Leading Through a Pandemic: The Role of the Trained Observer

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Leading Through a Pandemic:
The Role of the Trained Observer

DNP Project
Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

St. Catherine University
St. Paul, Minnesota

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ST. PAUL, MINNESOTA

This is to certify that I have examined this
Doctor of Nursing Practice DNP project manuscript
written by

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and have found that it is complete and satisfactory in all respects,
and that any and all revisions required by
the final examining committee have been made.

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Katrice Ziefle

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Date

DEPARTMENT OF NURSING
Abstract

As a result of the COVID-19 pandemic, healthcare teams were faced with unprecedented personal protective equipment (PPE) challenges (Thomas et al., 2020). These constraints required unprecedented PPE use and reuse among health care workers (HCW). This included continual full day use of PPE items, which are historically disposable, single use items changed between patients. These challenges required immediate intervention to keep HCWs, patients, and the community safe. As a result, a team of specially trained observers was established to promote HCW safety. A quality improvement study was launched with the purpose to understand the impact of this team on HCW’s self-efficacy to properly select, don (putting on), and doff (taking off) PPE. The results demonstrated a positive association between the role of the trained observer and increased HCW self-confidence with selecting, donning, and doffing PPE. Subsequently, health care leaders are strongly urged to consider the utility of the trained observer role within their organization during a pandemic or when PPE use recommendations deviate from typical use.
Florence Nightingale once said, “How very little can be done in the spirit of fear” (Nair, S., 2017). Fear is a common emotion experienced by many during a pandemic, especially by healthcare workers (HCWs). A main fear of HCWs is spreading the disease to others including their patients, family, and community and potentially contracting it themselves. Each year over 700,000 individuals are infected and 75,000 will die from healthcare-associated infections in United States hospitals (Rebmann & Carrico, 2017). Additionally, the authors say that HCWs, especially nurses, have a significantly higher risk of becoming infected during global pandemics, accounting for half of all cases in the SARS Co-V outbreak. An important way HCWs can reduce the spread of diseases is through the use of personal protective equipment (PPE). Despite the importance, deviations from donning and doffing protocol are routinely observed by HCWs (Kwon et al., 2017).

Fear is one of the most crippling emotions a team can experience (Kish-Gephart, Detert, Trevino, Klebe, Edmondson, 2009). It negatively impacts productivity, decreases morale, and can prevent a team from achieving its mission or goal. As a leader, it is imperative to be aware of the emotions your team is experiencing, especially during a crisis like the COVID-19 pandemic. One of the most challenging aspects of leading through a pandemic is that fear, like other emotions, is experienced and manifested in dynamic ways by teams. It isn’t enough for a leader to address concerns one time. When a crisis is rapidly evolving, a leader must constantly assess, validate, and respond to the needs of their team. Beyond that, different people have varied responses to crises. A leader must be aware of how each team member is impacted, and to be effective, must tailor his or her response and support accordingly.

When the COVID-19 pandemic first began, health care teams experienced the fear of the unknown. Nobody knew how much PPE was available nor how long the supply would last.
There was grave concern and uncertainty as to how long this pandemic would last. Additionally, HCWs were expected to abide by rapidly evolving PPE reuse guidelines that were unheard of and unfamiliar. Teams were fearful that the reuse of PPE was unsafe and unsanitary. They expressed concern over their health and the health of their family members, patients, and colleagues. While standards and protocols were being developed, HCWs expressed concern and confusion with PPE use and reuse expectations. Fear and angst were impacting the health, productivity, and morale of teams and were getting in the way of achieving the mission of the important work HCWs undertake. Action needed to be taken to enhance the team’s physical and psychological safety thereby reducing fear so that the service HCW teams provide could continue.

**Background**

A large urban operating room setting was the main department and single facility of interest for this quality improvement project. When leaders in this department observed HCWs at the start of the COVID-19 pandemic, it quickly became apparent that there was good reason for the fear HCWs described. Throughout nearly two decades in the operating room, the author had become an expert at PPE standards and guidelines. As a PPE expert, the author observed the HCW (especially those less experienced) discomfort with selecting, donning, and doffing PPE. Beyond that, the evolving PPE reuse guidelines were often not being followed by HCWs. Intuitively, the HCW team recognized that they were not adhering to the expectations; they did not understand the expectations, and were struggling to keep up with the latest policies, procedures, and guidelines. The department leaders were receiving frequent (almost constant) PPE questions about how to manage specific situations and circumstances. The major themes of these questions pertained to what the appropriate PPE was for a specific situation, how to safely
don and doff PPE, and guidance on the most current PPE use and reuse recommendations. While these questions were important, relevant, and needed to be answered, the number of questions and resources were overwhelming to leaders. It was becoming difficult for leaders to be a resource and a source of truth for their teams. Subsequently, a literature review was conducted to understand the actions of other leaders when faced with similar challenges. This information ultimately informed a critical intervention that would serve as a PPE support system for HCWs.

