 days; 23 of these cases resulted in death (Beusekom, 2020). The author concluded that the lack of adequate PPE supplies and staff shortage caused several members to receive an assignment to multiple sites, thus promoting further viral spread.

The incidence rate in LTCFs of COVID-19 involved dividing the number of infections by the total population in the category multiplied by 1000 (Cupp-Curley, 2020). There were approximately 35,763 residents in North Carolina (NC) LTCFs used for calculation (Kaiser Family Foundation, 2017). The North Carolina infection incidence rate for long-term facilities was 64 COVID-19 positive cases per 1000 residents compared to approximately 100 COVID-19 positive cases per 1000 residents across the U.S. (NCDHHS, 2020j; CMS, 2020a).

Death rate calculations for NC LTCFs were approximately 24 deaths per 1000 residents compared to approximately 28 deaths per 1000 residents in the U.S. (NCDHHS, 2020j; CMS, 2020a). In contrast, there were 924 deaths per 1000 residents for individuals aged 55 years and older, which indicated the age disparity of total COVID-19 deaths to date (CDC, 2020b). These deaths supported the fact that congregational living, such as LTCFs, have the most vulnerable population of COVID-19 infections (Cook & MacFarquhar, 2020).

The CDC and CMS partnered together to provide federal guidelines for LTCFs for COVID-19 management (CMS, 2020b). On March 13, 2020, visitor restrictions, strict screening implementation for staff, and infection control recommendations were implemented in LTCFs nationally (CMS, 2020c). Infection control guidance emphasized strict hand hygiene implementation for all healthcare workers in LTCFs per CDC recommendations (CDC, 2020d). At the same time, CMS provided a self-assessment checklist to help determine compliance with recommendations (CMS, 2020b). Recommendations from CMS also included partnerships between state and local governments to implement guidelines for the provision of PPE and COVID-19 screening tests. Medicare also covered COVID-19 screening tests for beneficiaries. One final CMS guideline shared that separate teams to care for residents with COVID-19 and those not infected by the virus would significantly limit its spread.

The NCDHHS provided an outbreak toolkit containing several documents for LTCFs to manage the spread of COVID-19 (NCDHHS, 2020d). The first document in the toolkit discussed steps to manage outbreaks in LTCFs. The NCDHHS Control Assessment Tool was like the CMS self-assessment instrument provided for LTCFs. The NCDHHS tool allowed the facility to review and identify gaps in care to prevent future outbreaks in their facility. The long-term care infection prevention staffing worksheet allowed the facility to assign critical tasks to crucial personnel who managed infection prevention strategies in LTCFs. The following document was in the NCDHHS toolkit education resources, including properly using PPE, hand hygiene, and basic infection control practices. This toolkit's final two documents provided steps on controlling PPE inventory while facing shortages of gowns and masks during the pandemic.

### **Problem Statement**

The lack of knowledge about COVID-19 management in long-term care facilities led to increased health, economic, and personnel burden that propagated the virus throughout its community.

### **Purpose Statement**

The purpose of this project was to prepare COVID-19 Strike Team members to educate staff employed in long-term care facilities about evidence-based knowledge and practices which reduced health, economic, and personnel burden during the COVID-19 pandemic.

## **Section II. The Action**

### **Define the intervention**

The spread of COVID-19 in North Carolina required a multidisciplinary approach. Mitigation strategies included state-mandated restrictions on social gatherings, the creation of necessary health infrastructure, and appropriation of PPE supplies (NCDHHS, 2020h). One of the strategies implemented by NC Governor Roy Cooper, known as Phase 2 for business reopening, slowed the virus's spread (North Carolina Government, n.d.-b). Governor Cooper's Executive Order 147, also known as Safer at Home, was extended through Executive Order 151 beyond July 17, 2020, into August 7, 2020, due to the rise in COVID-19 cases and deaths (North Carolina Government, n.d.-a). Another statewide strategy promoted by the NCDHHS was the 3W Campaign, or Wear, Wait, and Wash (NCDHHS, 2020f). These NCDHHS-guided signs were posted throughout communities in grocery stores, churches, parks, and other communal areas to wear masks, wait or socially distance from others at least six feet apart, and perform hand hygiene. The state and local government-mandated use of face masks and other comparable face coverings that restricted transmission was the culmination of methods to restrict the spread of COVID-19 in the community (NCDHHS, 2020h).

A critical development performed by NCDHHS established a health infrastructure in the state to test, trace, and compile COVID-19 case data (North Carolina Government, n.d.-b). Testing sites situated in easily accessible public places were essential for N.C. residents (NCDHHS, 2020i). In conjunction with the local health department, COVID-19 was tracked through contact tracing that limited the virus's spread in the community (NCDHHS, 2020b). This technique helped identify the demographics and communities that have faced the most difficult outcomes related to the virus (NCDHHS, 2020h). These resources included provisions

for access to non-congregate shelters and resources that supported individuals or families with COVID-19.

Long-term care facilities received support from the NCDHHS through supply packs of personal protective equipment (PPE). They also received benefits from Medicaid services toward infection prevention strategies (NCDHHS, 2020m). The LTCFs forged connections with the project partner, as well as various statewide and university organizations and were provided with evidence-based education (Cook & MacFarquhar, 2020). The DNP Student Project Team developed a strategy for preparing COVID-19 Strike Team members to educate LTCF staff. This strategy included an educational video for COVID-19 preparation, a PPE proper use return demonstration for COVID-19 Strike Team members, and completion of a post-implementation Qualtrics survey for data and continuing education credit.

### **Ethical Consideration & Protection of Human Subjects**

The DNP Project provided COVID-19 education to long-term care facilities LTCFs staff members of evidence-based knowledge, including transmission, infection, and symptoms related to the disease. This education offered prevention strategies that aimed to limit the spread of the virus in the congregational setting. The ethical principles of beneficence, along with nonmaleficence and justice, were applied to this project. The beneficence principle or doing good for the LTCF community by limiting the spread of COVID-19 guided this project (Raine, 2017). Nonmaleficence occurred by preventing harm to the non-infected members of the facility. Justice was essential because it prevented non-equitable outcomes. In a scenario with limited resources, the project partner offered the same knowledge to all LTCFs throughout this pandemic crisis. Raine also noted that active communication between the facility and NCDHHS provided equal effort, resources, and support to those in need promoted justice.

Furthermore, any resources beneficial for one facility saw application at other facilities. Collaborative efforts between the facility and project partner with the COVID-19 Strike Teams as mediators, involved communicative strategies that mitigated dwindling supplies (Cook & MacFarquhar, 2020). Lack of justice and non-equitable access to this knowledge could harm one facility over the other and would have exacerbated the pandemic's effects.

The completed Institutional Review Board Tool Survey showed that this project did not require a formal IRB approval process. Academic completion of the Collaborative Institute Training Initiative (CITI) Program helped prepare for this project (CITI, n.d.). Group 2: Social/Behavioral Key Investigator Modules provided CITI training for ethics, compliance, and professional development, for certification of implementation performance with equity and safety for all involved populations.

### **Section III. Project Design**

#### **Define the Setting**

The nature of COVID-19's unpredictability due to limited knowledge about the disease made it paramount that the implementation was performed safely, despite breakthroughs in clinical research. Based on this determination, the DNP Student Project Team could not directly interact with the long-term care facility (LTCF) setting. Therefore, the project design called for trained and educated COVID-19 Strike Team members to directly implement and support LTCFs that reported the pandemic's outbreaks (Critchfield, 2020).

The deployment setting of COVID-19 Strike Teams in NC included three facilities: adult care homes (ACH), nursing facilities, and hospice services (NCDHHS, 2020g). ACH supported and provided room, board, and transportation for residents along with daily living activities (dressing, grooming, or bathing, for example) (NCDHHS, 2020a). This type of facility functioned as an intermediary facility between independent living and nursing facilities. As noted by the NCDHHS, N.C. Medicaid Services and the Division of Health Services Regulation (DHSR) managed operations at these facilities through basic or advanced care such as medication administration for adults in need. While insurance services covered payment for services, low-income households applied for assistance through the State-County Special Assistance Program, which provided a cash supplement to pay for services at the ACH (NCDHHS, 2020k).

The nursing facility (NF) was the second type of LTCF where NC provided funding served as an intermediate care facility between assisted living and acute hospital services (NCDHHS, 2020i). The website noted that these facilities provided nursing care; however, their focus was routine care that promoted long-term management of stable chronic comorbidities.

