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# Hand Hygiene Compliance in Nursing Staff of Long-Term Care Facilities

Lindsay Clontz
*Gardner-Webb University*, lkemp@gardner-webb.edu

# Hand Hygiene Compliance in Nursing Staff of Long-Term Care Facilities

by

Lindsay Clontz

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Lindsay Clontz

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Approved by:

Erin Montgomery

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## Abstract

Elderly residents of long-term care facilities are most at risk to acquire serious infections. Because of the relationship with nursing staff members, they are most likely to get an infection from a member of the nursing team. It is imperative that nursing staff members receive proper training related to hand hygiene in order to adhere to infection prevention and control guidelines. The goal of this project is to improve hand hygiene in nursing staff to reduce the number of resident infections recorded on the monthly infection surveillance report. This project utilizes a multi-faceted approach including a pre-test, presentation, post-test, return demonstration, and infection surveillance data to determine if the goal has been met. The pre- and post-tests are utilized to determine knowledge and attitudes related to hand hygiene. The return demonstration is used for skill evaluation in participants. Finally, infection surveillance data is used to determine success related to resident infections and outcomes.

*Keywords:* long-term care, infection prevention and control, hand hygiene

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# Chapter I: Introduction

## Problem and Significance

Most infections in elderly residents of long-term care facilities are preventable. The Centers for Disease Control and Prevention (2020) states between one and three million serious infections occur every year in nursing homes, skilled nursing facilities, and assisted living facilities. This estimate does not even include infections that could be considered mild or moderate. Elderly residents at long-term care facilities are at particular risk for acquiring infections due to a variety of factors. Lee et al. (2020) note the following as causes of high infection rates in this patient population: aging, health conditions, and poor self-hygiene; poor staff education and compliance related to infection prevention and control; shared environment and communal living; and limited resources and capacities for infection diagnosis. This unique combination of risk factors makes long-term care facility residents more vulnerable to acquiring preventable infections.

Because residents of long-term care facilities rely heavily on nursing staff to provide their basic needs, many infections are introduced to facilities by staff members. According to Burdsall et al. (2017), infections can be transmitted to residents through the hands and gloves of nursing staff, on facility surfaces, and on medical equipment. Kakkar et al. (2021) reiterate this, stating health care acquired infections are most likely transmitted through contaminated hands of health-care workers, contaminated medical devices, and failure of staff to comply with procedures and guidelines. This means mitigation efforts should begin with nursing staff. Failure to follow infection prevention and control standards can result in infection, hospitalization, or even death. It is estimated

that 380,000 deaths occur annually as the result of health care associated infections (Burdsall et al., 2017). Because elderly residents of nursing facilities are one of the most vulnerable populations, it is essential for nursing staff in long-term care facilities to follow strict infection prevention and control measures.

## Purpose

Unfortunately, long-term care staff compliance related to infection control is lacking, particularly related to hand hygiene. A couple of different factors can influence compliance, including knowledge and attitude. It has been shown continuing education for nurses can improve knowledge and behavior related to patient care activities (Kakkar et al., 2021). For this reason, staff education related to infection prevention and control measures must be improved for nursing staff in long-term care facilities. The purpose of this project is to improve nursing staff attitudes and compliance related to hand hygiene by providing continuing education in the cognitive, psychomotor, and affective domains in order to improve infection rates in long-term care facilities.

## Theoretical Framework

The theoretical framework for this project is the theory of planned behavior. Arafat and Ibrahim (2018) convey this model divides behavioral considerations into three types of beliefs: behavioral beliefs (the consequences of the practiced behavior), normative beliefs (the normative expectations of other people), and control beliefs (the presence of factors that may affect performance). All three types of beliefs work together to determine attitudes and actions related to a given topic. The more positive the behavior, subjective norm, and perceived control, the more likely a favorable outcome will result (Arafat & Ibrahim, 2018). Because beliefs influence actions, this project

addresses beliefs of nursing staff related to hand hygiene in order to impact outcomes related to compliance.

## Definition of Terms

For this project, nursing staff will refer to anyone employed by the nursing department. This includes registered nurses, licensed practical nurses, certified nursing assistants, and unlicensed assistive personnel. Long-term care facilities can be defined as retirement communities, assisted living facilities, or nursing facilities. Long-term care facility can be abbreviated as LTCF. Hand hygiene refers to either soap and water or alcohol-based hand rub. Alcohol-based hand rub can be abbreviated as ABHR. This project will recognize the current industry standard of ABHR as the preferred method of hand hygiene.

# Chapter II: Literature Review

## Literature Related to Statement of Purpose

Numerous studies have been done related to nursing staff compliance with hand hygiene. Overwhelmingly, these studies have shown a lack of compliance related to hand hygiene in nursing staff. A study completed by Bhatt and Sharma (2018) related to hand hygiene of nurses found compliance levels to be unacceptable at a rate of less than 50%. This seems to be the current trend with compliance hovering around the halfway mark. Another study by Albright et al. (2018) noted an almost identical figure, generalizing that most facilities have compliance rates of less than 50%. This is not just the case for broad healthcare settings. Even settings that are known to care for critical patients show a lack of hand hygiene compliance. A study completed by Madden et al. (2021) found hand hygiene compliance in the intensive care setting was only at 56.9%. These studies reflect a major strength of the literature surrounding hand hygiene. The vast number of studies related to hand hygiene helps determine the needs related to compliance.