Numerous factors regularly contribute to challenges with PPE selection and appropriate use. A pandemic introduces additional complexities during a time more important than ever for the appropriate selection and utilization of PPE. The unfamiliar COVID-19 virus had taken health care teams by surprise. The pandemic introduced new challenges and brought out the fear of the unknown. For example, at one point the author’s team of over 100 people was down to less than one box (20 count) of N95 respirator masks available to their team. Several members of the author’s team did not have respiratory protection by using N95 respirator masks. To safely care for a COVID-19 positive patient, those team members needed to wear a device called a powered air-purifying system (PAPR). While infrequently used, the PAPRs typically available to the team are disposable. That was not the case at this time. Due to severe global shortages, the author’s team was required to reuse PAPRs. This brought up concerns about the efficacy and cleanliness of the PAPR hood after disinfection. It was extremely difficult for teams to adapt to a change in PPE reuse practices when they were accustomed to plentiful resources that they were comfortable with using. Another reason for adaption challenges was the constantly changing recommendations and overall unknowns of the pandemic situation. As a result, HCWs consistently described a fear of the unknown and had a tendency to revert to previous PPE use practices.
**Problem Statement**

The healthcare community is facing an overall lack of pandemic preparedness including resources, support, and education (Reidy et al., 2015). This includes a lack of resources to adequately protect HCWs, patients, and the community from the spread of disease transmission through cross-contamination of PPE use. Without an intervention, HCWs would continue to struggle with self-efficacy to properly select, don, and doff PPE. The lack of leader response to address this issue would continue to result in incorrect PPE selection and utilization, leading to more HCW fear and the ongoing spread of disease.

**Needs Assessment**

The literature shows that HCWs consistently fail to select appropriate PPE citing time, difficulty, lack of perceived risk, and lack of knowledge as reasons for non-compliance (Jones et al., 2020). During non-pandemic times, adherence rates to appropriate PPE use are reported to be as low as 34% with failure rates as high as 90% (Katanami et al., 2018; Phan et al., 2019). Unique PPE challenges such as multiple precautions that change depending on the situation, staffing bandwidth leading to rushing, and increased fear suggest these numbers may be exaggerated during a pandemic. Because this information was consistent with leader observations, a needs assessment was conducted. The findings of the real time needs assessment revealed that groups of HCWs throughout the hospital were struggling with selecting, donning, and doffing PPE. The infrequency of specialized PPE (respirator, face shields, etc.) use paired with unprecedented PPE reuse guidelines may have contributed to the lack of knowledge and non-compliance among HCWs.

As previously mentioned, the lack of response would continue to result in incorrect PPE selection and utilization, leading to more HCW fear and the ongoing spread of disease. These
factors contributed to an assessment that due to the safety implications, the benefits of an expedited response outweighed the risks of delay. This is the rationale for introducing an immediate intervention of the trained observer role and subsequent retrospective data collection. The trained observer team was initially implemented in the operating room and later expanded to the entire hospital.

**Significance and Contribution**

It was obvious that health care teams needed a real-time, in-person PPE support system. One method that can support PPE compliance is the use of a person called a trained observer (The Lamp: NSW Nurses and Midwives' Association, 2018). A trained observer is someone who receives specialized training in PPE management and safety and functions as an expert resource to those who require PPE use. The trained observer is a dedicated resource that is intimately familiar with PPE selection, donning, and doffing. This individual could be someone who has worked closely with PPE in their professional practice, or someone who will learn new PPE safety and use information. A trained observer with a background in the perioperative setting such as a surgical nurse or surgical technologist is uniquely equipped with an enhanced PPE skillset and therefore the ideal candidate to be a member of such a team.

The role of the individual trained observer is not a new concept. This model had great success during the Ebola pandemic, which was a key trigger to adopt this tactic in professional and academic settings (Soeters et al., 2018). Extensive data exist about its impact on PPE selection and utilization during a pandemic. To address the unmet needs of HCWs, the concept of individual observers described in the literature was expanded to a team concept in this setting. The team concept provided greater flexibility, coverage, knowledge, and support. The team of trained observers was ultimately launched to support PPE needs throughout the entire hospital.
In collaboration with the surgical services director, the author was tasked with operationalizing and managing the trained observer team. Due to an executive order issued by Governor Tim Walz of Minnesota, there was a suspension of all elective surgical procedures. The executive order resulted in a surplus of operating room staff that did not have an assignment but was still reporting to the hospital. The reason staff continued to report to the hospital at this time was due to contractual obligations on the part of the employer paired with other labor relation’s complexities. These individuals had untapped PPE knowledge and could be utilized as trained observers. After canvassing the staff, a total of 18 registered nurse and certified surgical technologist volunteers agreed to staff the trained observer team. The team of trained observers became known as the Mobile Procedural Precautions Team (MPPT) providing 24 hour seven day a week support during the initial stages of the COVID-19 pandemic. The goal of the trained observer team was to serve as a real-time, in-person support resource for HCW’s PPE needs throughout the hospital thereby reducing fear and increasing competence with PPE usage. The specific objectives of the group were to increase HCW’s self-confidence with selection, donning, and doffing with PPE. Additionally, the trained observer resource is significant to nursing and other health care professions by increasing feelings of safety and reducing fear. This could lead to safer patient care and enhanced patient outcomes, both paramount to enhancing nursing practice.

**Theoretical Framework**

Since the beginning of the pandemic, the author has sought to understand and address the PPE challenges. The application of nursing theory to the practice problem will help to both understand and address the PPE challenges, the phenomena of interest. The application of
nursing theory eventually aided in identifying and informing an effective intervention to address the practice problem.

**The Theory**

The theory selected to better understand the phenomena and thus the practice problem is the Nursing Process Discipline Theory, first described by Ida Jean Orlando Pelletier (Butts & Rich, 2018). Orlando Pelletier’s theory stemmed from her dissatisfaction with the nursing practice being governed by regulatory and organizational rules rather than the needs of the patient or population (Butts & Rich, 2018). The theory emphasizes the use of a deliberative nursing process with the goal of the responsiveness of the nurse to that of a disciplined professional (Butts & Rich, 2018). Last, Orlando Pelletier’s theory is reflexive and circular versus linear (Butts & Rich, 2018). Together, these concepts support a structured approach while integrating constant assessment, reflection, and adaptation of nursing practice. These concepts underpin the purpose of Orlando Pelletier’s work: to offer nurses a theory of effective nursing practice.