Finally, hospice care provided palliative medical services to terminally ill residents with support for families and caregivers paid through Medicaid services (NCDHHS, 2020e).

The pandemic had created an uncertain time for students involved in this project. Consequently, per rules and regulations determined by the site partner and the DNP Project's academic institution, direct interaction with COVID-19 populations was prohibited. Therefore, the primary interaction occurred through virtual communication. This lack of direct interaction was simultaneously a significant facilitator and barrier for the student. The danger of COVID-19 exposure was circumvented through virtual interaction with project participants and served as the primary implementation delivery method. However, the lack of direct interaction presented a logistical challenge through scheduling and contact issues. Furthermore, limited interaction reduced the turnaround time to present adequate feedback necessary to enhance the implementation.

### **Description of the Population**

The indirect population who benefitted from the implementation were the LTCF residents, staff, and administration. The direct beneficiaries, however, were the COVID-19 Strike Team members. These individuals received pertinent knowledge through a presentation and met with the DNP Student Project Team virtually for proper PPE use check-off sessions, completed a demographic data analysis survey, and finally received continuing education credit after the implementation.

### **Project Team**

The DNP Project team consisted of the project partner, project liaison, the project champion, DNP project faculty, and multiple students at various points in their DNP academic journey. The project partner is an entity that functions throughout the state and local settings.

The project liaison was the intermediary who communicated tasks and assignments to the project champion. The project champion subsequently shared this information with the DNP Student Project Team. Five students, two from the first cohort and three from the second cohort, were directly involved in this multi-semester project's initial phase. The pandemic represented an ongoing problem. Future cohorts were provided the tools and information from the current project to sustain implementation as needed. The current DNP Student Project team included two faculty, one for each cohort, who facilitated the completion of each student's necessary academic requirements. The students developed the implementations for the COVID-19 Strike Team member participants.

### **Project Participants**

Participants involved in the DNP Project were members of the COVID-19 Strike Team. The partnering organization appointed approximately 35 COVID-19 Strike Team members to be deployed to various LTCF organizations throughout N.C. when there was a reported outbreak. The COVID-19 Strike Team included 10 full-time team members and approximately 25 part-time team members. Per the Qualtrics survey demographic data, this multidisciplinary team consisted of emergency medical technicians, paramedics, licensed practical nurses, and registered nurses (Haq & Tillman, 2020). Further demographics showed a wide range from zero to over 20 years of occupation proficiency and various degrees (some college to graduate degrees) in their respective occupational roles.

### **Project Goals and Outcome Measures**

The primary project goal was to reduce the propagation of COVID-19 in the LTCF community. Education of COVID-19 Strike Team members helped with this goal. These individuals protected themselves through learned safety techniques, proper PPE use, and access

to supplies. The Strike Team then trained LTCF staff on similar methods for the care of sick resident populations. The primary outcome measure involved whether there was indeed a reduction of the propagation of COVID-19 in the LTCF setting. This outcome measure was challenging to obtain at this multi-year project's pioneering stage. Future retrospective analysis can capture this outcome measure. Therefore, this DNP Project focused on process measures which included knowledge attained related to proper PPE use, temporary staff support, and the ability to replenish supplies that reduced the spread of COVID-19 in the LTCF setting.

### *Description of the Methods and Measurement*

The DNP Project educated and trained Strike Team members with evidence-based insight on the disease. The topics included virus transmission in the community, screening methods, strategies to combat the community's spread, personal protective equipment (PPE) use, request PPE supplies, and methods to request staffing assistance. The implementation involved four stages. The first stage was an educational presentation with the above information, including putting on and taking off PPE. The second stage involved the project partner using the presentation as part of their education and training of the COVID-19 Strike Team members. The third stage was the direct interaction with COVID-19 Strike Team members, where they shall be observed and checked off on proper PPE use, with pertinent questions answered by each student member of the DNP project team. After the check-off session, Strike Team members completed a brief survey in the final stage for continuing education credit for project data analysis.

**SWOT Analysis.** Numerous strengths existed internally with this DNP project; however, the central element was this project's team-based nature. Two-student cohorts became involved in this project, each at different academic levels with varying experience in a long-term care facility or inpatient settings. Each student possessed different levels of expertise based on their

professional roles in healthcare. For example, one student involved in the DNP project was an educator in the long-term care facility (LTCF) setting. Her unique perspective greatly assisted the DNP Student Project Team with the logistical planning related to the implementation stages.

The internal weakness inherent to the project was the lack of direct face-to-face interaction that benefitted most project settings due to the nature of COVID-19 safety. The project was primarily conducted in a virtual setting, as noted through the presentation, the video virtual check-off sessions, and the Qualtrics survey. The virtual setting allowed the DNP Student Project Team an opportunity to circumvent the weakness related to this project.

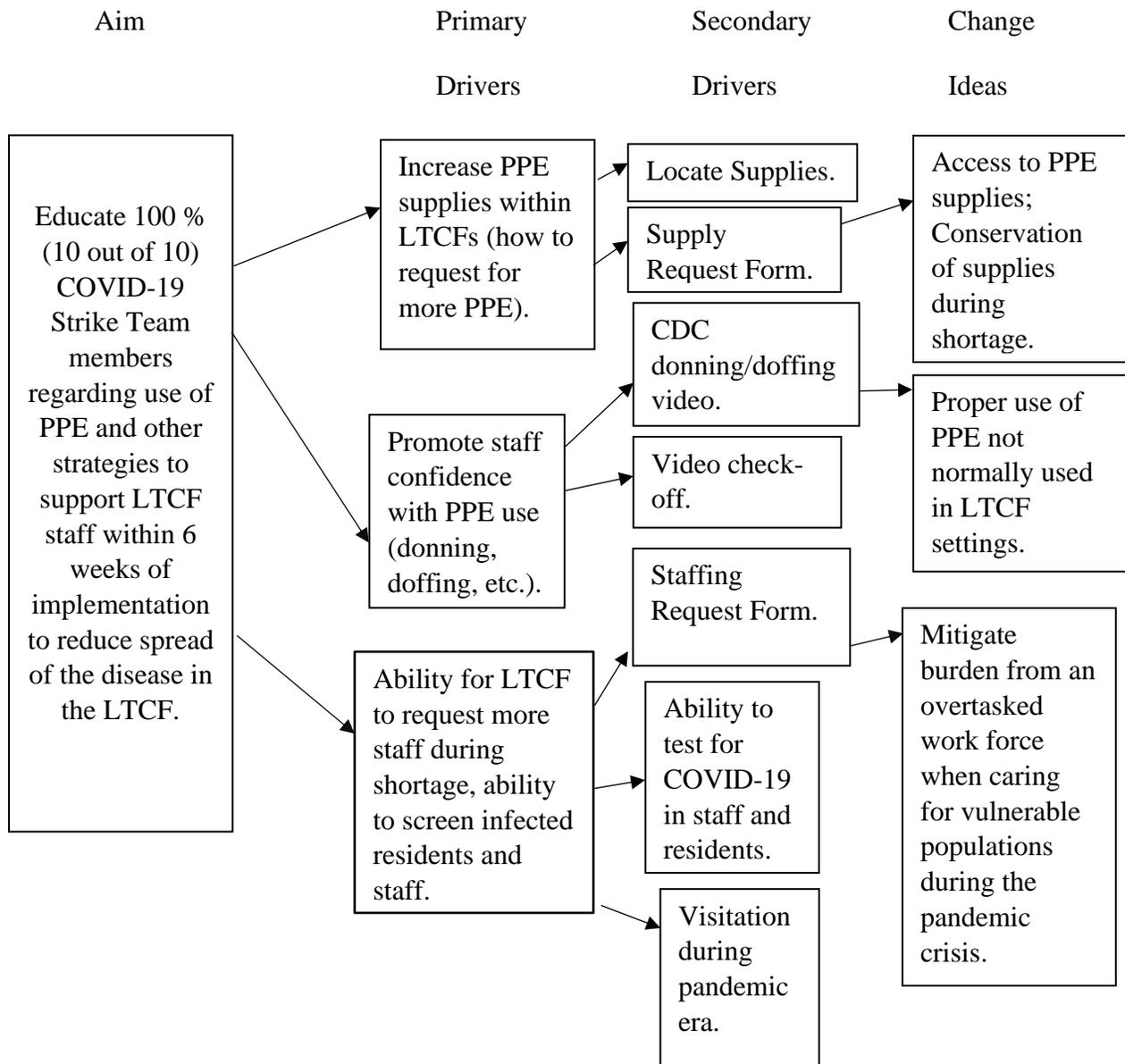
One prevalent opportunity noted during the DNP Project was the project partner's ever-changing requirements for combat against the virus's propagation based on new evidence or research developments. Often expectations and requirements would change on an almost day-by-day or even hourly basis. Prior instructions would become modified or altogether negated; it was necessary to keep abreast of the latest evidence-based research regarding the pandemic. This daily change resulted in a greater need for flexibility and adaptability of the DNP Student Project Team to meet shorter deadlines.