Many of these studies address the correlation between attitudes and compliance. Sands and Aunger (2020) mentioned the important role psychological factors play in hand hygiene compliance, and their study found a need to improve psychological factors related to hand hygiene in order to change behavior. In a similar way, Hammerschmidt and Manser (2019) noted that knowledge, behavior, and attitude all have an impact on hand hygiene compliance. It was determined to be necessary for nursing staff on the floor to improve in these areas as well as those in nursing leadership. More specifically, Manomenidis et al. (2019) found a higher level of burnout in nurses led to decreased compliance with hand hygiene. In this case, feelings and attitudes related to working

conditions played a significant role in lack of compliance. Alternatively, Goodarzi et al. (2020) found a significant positive correlation between perception/attitude and compliance. Based on this correlation, it is essential to determine methods of improving attitude in order to improve hand hygiene compliance.

The major limitation of the literature is a lack of studies related directly to long-term care facilities. Teesing et al. (2020) noted that hand hygiene interventions are often implemented and assessed in hospitals, but other health care settings are lacking. Kaveh et al. (2021) confirmed this, noting almost all studies in their review were from well-equipped hospitals. Much of the current, available research is based in areas where infection prevention and control is deemed essential, such as the acute-care hospital setting. An additional limitation is a lack of reliable reporting. Livorsi et al. (2018) found that hand hygiene audits produced inaccurate data and led to tension with nursing staff.

## Literature Related to Theoretical Framework

The theory of planned behavior has been used in an attempt to modify a variety of behaviors, ranging from drug use and driving habits to physical activity and eating habits. For instance, Han et al. (2017) used the theory of planned behavior to conduct a study about bicycle use in tourism. A study by Taherdoost (2018) used the theory of planned behavior in a different setting to assess technology acceptance levels. Many studies have been done to assess the effectiveness of this theory. In fact, Ajzen (2020) noted that over 2,000 empirical studies have been completed utilizing the theory of planned behavior to change behavior across multiple domains. Such a wide range of studies employing planned behavior is one of the most significant strengths of the literature related to the theory. A study by Miller (2017) found this to be true, noting the large amount of

research has allowed the theory to develop even further. This is confirmed by Ajzen and Schmidt (2020), who noted the sizable number of studies utilizing the theory of planned behavior.

In fact, many of the completed studies elaborate on the basic concepts of the theory. For instance, Sussman and Gifford (2018) implied each of the three components (beliefs, subjective norm, and perceived control) have an influence on intentions and, therefore, behavior. La Barbera and Ajzen (2020) confirmed this by noting that, traditionally, attitude, subjective norm, and perceived behavioral control are viewed as independent predictors of intention. If this is accurate, then intentions must also be addressed when changing behavior related to hand hygiene. A study by Gao et al. (2017) added two additional components to the theory, descriptive norm and personal moral norm. The study also determined that subjective norm is insignificant compared to the other components of the theory. The addition of components of the theory of planned behavior is a common theme amongst the literature. A study by Carfora et al. (2019) added two similar components, discussing the impact of both trust in outside agencies and self-identity. The biggest limitation related to the theory of planned behavior is the many additions across the literature. Because of the many variations, it is important to determine which components and additions best fit the study being completed. An additional limitation related to the theory of planned behavior is the method of reporting in studies. Ulker-Demirel and Ciftci (2020) noted this in their review, addressing the number of studies relying on survey-based methods of reporting. Self-reporting leaves a certain margin of error that can cause faulty results. For this reason, it might be beneficial

to utilize another evaluation method in addition to self-reporting to ensure accurate results.

# Chapter III: Needs Assessment

## Target Population and Setting

Hand hygiene is important for all within the long-term care setting for infection prevention. Nursing staff have the most hands-on interactions with the vulnerable elderly residents of long-term care facilities. For this reason, it is essential for all nursing staff in long-term care facilities to receive proper, ongoing education related to hand hygiene. This involves role-specific training for each nursing staff member employed by the target facility, including registered nurses, licensed practical nurses, certified nursing assistants, and unlicensed assistive personnel.

This long-term care facility in the southeastern United States is a medium-sized facility, housing about seventy residents at a time. The facility has three levels of care, including assisted living, skilled nursing, and memory care. Each unit at the facility has a registered nurse or licensed practical nurse and between one and three certified nursing assistants or unlicensed assistive personnel per shift. This is a private pay facility only and receives no funding from insurance, Medicare, or Medicaid. Many of the residents move into the long-term care facility from independent living on the same campus, which means they often already have an established relationship with nursing staff when they move into assisted, skilled, or memory care.