The rationale for selecting this theory is its transferability and applicability in quality improvement. One of the first things the author recognized when exploring the practice problem is that the PPE challenges were unprecedented and leaders were unprepared to manage the unique challenges. Constant assessment, reflection, and adaptation of nursing practice specific to pandemic preparedness and PPE management did not occur respective to the COVID-19 pandemic. The driving force behind the creation of Orlando Pelletier’s theory is strikingly similar to the rationale for the selection of the practice problem.

Another rationale for selecting this theory is the use of a deliberative nursing process. Pre-pandemic nursing preparedness followed no structured process, deliberate or otherwise.
Furthermore, the pandemic preparedness did not effectively incorporate the core tenants of the nursing process: assessment, diagnosis, planning, implementation, and evaluation. The integration of the concepts of a deliberative nursing process offers structure, predictability, and the opportunity for enhanced pandemic preparedness and PPE management.

Last, another rationale for selecting this theory is its circular nature. Orlando Pelletier describes how the Nursing Process Discipline Theory goes beyond the practice-based nursing process with an emphasis on a more comprehensive interaction between the patient and the nurse (Butts & Rich, 2018). While not the same, there is an opportunity for the nurse leader to translate this concept to the larger scale of a system-level change. One of the greatest opportunities with the pre-pandemic preparedness and PPE management is that it was missing the critical comprehensive component described by Orlando Pelletier. The Nursing Process Discipline Theory will ultimately help to build a more responsive and comprehensive pandemic preparedness and PPE management program.

Orlando Pelletier’s Nursing Process Discipline Theory was selected because its concepts provide predictability and structure while challenging the status quo. When the author started in her role, the pandemic was already taking hold. The author quickly learned that the answer to many questions was because that was the way it had always been done within the organization. It was obvious that the goal of any pandemic preparations was simply about meeting a regulatory requirement and were not about making a difference in pandemic preparedness or addressing PPE scarcity. Orlando Pelletier’s theory lends to the importance of constant assessment, reflection, and adaptation of nursing practice. The Nursing Process Discipline Theory honors the core values of nursing leadership, including critical ongoing reflection and practice improvement. Ultimately, this theory was selected because it provides a systematic, predictable
model of practice organization that both honors the uniqueness of the nursing profession and has the potential to inform a future intervention for the identified practice problem.

**Goal and Objectives**

The goal of the quality improvement project is to understand the relationship between a trained PPE observer resource and staff's perceived self-confidence with selecting, donning, and doffing PPE. The objectives of the quality improvement project are to accurately assess the need for, design, implement, and assess the effectiveness of a supportive PPE intervention in the hospital setting.

**Project Application**

The Nursing Process Discipline Theory informed this DNP project in several important ways. First, the theory is founded on the desire to improve patient outcomes versus the regulatory and organizational governance of the past methods (Butts & Rich, 2018). As a facility with deemed status (organizations that meet or exceed the requirements of Medicare and Medicaid), the organization is required to maintain a program responsible for quality management (The Joint Commission, 2018). Medicare describes the overarching goals of the Quality Assurance Performance Improvement (QAPI) program saying, “QAPI amounts to much more than a provision in Federal statute or regulation; it represents an ongoing, organized method of doing business to achieve optimum results, involving all levels of an organization” (CMS, 2016, para, 3). Unfortunately, this purpose has fallen short within the organization due to competing priorities. The concept of overall quality improvement underpins Orlando Pelletier’s theory, and will ultimately help to redefine the purpose of quality programs in ensuring pandemic preparedness and PPE management.
Second, the theory emphasizes the use of a deliberative nursing process (Butts & Rich, 2018). Current quality programs within the organization lack comprehensive structure and intentionality around pandemic preparedness and do not utilize the important, deliberative nursing process Orlando Pelletier describes. The Centers for Medicare and Medicaid Services (CMS) describe the incorporation of deliberative processes as critical design elements to a quality program (2016). The application of deliberative processes in Orlando Pelletier’s theory aligns with what the evidence suggests to be of the utmost importance to the success of a quality program.

Third, the theory is based on ongoing assessment and continual improvement (Butts & Rich, 2018). In addition to CMS, Rubertino and Lorch and Pollak describe the importance of quality programs as iterative and ongoing (2015; 2014). The Nursing Process Discipline Theory also describes the process of ongoing assessment, response, and action. (Butts & Rich, 2018). This is another example of the overlap between the literature and Orlando Pelletier’s theory.

Ultimately, the literature describes several concepts critical to the success of a quality program (CMS, 2016) and also underpins the Nursing Process Discipline Theory (Butts & Rich, 2018). Both the literature and the constructs of Orlando Pelletier’s theory will inform the project by driving ongoing, meaningful, and deliberative process-based quality improvement. Each of these concepts described in the literature, and by Orlando Pelletier’s theory, is key to quality improvement in nursing. The theory is equipped to honor unique holistic nursing considerations while integrating an evidence-informed quality improvement practice (Chinn & Kramer, 2018). Each of the concepts described could inform the creation of an updated quality program inclusive of nursing leader involvement in pandemic preparedness and PPE management planning.
Summary

It is common for nursing scholars to learn about nursing pioneer Florence Nightingale and how she applied evidence-based, quality improvement concepts before the science were described or broadly understood (Aravind & Chung, 2010). A connection perhaps exists between Ida Jean Orlando Pelletier’s motivation for describing her Nursing Process Discipline Theory and the lessons of Nightingale. The work of both women influenced this DNP quality improvement project.