The primary threat to this DNP implementation was the lack of proper direction or focus from the project partner beyond the initial request for the presentation and a vague set of parameters of its expectations for the presentation. The limited feedback beyond simple instructions and ideas communicated through the project champion made the success related to project implementation more difficult. The student, project champion, and project faculty formulated the project stages through a series of bi-monthly meetings that helped reduce this threat.

**Driver Diagram.**

**Figure 1**

*DNP Project Driver Diagram*



*Note:* This figure illustrates the overall drivers behind the DNP Project Implementation.

**Implementation Tools.** The DNP Project utilized the Institute for Healthcare Improvement’s [IHI] Plan-Do-Study-Act model (n.d.b). The partnering organization parameters

determined the planning phase. The instructions initially focused on developing the Strike Team education disseminated throughout the state's long-term care facilities (LTCFs). The next phase of the IHI model involved a small-scale implementation, known as the do-phase, as seen in the COVID-19 information resource presentation. The DNP Student Project Team formulated the presentation to improve COVID-19 Strike Team members' ease of use. The IHI PDSA model's study phase had been developed during DNP III based on feedback from the partnering organization, and changes were made based on such expectations. Finally, in the act phase of the PDSA cycle, the implementation tool was evaluated through intervals to develop the implementation stages (presentation development, dissemination, video PPE skills check-off sessions, and result survey). These stages provided the initial student cohort with the necessary foundational concepts shared with the academic and professional community.

The DNP Student Project Team had bimonthly formal meetings between students, faculty, and project champion. Beyond these, communication between students occurred in real-time through Groupme (2020) phone application software weekly for approximately three months between August through October 2020. Logistical implementation plans, which included formulating schedules for virtual check-off sessions, rehearsal of video check-offs, and inquiries for project champion and project partner, were discussion topics at these informal meetings. Students also met with faculty throughout each semester for guidance, constructive feedback, and support. These meetings ranged from thirty minutes to an hour each. They were insightful as they offered direction and a forum for the DNP Student Project Team for project development. The meetings functioned as an overall foundation for the project, based on faculty experience and the DNP Student Project Team evaluation based on feedback from the partnering organization.

### ***Description of the Methods and Measurement***

There were four stages for the DNP Project implementation. The first stage involved education development that showed foundational concepts of COVID-19 transmission, symptoms, and preventative strategies. The presentation also included proper PPE use, adequate disease detection, resources to request more PPE supplies, and staff support. The project partner received this information in a narrated visual presentation for COVID-19 Strike Team training in the second stage of implementation. Evaluation of COVID-19 Strike Team members' knowledge of proper PPE use was the third stage. The DNP Student Project Team scheduled blocks of time with each COVID-19 Strike Team member following the video presentation from the first stage and evaluated properly donning and doffing of PPE. The actual data collection process through the Qualtrics survey was the final stage of the implementation process. Following the end of the survey, a screenshot link was provided to the Strike Team members for 1.0 hour of continuing education credit to be awarded by the project partner.

### ***Discussion of the Data Collection Process***

Following the video return demonstration check-off sessions with the student, the COVID-19 Strike Team member was given a link to a Qualtrics survey. This survey functioned as a data-gathering tool that determined the effectiveness of the implementation. Each Strike Team member shared demographic data for analysis, including age range, occupation role, years of experience in licensure or certification, and the highest education level. Qualitative data included whether the Strike Team members learned new information from the presentation. Other data included whether they could locate PPE supplies in the facility and if each Strike Team member had confidence with proper PPE use. Finally, they answered if there was enough

time to add it into the daily routine or workflow. There was an additional section for comments, concerns, or observations.

### **Implementation Plan**

The implementation grew from the needs of the project partner as communicated to the DNP Student Project Team. The initial request involved developing education for COVID-19 Strike Team members, who then trained LTCF staff with strategies and resources to limit outbreaks throughout its community. The DNP Student Project Team collaborated in multiple meetings with the project champion and project faculty for development in this initial phase of the implementation with mini-deadlines determined on the overarching project partner requirements. The presentation was initially developed based on CDC guidelines with narrative audio to guide learning (CDC, 2020c). Edits made to the presentation allowed for a concise fit into a brief 10-minute video. The project champion reviewed the final product and approved the presentation for dissemination to the project partner.

The next stage involved opening hour-long time slots over a six-week time block for the COVID-19 Strike Team member's convenience to check off proper PPE use with a DNP Student Project Team member. The Doodle Poll was the platform for sign-ups, which the DNP Student Project Team frequently monitored (Doodle, n.d.). The DNP Student Project Team contacted the signed-up team member with instructions and reminders for return demonstration check-offs through WebEx software (Cisco Systems Incorporated, 2020). The DNP Student Project Team member would meet with the COVID-19 Strike Team member and watch proper placement and removal of PPE and correct any deficiencies. The Strike Team then received an e-mail with a link to a survey upon completing the check-off sessions. The Qualtrics software helped develop the survey used to gather the pertinent information, including demographic and qualitative data,

for further analysis while providing the Strike Team member continuing education credit (see Appendix A).

### **Timeline**

The DNP Project timeline involved several phases starting from project onboarding in July 2020 until completion and submission of the DNP Paper to the ScholarShip repository in April 2021 (East Carolina University [ECU], n.d.). A summary of significant events related to the DNP Project with accompanying dates offered insight into the implementation sequence (see Appendix B). A more detailed account of events was provided in sequential semester time log assignments submitted for review by the project faculty.

## Section IV. Results and Findings

### Results

The DNP project intended to reduce the propagation of COVID-19 in long-term care facilities (LTCFs). This project implemented COVID-19 Strike Team education and evaluated personal protective equipment (PPE) use through a virtual return demonstration. The Qualtrics survey completed by the COVID-19 Strike Team members post-demonstration gathered measurable data for review.

The survey included questions that provided demographic information such as age range, occupational role, and years of experience in each role. Qualitative data-focused if participants: learned any new information from the presentation; had increased confidence with proper PPE use following check-off sessions; had found PPE supply location at the facility; had enough PPE supplies; and if team members perceived they had time to add proper PPE use to their daily routine.

The DNP project implementation was performed virtually. Therefore, the setting involved virtual applications, including WebEx, Doodle Poll, GroupMe, and e-mail (Cisco Systems Incorporated, 2020; Doodle, n.d.; GroupMe, 2020). Preparation of all COVID-19 Strike Team members numbered at 35 ( $N = 35$ ) was the DNP project's original expectation. A survey completion would signal that the COVID-19 Strike Team member reviewed the presentation and performed a return demonstration with the DNP Student Project Team. Initially, the goal was that more than half of the  $N = 35$ , at least 18 ( $n = 18$ ), or approximately 51% of the team members, would complete the survey.

Further communication with the project champion revealed 10 full-time Strike Team members ( $N = 10$ ). The others were part-time or individuals that worked other roles who would

fill in where needed. However, the ten full-time staff were dedicated super-users that would disseminate the information from DNP project implementation to the part-time individuals. At the final count, nine full-time members completed the full implementation, indicating a better than expected 90% completion of all stages.

### ***Outcomes Data***

Ten items were used in the survey, fitting into nominal and ordinal categories of data. The items were as follows: (a) age range, (b) occupational role, (c) years of experience in licensure or certification, (d) the highest level of education, (e) whether the participant gained new knowledge from presentation, (f) level of confidence related to putting on and taking off PPE, (g) locating PPE supplies at the facility, (h) having adequate supplies stocked at the facility, (i) having adequate time to add PPE to the role at the LTCF, (j) further information needing to be shared (See Appendix A).

Process measures related to this DNP Project include attainment of knowledge related to proper PPE use, staff resources, and requested PPE supplies to reduce the spread of COVID-19 in the LTCF setting.

While the primary outcome measure involved limiting the spread of COVID-19 in LTCF, it was difficult to measure due to the multi-year nature of the project. The DNP Project was at the pioneering phase, and the project partner can determine the benefit for LTCF through future retrospective studies. Therefore, the focus of this DNP Project was the improvement of process measures.