Review of Literature

A review of the nursing literature was conducted in support of this work to understand potential PPE safety interventions to increase the appropriate selection, donning, and doffing of PPE and also to increase HCW’s self-efficacy to perform these tasks. A synthesis of the findings was the basis for the design, implementation, and leadership of the trained observer team. The nursing literature review sections below examine the individual components of the literature review.

Two databases were searched including PubMed and CINAHL (Cumulative Index of Nursing and Allied Health Literature). Search terms and results included: PPE team (9), PPE outbreak (5), PPE education pandemic (65), trained observer PPE (85), immediate feedback PPE (2), and buddy system PPE (2). Boolean operators included ‘and’ and ‘or’ and MeSH terms included ‘pandemic’, ‘outbreak’, ‘trained observer’, and ‘buddy system’. Inclusion criteria were full-text articles published in English, published within the last ten years. The somewhat extended timeframe of ten years was elected due to the limited studies that exist on the topic. Initially, titles for all articles were reviewed, and then the abstracts were reviewed for those that were related to the topic of interest. Sources were excluded that did not meet the identified
criteria or did not pertain to the topic of interest. There were no repeat articles among the databases.

The team-based concept successfully utilized in Wuhan, China was discussed in the literature. The team was specially trained at performing intubations and focused solely on that task. While the sample size was limited (n=20), the team had a 100% success rate both in achieving airway management and not infecting the team members with SARS Co-V (Zhang et al., 2020). The team-based concept utilized in China during the pandemic could be translated to the PPE trained observer team. While there are ample research studies on the benefit of PPE trained observers, the concept of a mobile PPE trained observer team is limited in the literature. This may be due to the roving nature and team-based approach both being original concepts pertaining to PPE support.

**Evidence Appraisal**

The Johns Hopkins Nursing Evidence-Based Practice Research and Non-Research Evidence Appraisal Tools were utilized to assess the level and quality of evidence. Seven articles utilized were research and four articles were non-research. The non-research articles were included because respected authorities wrote them on the topic based on scientific evidence. Primarily studies rated A (high) or B (good) were included in the review. One study rated C (low quality) due to sample size was included for consideration because it addressed possible alternatives to the proposed intervention. The selected articles including the authors, publication date, evidence type, sample, sample size, sample setting, limitations, and evidence level and quality were included in the evidence table. A summary sentence was also included in the table to illustrate how the study findings answer the PICO question (see Table 1).

**Intervention**
Based on the evidence, the proposed intervention was the implementation of a specially trained mobile precautions team of trained observers during pandemic events. The evidence demonstrates that policy and procedure-based in-person PPE training paired with real-time feedback have a positive impact on staff PPE selection and compliance (Babiarz, 2017; Benson et al., 2013; Dimond, 2017; Tomas et al., 2015; Wu et al., 2011). The primary interest of this project is to understand the relationship between implementing the team to staff confidence with properly selecting, donning, and doffing PPE. Alternate interventions such as online learning delivery were considered and ultimately excluded as research indicates this method is inferior to in-person training (Wu et al., 2011). The intention of the project is to retrospectively measure staff confidence in properly selecting, donning, and doffing PPE before and after a pandemic event. The data will be gathered using a survey method where respondents will rate their confidence level on an evidence-based rating scale and the change in confidence levels will be measured and analyzed.

**Literature Appraisal**

An analysis of the literature yielded 11 results that are directly related to the topic of interest. There were four level I results (B quality), one level II result (C quality), three level IV results (A quality), and three level V results (one A quality and two B quality). The majority of the evidence received a high or good quality rating and overall the evidence should be considered good and consistent quality providing a solid foundation for developing the proposed intervention. Similarities across the studies, discussed next, demonstrated challenges for the HCWs with appropriate selection, donning, and doffing of PPE. Ultimately the studies did not suggest a specific or one-size-fits-all intervention to address this practice problem. No significant differences among the studies were noted.
Several challenges with PPE are cited in the literature. First, incorrect PPE is frequently selected by HCWs (Babiarz 2017; Benson et al., 2013; Jones et al., 2020; Katanami et al., 2018; Kwon et al., 2017). Even during non-pandemic times, PPE selection can be challenging for the HCW. A pandemic adds additional complexity and stress creating an even greater challenge at a time when appropriate selection is more critical than ever before. One of the reasons that contribute to the incorrect selection of PPE is that HCWs are uncertain what PPE should be selected for specific situations (Babiarz 2017; Benson et al., 2013; Jones et al., 2020; Katanami et al., 2018; Kwon et al., 2017). Another reason is that precautions are frequently updated and changing, especially during an evolving pandemic making it difficult for HCWs to confidently and accurately select the appropriate PPE. The literature demonstrates a gap in knowledge of HCWs in selecting appropriate PPE. The implementation of the trained observer team could help to support the PPE selection gap identified by the literature. The trained observer team would serve as a resource to provide immediate feedback to those who are selecting PPE ensuring the correct PPE was selected. This could ultimately prevent errors that could result in an exposure.

Second, PPE is frequently donned and doffed incorrectly by the HCW (Babiarz, 2017; Benson et al., 2013; Dimond, 2017; Kwon et al., 2017; Phan et al., 2019). While donning PPE continues to be of concern, the doffing process is particularly worrisome for HCWs as there are “remarkably high levels of contamination” (Babiarz, 2017, para. 4). A variety of reasons for incorrect donning and doffing exist such as poor technique, being rushed, and not following protocol (Babiarz, 2017; Benson et al., 2013; Dimond, 2017; Kwon et al., 2017; Phan et al., 2019). The literature demonstrates a gap in knowledge and skill as it pertains to HCWs donning and doffing PPE. Even with the appropriate training and education, the literature suggests the need for additional support to ensure safe practices are followed (Babiarz, 2017; Benson et al.,
The implementation of the trained observer team could help to support what the literature identifies as a gap in HCWs appropriately donning and doffing PPE. The trained observer team would provide real-time feedback and coaching to ensure PPE is correctly and safely donned and doffed by the HCW.

Third, the current training and education systems are ineffective in ensuring appropriate selection, donning, and doffing of PPE for HCWs (Babiarz 2017; Dimond, 2017; NSW Nurses and Midwives’ Association, 2014; Phan et al., 2019; Reidy et al., 2015; Tomas et al., 2015; Wu et al, 2011). Given the challenge HCWs face in selecting, donning, and doffing the appropriate PPE, it is clear that an intervention is needed to support a change to current practice. The implementation of a real-time, in-person trained observer team could have a positive effect on staff confidence to properly select, don, and doff PPE.

The deficiencies and deviations with PPE described above directly contribute to the fear observed among HCWs during the COVID-19 pandemic. Common fears noted include, “…fear of developing infection, fear of failing to provide adequate care for patients given limited resources, fear of carrying the virus home and infecting family and friends, fear of stigmatization, and many others” (Cawcutt, Starlin, & Rupp, 2020, p. 1). These fears are correlated with an increased self-perceived risk and could result in inappropriate PPE use, which breeds more fear and further perpetuates a cycle of dysfunction. The fear response is not a new phenomenon, rather, it has been described during other disease outbreaks such as SARS and HIV (Cawcutt, Starlin, & Rupp, 2020). Strategies for mitigating fear include, “targeted education to address fear, systemwide communication to avoid disparities in understanding…emphasizing a sense of civic duty, encouraging colleagues to support each other, and encouraging those with a
low fear threshold to seek available mental health support” (Cawcutt, Starlin, & Rupp, 2020, p. 2).

The main alternate to the trained observer team intervention that was identified was online learning. While this intervention was initially considered, the unfamiliar and frequently evolving nature of the COVID-19 pandemic made this intervention less appealing and more challenging to maintain relevancy and was ultimately not utilized. While alternate interventions to address the practice problem were explored, the implementation of a team-based approach was ultimately selected as the intervention because of the success similar mobile teams have had such as the intubation team in Wuhan, China (Zhang et al., 2020). Based on the limited evidence that was available pre-intervention, it was unknown at that time whether the team-based approach would ultimately be successful. One of the goals of this project is to understand if the benefits of the team-based approach as seen in Wuhan, China are translatable to the concept of the mobile precautions team of trained PPE observers. The retrospective measurement of staff confidence in properly selecting, donning, and doffing PPE before and after a pandemic event will demonstrate the change in HCW’s confidence levels. The data will be analyzed to understand the impact of the trained observer team-based approach on the HCW’s ability to properly select, don, and doff PPE.

**Project Implementation**

The purpose of the quality improvement project was to understand the impact of the trained observer team on HCWs self-efficacy to properly select, don (putting on), and doff (taking off) PPE. The question of interest is: What is the relationship between a trained PPE observer resource and staff’s perceived self-confidence with selecting, donning, and doffing
PPE? Before investigating and launching the project, institutional review board (IRB) approval was required from the employer and St. Catherine University.

The project was underpinned by the principles of Orlando Pelletier’s Nursing Discipline Theory, which is founded on constant assessment, reflection, and adaptation of nursing practice. The theory supported the use of a systematic, predictable model of practice organization throughout the project. Additionally, principles of ethics and social justice guided both the assessment and identification of this practice problem and the implementation of the evidence-informed nursing intervention.

**Methods**

To understand the relationship between the trained PPE observer team and HCW self-confidence, a survey was sent to HCWs who had access to the trained observer resource. The Allina Health Nursing Research Associate emailed participants a survey. The recipient names were retrieved directly from email distribution lists. Participants were required to read an informed consent and either agree (participate) or disagree (opt-out of participating) in the survey. Participants could voluntarily withdraw participation at any time. Some respondents could have been my direct reports. To minimize the undue influence, it was clearly stated that participation was voluntary and that special privileges would not be given nor denied to respondents. Employment was not dependent on participation. The author’s role was to gather data for this quality improvement project in a fair, safe, and unbiased manner. Results were anonymous with the exception of respondents identifying their respective role within the organization.

The survey design stemmed from the PICO (population, intervention, control, and outcome) question and was based on the General Perceived Self-Efficacy (GSE) Scale
(Schwarzer, & Jerusalem, 1995). Questions were arranged in two categories (a retrospective of pre-trained observer and current state of having a trained observer available). This was intentionally designed to appreciate any change that occurred with the availability of the trained observer team. Due to the retrospective versus current state interest, only those who have had access to the trained observer team were surveyed. Social justice implications highlighted an ethical and moral responsibility to initiate an immediate safety response. Because of the urgent nature of providing a safety resource for staff during the pandemic (and frequently changing protocols), a pre-survey couldn’t be conducted with this group. The survey was open for two weeks.