### **Discussion of Major Findings**

The process measurement was an overall success based on the completion rate of 90% of full-time COVID-19 Strike Team members. This meant that of the 10 full-time COVID-19 Strike

Team members, nine participants completed all stages involved in the DNP Project Implementation. Further breakdown of the results showed that 100% of the respondents learned new information from the student presentation and rated themselves fully confident with properly using and taking off PPE (see Appendix C). For the remaining three categories, however, the results were varied. The PPE inventory location category showed six of nine reporting team members (approximately 67%) could locate PPE supplies at their designated facility. Two of the nine participants could not locate supplies, while one individual was uncertain (see Appendix D). The next category, determined whether each designated facility had adequate PPE supplies, showed that five of the nine (approximately 56%) individuals found adequate PPE quantities in facilities. In comparison, 33% (or three individuals) did not believe their facilities had adequate inventory, and one individual was uncertain.

The final category, or the determination of adequate time to add proper PPE use to the daily routine, showed that seven individuals (approximately 78%) agreed to this necessary step (see Appendix E). At the same time, one participant disagreed regarding having enough time. Another individual was neutral (neither agreed nor disagreed) regarding time as a factor for PPE during routine use.

The comments section had six participants offer approval for the presentation and PPE demonstration check-off sessions. Two participants, however, offered disagreement not explicitly leveled at the DNP Project but toward the time necessary to properly incorporate proper PPE use in their daily routines. The individual stated, "PPE use is task intensive... it adds approximately 20% more time to do the same job...". Another individual shared, "One location did not have an individual storeroom," requiring additional education. The feedback from these Strike Team members was valuable and can be used in future initiatives.

## Section V. Interpretation and Implications

### Cost-Benefit Analysis

This project's focus involved training 10 full-time COVID-19 Strike Team members or designated super-users of these resources. These individuals were directly involved in the project; however, the knowledge they gained was shared with another 25 COVID-19 part-time team members. The cost-benefit analysis discussed in this section applies to the full-time team members.

As recommended by the CMS, a self-paced education course covered 23 infection prevention training modules with further scenario models for formal Strike Team member training (CMS, 2020c). This course takes approximately 16 hours to complete. The Strike Team consists of paramedics, RNs, LPNs, and EMTs identified through the DNP Qualtrics Survey (Haq & Tillman, 2020). The average salary per hour was approximately \$14.70, \$19.80, \$26.00, and \$33.70 for EMTs, LPNs, paramedics, and RNs respectively (Indeed, 2021a; Indeed, 2021b; Indeed, 2021c; & Indeed, 2021d). This value was determined using hourly salary averaged between all four occupations using state-level job compensation. The time factor was approximately 16 hours for the Infection Prevention Training modules and one hour for each Strike Team member participant. The breakdown for the one-hour training was as follows, where the Strike Team member:

1. Reviewed 10-minute ECU DNP COVID-19 Educational Presentation.
2. Signed up for a session via Doodle Poll for return demonstration: 5-minute process time.
3. Scheduled live return-demonstration session with staff: Approximately 30 to 35 minutes (which included time for questions and answers)

4. Completed Qualtrics survey/feedback: Five to 10 minutes. At the end of the survey, the participant received notification of completion certificate to be awarded 1.0 continuing education (C.E.) hour-credit by project partner.

The total training time for one COVID-19 Strike Team member was approximately 17-hours. For the nine members that completed both the CMS training and the DNP implementation, the cost was approximately \$3,660.44 (see Appendix F Table 1). For each Strike Team member, the subtotal cost of the 17-hour education would be approximately \$406.72. Further costs also included the PPE supplies provided by the project partner to each Strike Team member, such as gloves, masks, N-95 masks, PPE gowns, and face shields. Average commercial costs related to PPE based on preliminary scans from Amazon.com of all items (as of April 5<sup>th</sup>, 2021) mentioned above were approximately \$99.96. The project partner supplied PPE materials to the 10 full-time trainees and the five ECU DNP Student Project team for virtual return demonstration check-off sessions; the organization's cost was approximately \$1,499.40 (see Appendix F Table 2). The organization's cost per trainee (the training subtotal with PPE supplies) was approximately \$506.68. The cost for all 35 (10 full-time and 25 part-time team members) reached approximately \$17,733.64 for the project partner.

The overall benefit group consisted of the full-time COVID-19 Strike Team staff who were ready to teach and train new staff to disseminate critical information throughout the state in LTCFs with COVID-19 outbreaks. The average costs associated with testing and treating infected individuals' hospitalization compared with the cost of training COVID-19 Strike Team members showed financial benefit for implementation sustainability. According to a study published by FAIR Health (2020), the average costs for one adult aged 21-30 years for the hospitalized treatment of COVID-19 was approximately \$34,662; this amount increases to over

\$60,000 out-of-pocket costs for patients 60-years or older. Based on these findings, one fully trained COVID-19 Strike Team member costs the partnering organization a little over \$500.00, which significantly benefits vulnerable populations in LTCFs who may rack up high costs related to treatment and recovery per individual.

Measurement of pre-implementation staffing trends can be compared to post-implementation trends to gauge the success of implementation further. Cost-related negatives were unknown, but there was evidence of time-related losses due to team members' cancellations and data gathering throughout the survey.

A future retrospective analysis shall help gauge benefits beyond the survey responses as implications. Furthermore, future evidence-based studies shall examine the far-reaching effects of this project for reduction (if any) of COVID-19 in LTCFs. The hope was that infection rate reduction led to increased staffing due to improved safety in the LTCFs.

### **Resource Management**

The project partner had human resources and authority and reached out to local healthcare departments and LTCFs. The full-time COVID-19 Strike Team members trained and educated many other local members of the Strike Team, who then trained and educated LTCF staff with known COVID-19 outbreaks. According to the partnering organization's COVID-19 website, educational bulletins, e-pamphlets, and e-flyers were utilized throughout their social media platforms and advertisements to spread information (NCDHHS, n.d.-c). Further information was disseminated through the Prevent and Protect Campaign, which used similar educational flyers throughout the English and Spanish communities and disabled individuals (NCDHHS, n.d.-b).

The uniqueness of the pandemic and the unavailability of information during the initial months of the outbreak, the lack of accurate information regarding transmission, infection, and susceptibility of vulnerable populations increased the likelihood of propagating the virus in the LTCF community. Testing for the illness only became prevalent in the last two to three months, which was no organization's fault. However, it had become an ever-growing concern that would present as a barrier to successful outcomes.

It was unknown what further resources the project partner had not utilized. The project partner continued to release information via press releases, including preparation for shopping-related gatherings such as Black Friday sales (NCDHHS, 2020n). Dissemination of information via social media platforms such as Facebook or Twitter facilitated better or successful outcomes. The advertisement through this method had spread greater awareness about COVID-19, where project partner forged partnerships with interested stakeholders in the community.

## **Implications of the Findings**

### ***Implications for Patients***

The direct group who benefited from the DNP Project implementation were the COVID-19 Strike Team members. The resident populations at these facilities had also received a benefit from living without fear of infection. The advent of COVID-19 vaccinations in 2021 distributed in LTCFs help alleviate the fear and uncertainty related to the illness. Future phases of this DNP Project can explore the effects of the initial implementations that have thus far combatted the spread of COVID-19 throughout the LTCF community. Data gathered from the current phase of this DNP Project shall assist future student cohorts as they navigate the effects and outcomes of the pandemic and the effects of the vaccination on LTCF populations.

### ***Implications for Nursing Practice***

A consequence of decreased infection rates meant more confidence for staff caring for resident populations at LTCFs and decreased staff turnover rates. Nursing staff equipped with knowledge and understanding of locating PPE inventory learned its proper use when caring for residents at their facility could handle further outbreaks. More concrete recommendations through Strike Team guidance included collaboration with facility administration and staff to improve its workers' safety (CDC, 2021). Some other recommendations from the CDC included huddle sessions during shifts to discuss and reiterate the proper guidelines for proper PPE use between patients that reduced daily workflow time. A dedicated staff per shift caring specifically for COVID-19 positive individuals at the facility, temporarily quarantining positive residents, and bundling daily living activities, medication administration, dining, and other care activities for positive residents were some other CDC-guided recommendations for consideration.

### ***Impact for Healthcare System***

Long-term care facilities with better staffing rates and PPE supplies were able to handle any outbreaks that may arise in the future. Furthermore, funding resources significantly enhanced the ability of LTCFs to continue combatting outbreaks as they occur. A collaborative partnership between the COVID-19 Strike Team members, LTCF administration, and staff can adhere to CDC-driven guidelines to reduce the pandemic's rising numbers throughout healthcare systems (CDC, 2020c).

### **Sustainability**

The project partner had announced to the ECU DNP Student Project Team that this project should have implications related to COVID-19 for many years. However, strategies that managed COVID-19 outbreaks in LTCFs apply to other infections.

The project partner's operational budget was approximately \$1.6 billion for various programs (NCDHHS, n.d.-a). It had monetary and human resources to manage the pandemic crisis based on federal and statewide support. Sources of funding for programs in N.C. to combat the spread of the pandemic included a few resources. One primary funding source was the Coronavirus Aid, Relief, and Economic Securities (CARES) Act totaling approximately \$4 billion (North Carolina Pandemic Recovery Office, 2020). These funds were allocated throughout various counties and dispersed throughout each municipality to combat the disease's spread.

Further allocation of funds included \$125 million for contact tracing, COVID-19 testing, analysis, and \$25 million for nursing homes (North Carolina Medicaid Department of Health Benefits [NCMDHB], 2020). Furthermore, LTCFs were required beginning August 7, 2020, to report new cases and compliance with testing and contact tracing trends every two weeks to receive benefit from funds. The NCMDHB mandated that non-compliance shall result in loss of funding from the CARES Act.

Sustainability needed to be in place to keep the overarching goal of keeping LTCFs supplied with PPE, staff and have adequate screening methods. As the NCMDHB noted, after \$25 million from the CARES Act was depleted in December 2020, the organization utilized other sources to manage costs related to testing, PPE supplies, or staffing assistance. More recent funding from the American Rescue Plan, signed into law in March 2021, allocated further sustainability resources (Spanko, 2021).

### **Dissemination Plan**

Near the completion of the DNP project, the student disseminated findings. The intent was for the community to benefit from the project's knowledge. The virtual platform provided a

logistical foundation for sharing educational information with a larger group of individuals comprised of peers, professors, project stakeholders, and other community members (Cook & MacFarquhar, 2020).

The DNP project was presented virtually on April 6, 2021, for the ECU College of Nursing faculty and graduating DNP students. The purpose was to discuss the implementation involving COVID-19 Strike Team members' training to reduce the propagation of COVID-19 in long-term care facilities. The presentation covered the background, purpose, participants, methodology, findings, impact on current practice, and future implications. A question-and-answer session followed the presentation. Submission of a manuscript detailing findings shall be entered into the ECU digital repository," The Scholarship," from April to May 2021 (ECU, n.d.).

## Section VI. Conclusion

### Limitations

Due to the pandemic's uncertainty, this project's dynamic nature added a layer of complexity. Development of plans occurred in a 'reactively proactive' method based on the project partner's reaction to pandemic developments. Often, real-time developments occurred every hour, and the project partner needed time to digest and analyze policy-driven changes or effects of pandemic outbreaks in the community. These led to shorter deadlines and the DNP Student Project Team's necessity to be flexible and adaptable to sudden tasks.

The lack of direct communication with the project partner was challenging for task completion. For example, during the sign-up for the return demonstration process, the DNP Student Project Team did not have all Strike Team members' e-mail addresses to facilitate communication and complete the process. The ability to contact Strike Team members directly via e-mail would have resulted in more completions and more data for analysis.

Another noted limitation of this project was the inability to measure outbreak outcomes and infection rates in the long-term care facilities to determine if the implementation had any merit or value. Furthermore, the inability to measure outbreaks in LTCFs pre-and post-implementation was another limitation.

Finally, the decentralization of COVID-19 data and variable outbreak reporting guidelines was another limitation for the DNP Project. The chaos of data reporting databases changed multiple times in 2020 from CDC to the U.S. Department of Health and Human Services (USDHHS) and then back to CDC again (Jercich, 2020). This lack of data continuity created discrepancies in tracking COVID-19 numbers during this period and greatly hampered the DNP Student Project Team's ability to gauge the Implementation effects accurately.

### **Recommendations for Others**

The DNP Project was the first phase in a multi-year collaboration between the ECU DNP Student Project and the partnering organization. The pandemic had killed millions of people globally and continued to infect many more. Therefore, in future studies, the following recommendations for planning, implementation, and evaluation can benefit the community.

It was necessary to present current COVID-19 related evidence, including transmission, infection rates, proper PPE use, testing, reporting, requesting supplies and staffing, and how it affected propagation in the long-term care facility setting. Future planning must include the effects of the COVID-19 vaccination, a newer development not covered during this project's implementation phase.

The next phase of the implementation will include watching the educational COVID-19 Strike Team presentation, performing a return demonstration of PPE and precautions, and completing the survey. It would be essential to analyze the Qualtrics survey results and make inferences and practice implications from the current DNP Project. Future iterations can gauge the COVID-19 vaccination and the effects on LTCFs. This sequence shall serve as a blueprint for future phases of this multi-year DNP project.

The narrated presentation provided COVID-19 education, such as the disease and its impact on the long-term care facility setting. Information was presented for COVID-19 Strike Team members to assist with management prevention and protective strategies in LTCFs. These approaches eliminated outbreak events and involved safe social distancing, handwashing, and proper utilization of PPE supplies. Furthermore, this information provided the LTCF the ability to resupply their PPE inventory and promote staffing. The presentation can serve as a valuable asset for long-term care organizations to manage the crisis of a pandemic outbreak within their

facility. The virtual check-off session reinforced some practical aspects of the intervention, such as proper PPE use based on CDC guidelines (CDC, 2020c). The Qualtrics survey data tool offered quantifiable data gathered through the implementation. The DNP Project shall follow these foundational steps and develop into future iterations based on the need of the project partner and the benefit of its community at the time.

### **Recommendations Further Study**

Future studies should measure staff confidence when caring for residents/patients during the pandemic and the indirect outcome or benefit of staff retention in the LTCF setting. These studies can also measure the facility's costs in treating the after-effects of caring for a resident/patient recovering from COVID-19. The long-term effects of this disease beyond several months have remained unknown. Finally, as noted above, measuring the benefits of COVID-19 vaccination and the effects on the reduction in infection rates can also be studied to determine implications.

### **The Future is Now**

So, what did this DNP Project ultimately mean for long-term care facilities? How do we gauge the success of COVID-19 Strike Teams? While there were no preliminary numbers to measure their success, Strike Teams could significantly impact LTCFs. With the advent of the COVID-19 vaccine in large quantities, the next task involves distribution to LTCFs. The DNP Project's initial phase involved shielding against the virus's spread; the vaccination now represents a form of rescue by COVID-19 Strike Teams (Critchfield, 2021).

The CARES Act, created in March 2020, paved the way for the \$21 billion from the Paycheck Protection Program loans and the Provider Relief Fund (Soergel, 2020). The funding helped with the sustainability of the DNP Project. It assisted COVID-19 Strike Teams with the

ability to provide training that facilitated LTCF access to better resources, including PPE inventory, COVID-19 testing, infection control, staffing, new filtration systems, and air purifiers. The more recent American Rescue Plan signed into law on March 10, 2021, included direct provisions of approximately \$250 million to fund COVID-19 Strike Teams LTCFs for up to one year (Spanko, 2021). This plan furthermore added another \$200 million directed at the implementation of the COVID-19 vaccination in LTCFs. The COVID-19 Strike Teams have used the funds from these plans to provide greater access to vaccination options to help reduce pandemic outbreaks.

Finally, the upcoming student cohort continues to sustain the DNP Project based on current developments, new evidence-based research, and fresh perspective. The forward momentum for the DNP Project was due to a team effort. Everyone brought their strengths, wisdom, experience and provided the best options for the project partner and the COVID-19 Strike Team. These group members received full access and control of various tools developed for this project's initial phase. For example, the Qualtrics Survey, which collected the demographic information and Strike Team perception regarding proper PPE use, had been formally transitioned to students in the upcoming class. As the world adapted to COVID-19, the DNP Student Project Team also needed to progress. As a team member who shall embark into the professional arena and leave the academic setting in the past, it shall be intriguing to see how the DNP Project shall continue to evolve.