The survey was conducted through Survey Monkey, a free website resource for conducting surveys. A total of 40 respondents replied to the survey. The results were gathered and analyzed by submission into a secure, password-protected excel spreadsheet document. The results were compiled for each question for careful assessment and analysis. No outliers were identified in the analysis. The results were then translated into bar graph representation for each question (see Figures 4-9). Additionally, the results for matching questions (before and after) were translated into line graph representation to appreciate side by side analysis (see Figures 1-3).

**Evaluation of Results**

Respondents were asked separately to rate their self-confidence levels for selecting, donning, and doffing PPE by selecting one of the following responses: not at all true, barely true, moderately true, or exactly true. A Likert scale was utilized and a subsequent score was assigned to each response. This enabled the author to appreciate an overall change in self-confidence of a specific action (selecting/donning/doffing) with the implementation of a trained observer team.
Not at all true responses received zero points, barely true responses received one point, moderately true responses received two points, and exactly true responses received three points.

Underpinned by constant assessment, reflection, and adaptation of nursing practice, Orlando Pelletier’s theory further informed the evaluation of the results. A systematic, predictable model of assessment was utilized to evaluate, understand, and draw conclusions from the survey results.

**Key Findings**

There was a net increase in all three action areas with the implementation of the trained observer team. The responses “not at all true” and “barely true” were classified as negative/neutral. The responses “moderately true” and “exactly true” were classified as positive. Among respondents to the ‘selection’ question, there was approximately a 23 percent increase in positive responses after the implementation of the trained observer team. Among respondents to the ‘donning’ question, there was approximately a 23 percent increase in positive responses after the implementation of the trained observer team. Among respondents to the ‘doffing’ question, there was approximately a 20 percent increase in positive responses after the implementation of the trained observer team. While caution should be taken against drawing causation conclusions, among the respondents to this survey there is a positive association between the role of the trained observer and increased HCW self-confidence with selecting, donning, and doffing PPE. These findings are consistent with findings in the literature (Babiarz, 2017; Benson et al., 2013; Jones et al., 2020; Kantanami et al., 2018; Kwon et al., 2017; Reidy et al., 2015). See figures 1-3 below.
Figure 1

Confidence in selecting correct PPE before vs. after the implementation of the trained observer

<table>
<thead>
<tr>
<th>Response</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all true</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Barely true</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Moderately true</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>Exactly true</td>
<td>12</td>
<td>20</td>
</tr>
</tbody>
</table>

Number of responses
Figure 2

Confidence in donning PPE before vs. after the implementation of the trained observer

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all true</td>
<td>Before: 1</td>
</tr>
<tr>
<td></td>
<td>After: 0</td>
</tr>
<tr>
<td>Barely true</td>
<td>Before: 9</td>
</tr>
<tr>
<td></td>
<td>After: 3</td>
</tr>
<tr>
<td>Moderately true</td>
<td>Before: 17</td>
</tr>
<tr>
<td></td>
<td>After: 15</td>
</tr>
<tr>
<td>Exactly true</td>
<td>Before: 13</td>
</tr>
<tr>
<td></td>
<td>After: 22</td>
</tr>
</tbody>
</table>

Bar chart showing the number of responses before and after the implementation of the trained observer.
Figure 3

*Confidence in doffing PPE before vs. after the implementation of the trained observer team*

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>After</td>
</tr>
<tr>
<td>Not at all true</td>
<td>2</td>
</tr>
<tr>
<td>Barely true</td>
<td>8</td>
</tr>
<tr>
<td>Moderately true</td>
<td>18</td>
</tr>
<tr>
<td>Exactly true</td>
<td>12</td>
</tr>
</tbody>
</table>
Limitations

For this topic and the scope of this quality improvement project, the methods described above are appropriate. Certain limitations could exist. The sample size of 40 is relatively small, but when considered in the context of total possible respondents, is approximately 40%, an acceptable return rate for a survey. It would have been preferential to ask the pre-trained observer team questions before the trained observer team was operationalized. Due to the COVID-19 pandemic, it became apparent that the benefits of creating this resource team outweighed the risks of waiting. As a result, this series of questions were asked retrospectively. Further data collection could be a value add to better understand the relationship of the role of the trained observer to HCW self-confidence in selecting, donning, and doffing PPE. Additionally, it is possible that validity threats existed including the historical nature as previously described and that this was a single group study. Though several mitigation strategies were in place, a reporting nature between some of the respondents and the author existed. As a result, it is possible that potential bias or influence over a response could exist.

Discussion

A prominent point for focused discussion is that a positive association between the role of the trained observer and increased HCW self-confidence with selecting, donning, and doffing PPE was identified. These findings could demonstrate the value in the role of the trained observer in increasing HCW self-confidence with selecting, donning, and doffing PPE. These results support what the nursing literature describes (Babiarz, 2017; Benson et al., 2013; Jones et al., 2020; Kantanami et al., 2018; Kwon et al., 2017; Reidy et al., 2015). The implications of this project could have the ability to keep HCWs safe and enhance their confidence in managing an incredibly complex safety challenge. The findings support the value in further quality
improvement inquiries as it pertains to the role of the trained observer as part of a team-based structure.