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## Appendix A

### 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 or more years
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's 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 inservice, how confident are you that in putting on and taking off personal protective equipment (PPE)? (1- not confident and 9- very confident)

	9
	8
	7
	6
	5
	4
	3
	2
	1

7. I have had 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 disagree
  - Strongly disagree

10. What other information would you like to share?

## Appendix B

### Project Timeline

Stage	Tasks Performed	Date of Completion
Stage 0: Project On-boarding	<ol style="list-style-type: none"> <li>1. The student had preliminary discussions with faculty regarding on-boarding with COVID-19 Strike Teams in long-term care facilities project.</li> <li>2. The student had the first meeting with new group members for DNP Project for planning.</li> <li>3. The student developed a solid foundational background regarding COVID-19 before the Implementation semester of DNP III through the rapid development of Section I&amp;II using a new paper template per faculty advisor.</li> </ol>	<ol style="list-style-type: none"> <li>1. 07/14/2020</li> <li>2. 07/15/2020</li> <li>3. 07/22/2020</li> </ol>
Stage 1: Real-time Implementation Development (via weekly to bi-weekly meetings between student-student, student-faculty, and student group-faculty through WebEx meeting software).	<ol style="list-style-type: none"> <li>1. Determine initial tasks/assignments requested for DNP Student Project Team by project partner.</li> <li>2. Research of evidence to develop educational in-service with COVID-19 background information, infection prevention resources, staffing request links, CDC guidelines for donning and doffing personal protective equipment (PPE),</li> </ol>	<ol style="list-style-type: none"> <li>1. 8/16/2020</li> <li>2. 8/22/2020</li> </ol>

	<p>COVID-19 testing, and mandatory reporting of COVID-19 Positive cases.</p> <p>3. Recorded, reviewed, re-edited voice narration to presentation and shared with student team for feedback and improvement of final copy.</p>	<p>3. 08/27/2020-09/05/2020</p>
<p>Stage 2: Dissemination of voice-narrated educational in-service “Strategies to Prevent Further Transmission and Infection in Long Term Care Facilities” through project site champion to project liaison representing project partner.</p>	<p>1. Project partner utilization of COVID-19 Presentation “Strategies to Prevent Further Transmission and Infection in Long Term Care Facilities” for Strike Team member training.</p>	<p>1. 9/06/2020</p>
<p>Stage 3: Virtual return demonstration PPE Check-off Session.</p>	<p>1. The student team planned the logistical aspects of setting up an upcoming implementation section to evaluate each Strike Team regarding proper PPE use.</p> <p>2. The student helped manage the Doodle poll sign-up tool for Strike Team members to schedule WebEx sessions for PPE donning/doffing per CDC guidelines for DNP Student Project Team evaluation.</p> <p>3. Received PPE supplies (gown, N95 masks, goggles, and gloves) for performing return demonstrations</p>	<p>1. 9/17/2020</p> <p>2. 09/15/2020-10/25/2020</p> <p>3. 9/21/2020-10/24/2020</p>

	evaluation sessions. The student team performed evaluations	
Stage 4: Qualtrics Survey	<ol style="list-style-type: none"> <li>1. The student helped with the synchronous development during the return demonstration check-off of the Qualtrics data-gathering survey with faculty advisor guidance. Demographics data and perception data obtained (see Appendix D: Qualtrics Survey); link to the Student Project Team's survey to COVID-19 Strike Team member upon completing WebEx Session.</li> <li>2. Completion of the Survey provided Certificate Screen for proof for 1.0 credit hours of continuing education. Certificate proof of completion to be sent to project partner to award C.E. credit.</li> </ol>	<ol style="list-style-type: none"> <li>1. 9/17/2020</li> <li>2. 9/17/2020-10/25/2020</li> </ol>
Stage 5: Final Stage	<ol style="list-style-type: none"> <li>1. Transferred Qualtrics Survey and data related to findings to oncoming student semester that shall continue the multi-semester project</li> <li>2. Disseminate all evidence-based findings from implementation with College of Nursing via Microsoft Teams</li> </ol>	<ol style="list-style-type: none"> <li>1. 3/25/2021</li> <li>2. 4/06/2021</li> </ol>

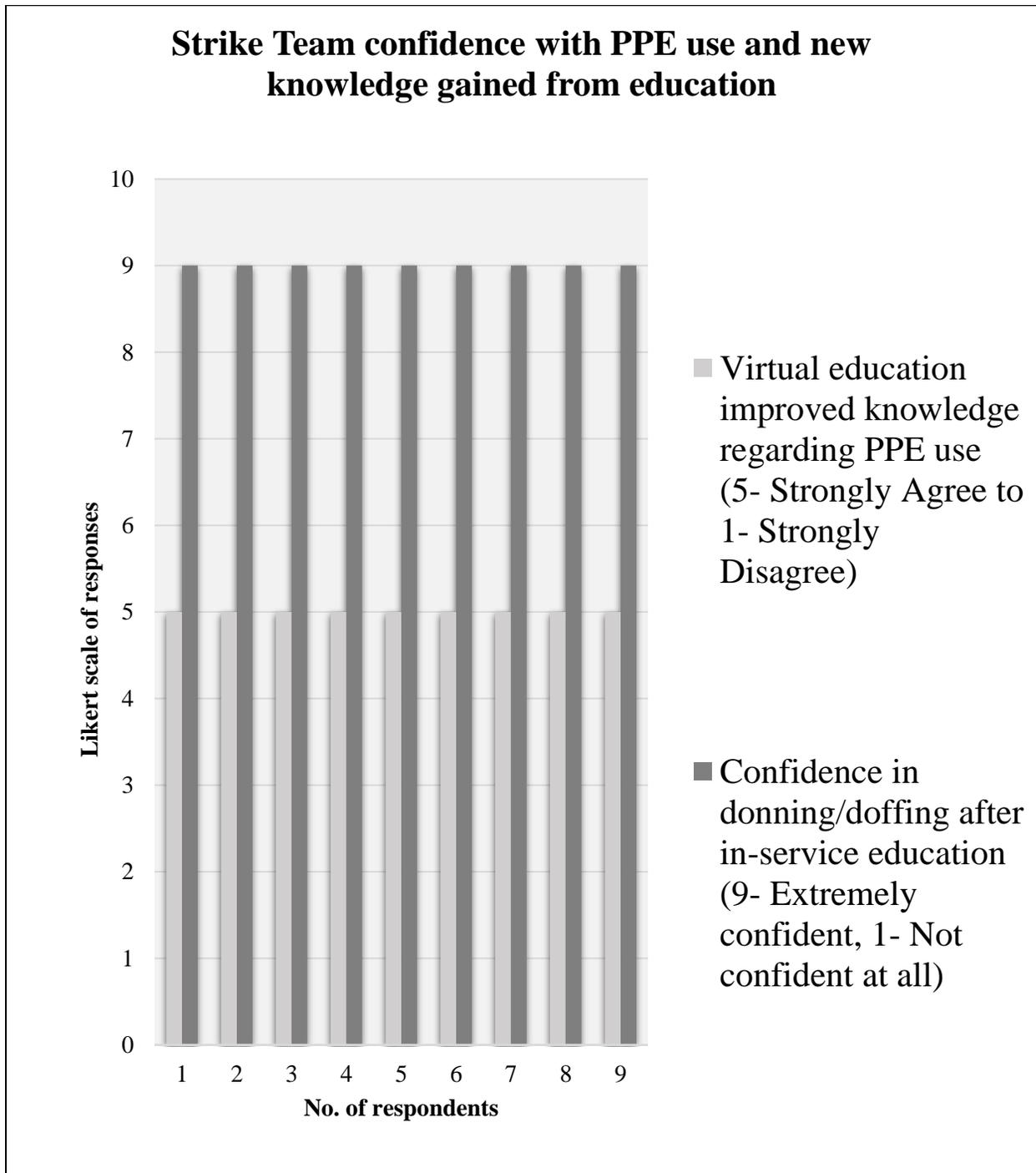
	through the utilization of DNP Poster Presentation	
3.	Organize an accurate record of findings through a concise scholarly paper for entry into the ScholarShip.	3. 4/18/2021

*Note:* Significant events were categorized according to the chronological sequence of events

from onboarding until submission of the paper to the ScholarShip.

Appendix C

Strike Team Confidence with Personal Protective Equipment (PPE) Use

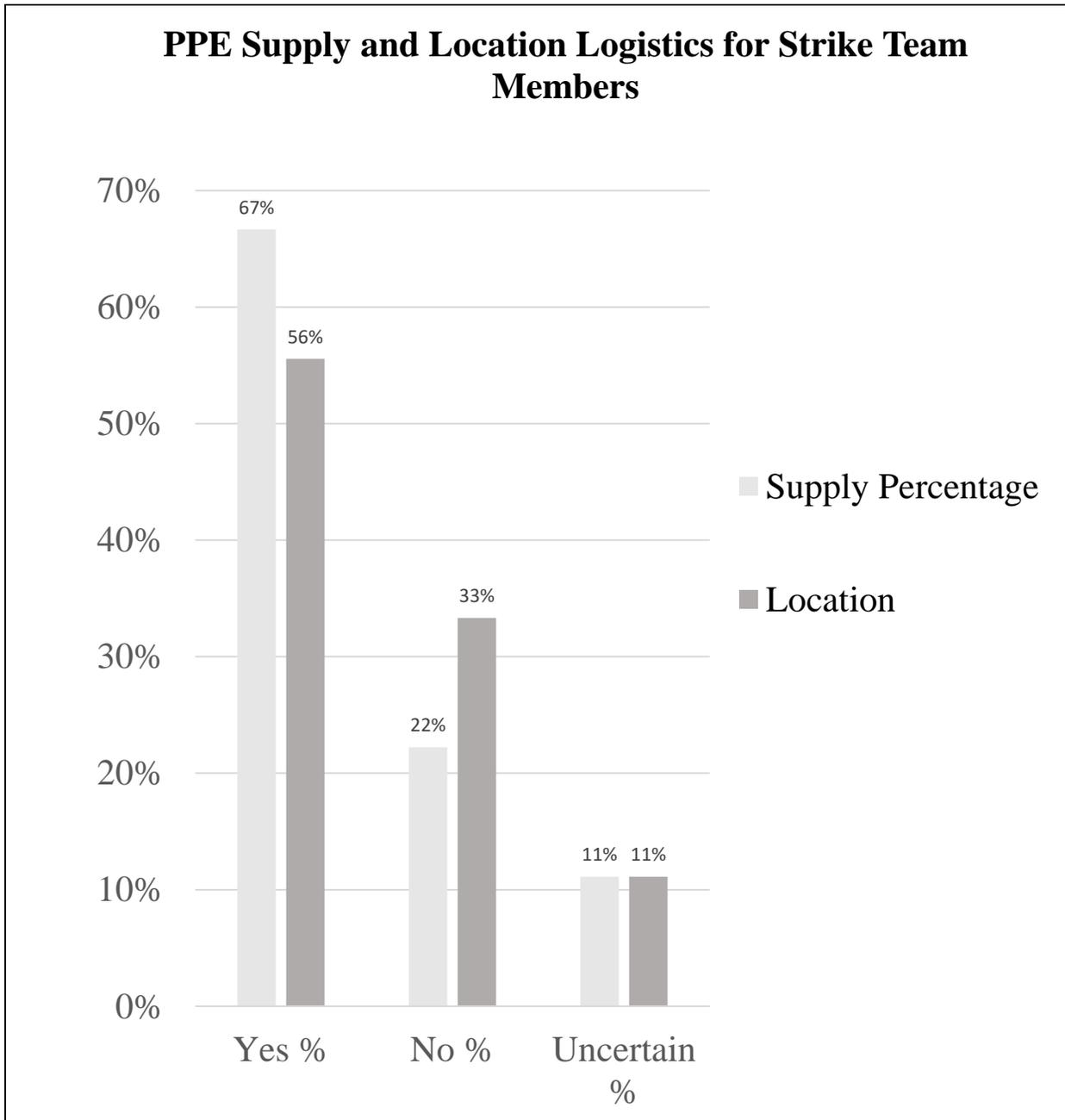


*Note:* This figure illustrates new knowledge gained from the educational presentation and confidence with donning/doffing PPE.

**Appendix D**

**Personal Protective Equipment (PPE) Supply and Location Logistics for Strike Team**

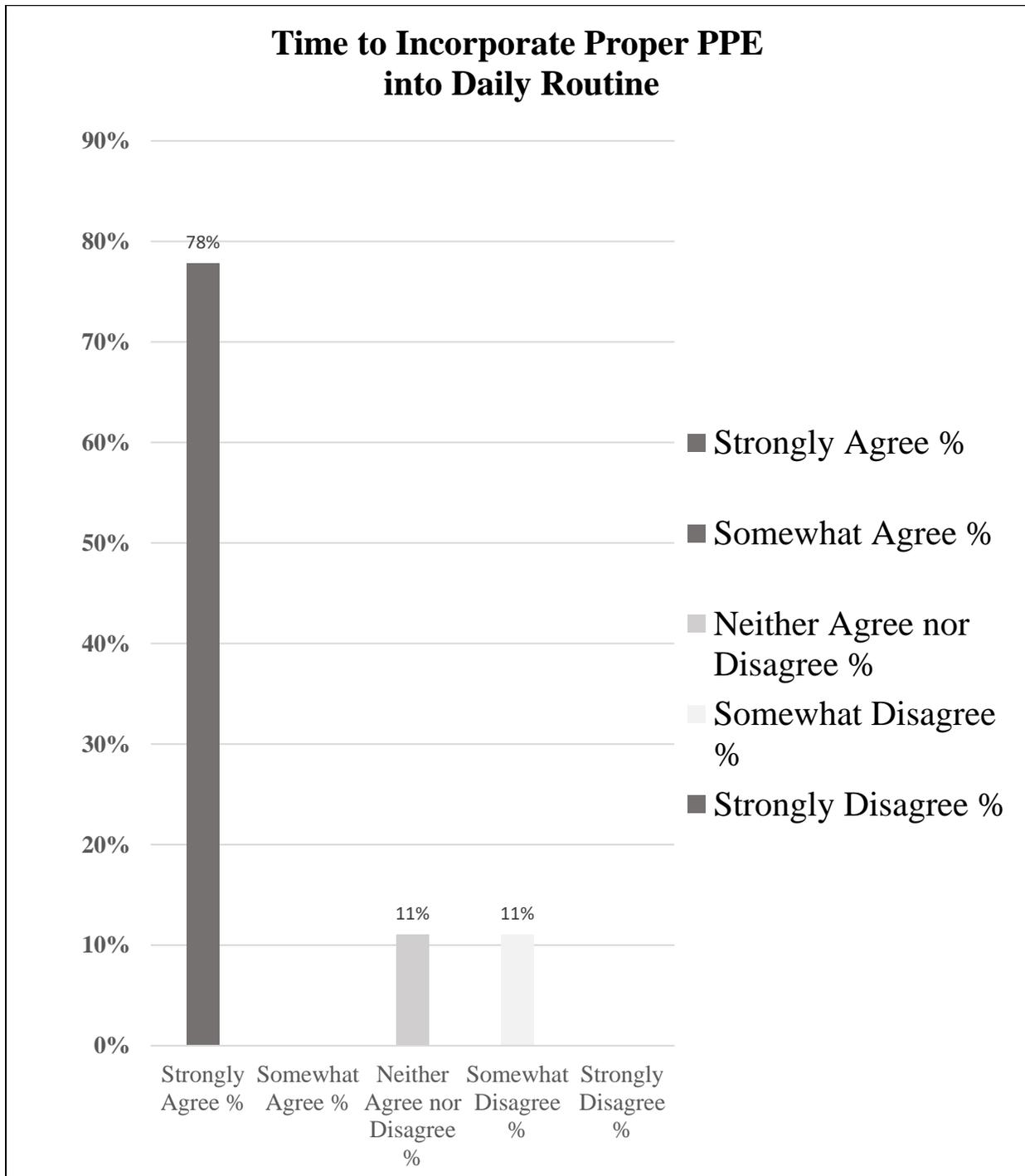
**Members**



*Note:* This figure illustrates respondents’ ease of locating long-term care facility PPE supplies as well as determining if each facility had adequate PPE supplies.

**Appendix E**

**Time to Incorporate Personal Protective Equipment (PPE)**



*Note:* This figure illustrates Strike Team perception if they had enough time to incorporate proper PPE use in daily routine or workflow.

## Appendix F

### Proposed Project Budget

**Table 1**

*Project Budget for COVID-19 Strike Team Member Training*

Occupation	Average NC Hourly Salary <sup>1</sup>	Number of Team Members	17 hours of training (16 hours module with one-hour implementation) + \$99.96 for PPE box of supplies= Total
Registered Nurse	\$33.70	2	\$1,245.76
Licensed Practical Nurse	\$26.00	1	\$541.96
Paramedics	\$19.80	2	\$773.16
EMT	\$14.70	4	\$1,099.56
<b>Total</b>		<b>9</b>	<b>\$3,660.44</b>

*Note:* These tables are based on proposed costs.