Another prominent point for focused discussion is the moral and ethical obligations of nursing leaders and health care organizations as it relates to pandemic preparedness and support response. Leaders and employers have a duty not only to respond appropriately (by providing appropriate support) but moreover in their role in engaging in meaningful, multidisciplinary pandemic preparedness planning. As nursing leaders there must be a commitment to ensuring social justice, especially for frontline workers who put their lives on the line to care for others. The trained observer resource intervention supported the ethical and social justice responsibilities of leaders and health care organizations. An ongoing opportunity exists to further engage in proactive pandemic preparedness on the part of health care leaders and organizations.

**Recommendations/Implications**

As a result of this quality improvement project, the author recommended the expansion of the trained observer team throughout the entire hospital. That expansion was instituted with great success. The full impact of that expansion has not yet been realized. The author also recommends the adoption of this program throughout the large Minnesota-based health care system. To date, the program has been loosely adopted by other hospitals in the system previously described. The creation of a ‘playbook’ could help to provide a more focused, aligned trained observer program for those interested in adopting the unique team. The author recommended that all hospitals have a trained observer resource available or one that can be quickly and efficiently operationalized in the event of an unforeseen and/or urgent need. Health care systems are urged to take notice of this quality improvement work and appreciate the potential impact of the role of the trained observer, preferably proactively before an urgent need
exists. Leaders that supervise HCWs who provide direct patient care should pay close attention
to the findings of this quality improvement work. If carefully adopted, the trained observer resource could positively impact HCW safety and reduce fear.

There is an ongoing opportunity to conduct future research and quality improvement projects as it pertains to the role of the team-based trained observer resource. The results of this quality improvement study could be duplicated and conclusions around the role of the team-based resource could become more generalizable. As a result, the nursing profession could become safer and better prepared to manage and reduce the fear associated with unprecedented PPE challenges and pandemics.

**Summary**

As a result of the COVID-19 pandemic, HCWs faced unprecedented PPE challenges that greatly impacted their safety. In response, a team of trained PPE observers was established to enhance HCW safety and address the unprecedented HCW fear and challenges associated with PPE use and reuse during the COVID-19 pandemic. A quality improvement study was launched to understand the impact of this team on HCWs self-efficacy to properly select, don (putting on), and doff (taking off) PPE. A finding among the project survey was that there was a positive association between the role of the trained observer and increased HCW self-confidence with selecting, donning, and doffing PPE. While further investigation could lead to generalizability, leaders are strongly urged to consider adopting the nursing principles of the trained observer intervention. Beyond an immediate adoption of the trained observer team, a redefined focus on overall quality improvement, underpinned by Orlando Pelletier’s theory, could ultimately help to redefine the purpose of quality programs in ensuring pandemic preparedness and PPE.
management. Following these recommendations could help to enhance the safety of teams, an especially important consideration given the unknown and uncertain future of PPE.
References