<sup>1</sup> Average hourly salary estimates for COVID-19 Strike Team occupations from Indeed.com

**Table 2**

*Project Budget for Virtual PPE Check-Off Return Demonstration*

Line Item	Unit Cost <sup>1</sup>	Quantity <sup>2</sup>	Total
Box of 100 count Gloves	\$14.99	15	\$224.85
N-95 Masks pack of 3 masks	\$24.99	15	\$374.85
PPE Gown pack of 20 gowns	\$34.99	15	\$524.85
Face Shield pack of 10	\$24.99	15	\$374.85
<b>Total</b>	<b>\$99.96</b>		<b>\$1,499.40</b>

*Note:* These tables are based on proposed costs.

<sup>1</sup> Average cost of virtual PPE return demonstration supplies, including a box of gloves, N-95 masks, PPE gown, and face shield determined from current (4/5/2021) Amazon.com prices.

<sup>2</sup> PPE supply quantity for 10 COVID-19 Strike Team members and five ECU DNP Student Project Team members

## Appendix G

## DNP Essentials Mapping

	Description	Demonstration of Knowledge
Essential I <i>Scientific Underpinning for Practice</i>	<p><b>Competency</b> – Analyzes and uses information to develop practice</p> <p><b>Competency</b> -Integrates knowledge from humanities and science into context of nursing</p> <p><b>Competency</b> -Translates research to improve practice</p> <p><b>Competency</b> -Integrates research, theory, and practice to develop new approaches toward improved practice and outcomes</p>	<ul style="list-style-type: none"> <li>Sciences included pathophysiology and anatomy regarding COVID-19 transmission, incubation time, symptoms for in-service education.</li> <li>Researched latest COVID-19 developments and integrated evidence-based research and CDC developed guidelines to reduce effects of pandemic outbreaks in facilities, PPE use, testing, and reporting of the virus.</li> </ul>
Essential II <i>Organizational &amp; Systems Leadership for Quality Improvement &amp; Systems Thinking</i>	<p><b>Competency</b> –Develops and evaluates practice based on science and integrates policy and humanities</p> <p><b>Competency</b> –Assumes and ensures accountability for quality care and patient safety</p> <p><b>Competency</b> -Demonstrates critical and reflective thinking</p> <p><b>Competency</b> -Advocates for improved quality, access, and cost of health care; monitors costs and budgets</p> <p><b>Competency</b> -Develops and implements innovations incorporating principles of change</p> <p><b>Competency</b> - Effectively communicates practice knowledge in writing and orally to improve quality</p> <p><b>Competency</b> - Develops and evaluates strategies to manage ethical dilemmas in patient care and within health care delivery systems</p>	<ul style="list-style-type: none"> <li>Developed virtual return demonstration sessions for quality improvement; proper PPE use per CDC mandated guidelines to decrease the risk of exposure and cross-contamination by COVID-19; these serve to promote patient safety.</li> <li>The student communicated an accurate record of implementation in the DNP Paper.</li> <li>The student performed an Oral presentation of quality improvement and findings at the</li> </ul>

		ECU CON DNP Poster Presentation.
Essential III <i>Clinical Scholarship &amp; Analytical Methods for Evidence-Based Practice</i>	<p><b>Competency</b> - Critically analyzes literature to determine best practices</p> <p><b>Competency</b> - Implements evaluation processes to measure process and patient outcomes</p> <p><b>Competency</b> - Designs and implements quality improvement strategies to promote safety, efficiency, and equitable quality care for patients</p> <p><b>Competency</b> - Applies knowledge to develop practice guidelines</p> <p><b>Competency</b> - Uses informatics to identify, analyze, and predict best practice and patient outcomes</p> <p><b>Competency</b> - Collaborate in research and disseminate findings</p>	<ul style="list-style-type: none"> <li>• Evaluated latest literature on COVID-19 policies through local, state, and federal mandates, including social distancing, limiting congregational activities, and mask use.</li> <li>• Developed in-service education to train COVID-19 Strike Team with a Student Project Team; disseminate through DNP Paper and oral presentation via WebEx Session on 4/06/2021.</li> <li>• Inservice education with voice narration shared with project partner and featured as part of their current and future Strike Team member training.</li> </ul>
Essential IV <i>Information Systems – Technology &amp; Patient Care Technology for the Improvement &amp; Transformation of Health Care</i>	<p><b>Competency</b> - Design/select and utilize software to analyze practice and consumer information systems that can improve the delivery &amp; quality of care</p> <p><b>Competency</b> - Analyze and operationalize patient care technologies</p> <p><b>Competency</b> - Evaluate technology regarding ethics, efficiency, and accuracy</p> <p><b>Competency</b> - Evaluates systems of care using health information technologies</p>	<ul style="list-style-type: none"> <li>• The student developed a survey using Qualtrics software to gather data based on education and check off sessions.</li> <li>• The student helped manage Doodle poll for scheduling, GroupMe app, WebEx as computer applications for inter-student, student-Strike Team, and student-site champion communication.</li> </ul>
	<b>Description</b>	<b>Demonstration of Knowledge</b>

<p>Essential V <i>Health Care Policy of Advocacy in Health Care</i></p>	<p><b>Competency-</b> Analyzes health policy from the perspective of patients, nursing, and other stakeholders  <b>Competency</b> – Provides leadership in developing and implementing health policy  <b>Competency</b> –Influences policymakers, formally and informally, in local and global settings  <b>Competency</b> – Educates stakeholders regarding policy  <b>Competency</b> – Advocates for nursing within the policy arena  <b>Competency-</b> Participates in policy agendas that assist with finance, regulation, and health care delivery  <b>Competency</b> – Advocates for equitable and ethical health care</p>	<ul style="list-style-type: none"> <li>• Read, analyzed, and integrated statewide guidance regarding COVID-19 infection prevention, including enforced policies involving mask-wearing and social distancing.</li> <li>• The student reviewed health-related policies drawn up by the project partner website that ran in conjunction with legislative mandates.</li> </ul>
<p>Essential VI <i>Interprofessional Collaboration for Improving Patient &amp; Population Health Outcomes</i></p>	<p><b>Competency-</b> Uses effective collaboration and communication to develop and implement practice, policy, standards of care, and scholarship  <b>Competency</b> – Provide leadership to interprofessional care teams  <b>Competency</b> – Consult intraprofessionally and interprofessionally to develop systems of care in complex settings</p>	<ul style="list-style-type: none"> <li>• This essential was evident through student-student collaboration, student-faculty huddle sessions, and meetings to develop and implement practice-based policies, standards of care, and scholarship.</li> <li>• The student and student team met biweekly or monthly meetings via WebEx with the other student cohort for collaborative team effort for real-time development of the implementation.</li> </ul>
<p>Essential VII <i>Clinical Prevention &amp; Population Health for Improving the Nation's Health</i></p>	<p><b>Competency-</b> Integrates epidemiology, biostatistics, and data to facilitate individual and population health care delivery  <b>Competency</b> – Synthesizes information &amp; cultural competency to develop &amp; use health promotion/disease prevention strategies to address gaps in care  <b>Competency</b> – Evaluates, and implements change strategies of models of health care</p>	<ul style="list-style-type: none"> <li>• Determined latest population healthcare statistics and infection rate trends in N.C.</li> <li>• Developed education streamlined for COVID-19 Strike Team, a diverse multidisciplinary team for the benefit of</li> </ul>

	delivery to improve quality and address diversity	reducing pandemic effects in LTCFs.
Essential VIII <i>Advanced Nursing Practice</i>	<p><b>Competency</b>- Melds diversity &amp; cultural sensitivity to conduct systematic assessment of health parameters in varied settings</p> <p><b>Competency</b> – Design, implement &amp; evaluate nursing interventions to promote quality</p> <p><b>Competency</b> – Develop &amp; maintain patient relationships</p> <p><b>Competency</b> –Demonstrate advanced clinical judgment and systematic thoughts to improve patient outcomes</p> <p><b>Competency</b> – Mentor and support fellow nurses</p> <p><b>Competency</b>- Provide support for individuals and systems experiencing change and transitions</p> <p><b>Competency</b> –Use systems analysis to evaluate practice efficiency, care delivery, fiscal responsibility, ethical responsibility, and quality outcomes measures</p>	<ul style="list-style-type: none"> <li>• Multiple semester DNP Project, transferred tools, resources, and Qualtrics survey control to oncoming DNP IV semester for future DNP Project phases.</li> <li>• The student developed a cost-benefit analysis to show the effectiveness of implementation from a budgetary standpoint.</li> </ul>