https://doi.org/10.7861/clinmed.2020-0143


https://doi.org/10.1001/jamainternmed.2015.4535


https://doi.org/10.1007/s00540-020-02778-8
Table I

**Evidence Table**

<table>
<thead>
<tr>
<th>Article</th>
<th>Author &amp; Date</th>
<th>Evidence Type</th>
<th>Sample, Sample Size, &amp; Setting</th>
<th>Study Findings that answer the PICO Question</th>
<th>Limitations</th>
<th>Evidence Level &amp; Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Babiarz, B. 2017</td>
<td>Research: systematic review</td>
<td>Comprehensive literature review of studies that explored the effectiveness of PPE practices used in clinical practice in North America.</td>
<td>Studies revealed that a large portion of users self-contaminated with PPE use, especially during doffing. Studies point to lack of education and training.</td>
<td>Lack of detailed analysis.</td>
<td>Level I: B</td>
</tr>
<tr>
<td>2</td>
<td>Benson, S. M., Novak, D. A., &amp; Ogg, M. J. 2013</td>
<td>Non-research: opinion of respected authorities based on scientific evidence</td>
<td>N/A</td>
<td>Due to well-documented low rates of adherence to PPE protocol, reinforcing and monitoring compliance with PPE usage is critical.</td>
<td>Opportunity to compare and contrast the differences of adherence before, during, and after a pandemic.</td>
<td>Level V: A</td>
</tr>
<tr>
<td>3</td>
<td>Dimond, V. 2017</td>
<td>Non-research: opinion of respected authorities based on scientific evidence</td>
<td>N/A</td>
<td>End users lack knowledge, awareness, and resources to ensure proper PPE usage.</td>
<td>Opportunity to describe whom the end-users are. Are they from a specific area of healthcare?</td>
<td>Level V: B</td>
</tr>
<tr>
<td>4</td>
<td>Jones, R. M., Bleasdale, S. C. Maita, D. &amp; Brosseau, L. M. 2020</td>
<td>Non-research: opinion of respected authorities based on scientific evidence</td>
<td>N/A</td>
<td>Lack of appropriate PPE use exists. Additional resources could help to address this problem.</td>
<td>Opportunity to describe additional resources that could help address the problem not thoroughly explored.</td>
<td>Level IV: A</td>
</tr>
<tr>
<td>5</td>
<td>Katanami, Y., Hayakawa, K., Shimazakia, T., Sugikib,</td>
<td>Research: cross sectional observational study</td>
<td>781-bed tertiary hospital from July 2016 to March 2017.</td>
<td>Lack of appropriate PPE use exists.</td>
<td>Performed at a single hospital, which could</td>
<td>Level IV: A</td>
</tr>
<tr>
<td></td>
<td>Authors</td>
<td>Study Type &amp; Setting</td>
<td>Details</td>
<td>Limitations</td>
<td>Evidence Rating</td>
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<tr>
<td>36</td>
<td>Y., Takaya, S., Yamamoto, K., Kutsuna, S., Kato, Y., &amp; Ohmagari, N.</td>
<td>2018</td>
<td>1097 PPE donning observations.</td>
<td>Additional education and resources could help to address this problem.</td>
<td>level IV: A</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Kwon, J., Burnham, C. A., Reske, K., Liang, S., Hink, T., Wallace, M., Shupe, A., Seiler, S., Cass, C., Fraser, V., &amp; Dubberke, E.</td>
<td>2017</td>
<td>Research: experimental study</td>
<td>Tertiary care hospital: 36 HCWs were included: 18 donned/doffed contact precaution PPE and 18 donned/doffed Ebola virus disease (EVD) PPE. Use of fluorescent lighting illustrated the cross contamination occurs frequently with PPE usage. Deviations from donning/doffing protocol were observed by HCWs and trained observers. Complexities of PPE usage necessitate further study; small sample size.</td>
<td>level I: B</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Phan, L. T., Maita, D., Mortiz, D. C., Weber, R., Fritzen-Pedicini, C., Bleasdale, S., &amp; Jones, R.</td>
<td>2019</td>
<td>Research: experimental study</td>
<td>PPE doffing practices of 162 HCWs who cared for patients with viral respiratory infections were observed at a 465-bed acute care hospital from March 2017 to June 2017 and September 2017 to April 2018. Given the complexity of PPE doffing and deficiencies in HCWs’ doffing practices, a new approach to education and training is needed. Sample size</td>
<td>level I: B</td>
<td></td>
</tr>
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<td>8</td>
<td>Reidy, M., Ryan, F., Hogna, D., Lacey, S.,</td>
<td>2017</td>
<td>Research: cross sectional study</td>
<td>46 out of 56 of the hospitals in Ireland</td>
<td>Lack of education and PPE support resources are Responder bias may have existed when</td>
<td>level IV: A</td>
</tr>
<tr>
<td></td>
<td>Buckley, C. 2015</td>
<td>an area of risk in the event of a pandemic.</td>
<td>responding to the survey. A standard assessment (i.e. checklist) was not utilized.</td>
<td></td>
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<tr>
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<td></td>
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<tr>
<td>9</td>
<td>The Lamp: NSW Nurses and Midwives' Association 2014</td>
<td>Non-research: opinion of respected authorities based on scientific evidence</td>
<td>N/A</td>
<td>Use of the buddy system is imperative in ensuring appropriate PPE usage during pandemic crisis.</td>
<td>Opportunity to describe the buddy system more in-depth. Who benefits the most from having a buddy system? Are they based on a specific unit or roving?</td>
<td>Level V: B</td>
</tr>
<tr>
<td>10</td>
<td>Tomas, M. E., Kundrapu, S., &amp; Thoa, P. 2015</td>
<td>Research: quasi experimental study</td>
<td>A convenience sample of health care personnel from 4 Northeast Ohio hospitals. Of 435 glove and gown removal simulations, contamination occurred in 200, with a similar frequency of contamination among the 4 hospitals.</td>
<td>Immediate visual feedback can reduce the risk of contamination during doffing of PPE.</td>
<td>Simulated environment</td>
<td>Level I: B</td>
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<tr>
<td>11</td>
<td>Wu, T., Salvadori, M. L, Seabrook, J., Coleman, B. 2011</td>
<td>Research: quasi experimental study</td>
<td>15 pediatric residents in an Ontario Hospital during H1N1 pandemic</td>
<td>Online PPE education modules are ineffective in achieving PPE donning and doffing compliance.</td>
<td>Small sample size and one group were studied vs. diverse team members.</td>
<td>Level II: C</td>
</tr>
</tbody>
</table>
Figure 4

Confidence in selection PPE before the implementation of the trained observer team

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of responses</th>
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<tbody>
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<td>Not at all true</td>
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<tr>
<td>Barely true</td>
<td>9</td>
</tr>
<tr>
<td>Moderately true</td>
<td>19</td>
</tr>
<tr>
<td>Exactly true</td>
<td>12</td>
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</table>

Before
Figure 5

Confidence in donning PPE before the implementation of the trained observer

<table>
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<tr>
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<tbody>
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<tr>
<td>Barely true</td>
<td>9</td>
</tr>
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<td>Moderately true</td>
<td>17</td>
</tr>
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<td>Exactly true</td>
<td>13</td>
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</table>

Before
Figure 6

Confidence in doffing PPE before the implementation of the trained observer

<table>
<thead>
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<tbody>
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<tr>
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Before
Figure 7

Confidence in selecting PPE after the implementation of the trained observer

<table>
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<th>Number of responses</th>
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<td>After</td>
<td>1</td>
<td>1</td>
<td>18</td>
<td>20</td>
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Figure 8

Confidence in donning PPE after the implementation of the trained observer

<table>
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<th>Number of responses</th>
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</tr>
<tr>
<td>Barely true</td>
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<tr>
<td>Moderately true</td>
<td>15</td>
</tr>
<tr>
<td>Exactly true</td>
<td>22</td>
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</tbody>
</table>

After
Figure 9

*Confidence in donning PPE after the implementation of the trained observer*

<table>
<thead>
<tr>
<th>Response</th>
<th>Not at all true</th>
<th>Barely true</th>
<th>Moderately true</th>
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</tr>
</thead>
<tbody>
<tr>
<td>After</td>
<td>0</td>
<td>4</td>
<td>16</td>
<td>20</td>
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</table>

Number of responses