The culture and values of this facility are resident-centered and most decisions are made in the best interests of the residents. The mission for the facility includes the values of respect, compassion, and safety. Beyond the mission statement, the facility has outlined the culture to include community, vision, accountability, and excellence. The facility functions with these values at the forefront of the operation. All staff, especially

those in the nursing department, are expected to adhere to these values. This project will ensure ongoing safety for residents and ongoing accountability for nursing staff.

## Sponsors and Stakeholders

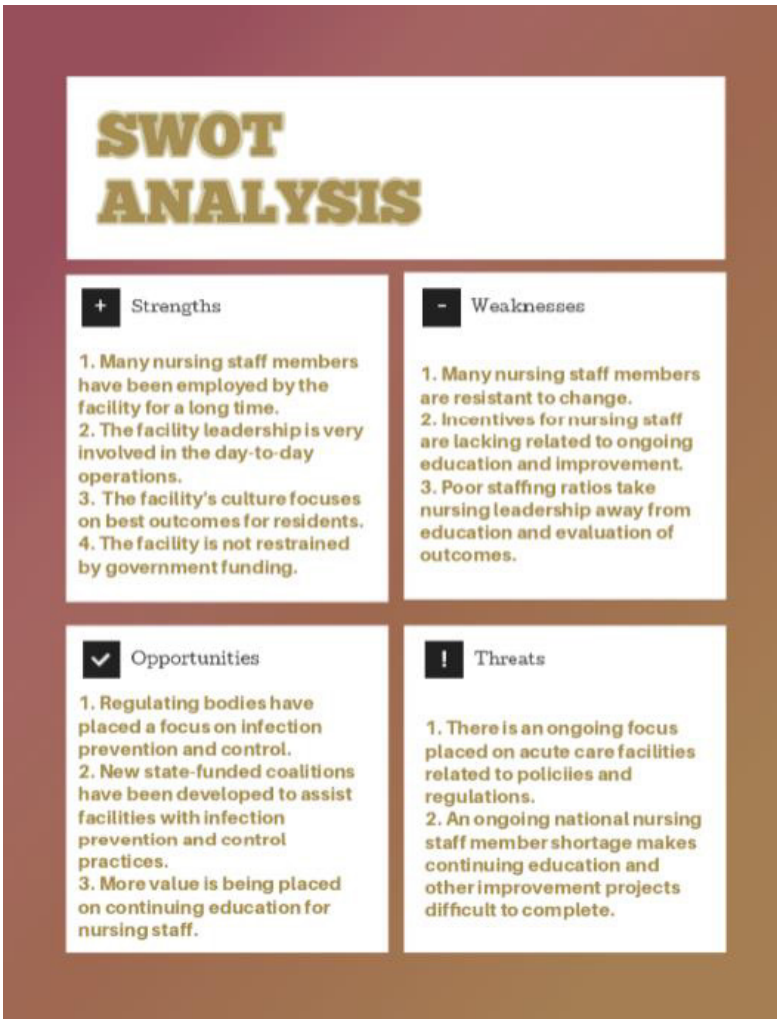
There are several key internal groups and individuals who will play a part in and be affected by this project. The most significant group that will play a part in this project is the nursing staff. As the main participants, they will be the group most directly affected by the project. Other key stakeholders in the nursing department will be the Director of Nursing, the Assistant Director of Nursing, and the Nurse Educator. They will play a vital role in the ongoing implementation of this project. Within the organization, there are other leaders who will act as stakeholders in this project. These are the Health Services Administrator and the Human Resources Director. The Health Services Administrator oversees all operations in the facility's Health Center, and the Human Resources Director prefers to be included in all staff education, including that in the nursing department.

In addition to internal stakeholders, there are also a couple of external stakeholders as well. The first is the Division of Health Service Regulation at the state Department of Health and Human Services. They provide facility inspections to ensure compliance with state and some federal regulations related to all areas of operation, including infection prevention and control. This facility does not receive federal funding, and therefore, is not regulated by the Centers for Medicare and Medicaid Services. This facility does partner with an outside agency for educational resources and consultation regarding the Infection Prevention and Control Plan. This resource reviews regulations and offers advice and materials necessary to remain in compliance related to infection prevention and control.

## SWOT Analysis

**Figure 1**

*Strengths, Weaknesses, Opportunities, Threats*




### Strengths

One of the facility's greatest strengths is that many of the nursing staff members have been employed by the facility for an extended time. This is a strength because they are aware of the facility's culture, values, and expectations. For this reason, it will be easier for these nursing staff members to understand the reasoning for the project. An additional strength is that the facility leadership is very involved in the day-to-day facility

operations. This will provide the nursing staff the support needed to be successful in the implementation of the project. Both the staff and the leadership play a role in the next strength. The facility's culture focuses on the best outcomes for residents. This focus on resident outcomes is a strength because it will help the project be well-received. In addition to the culture, the facility has the freedom to implement the project as it sees fit because it is not restrained by government funding.

## Weaknesses

Unfortunately, many of the facility's long-term nursing staff members are resistant to change. They do not want to participate in continuing education because they are content in their current practice. This is partially due to the facility's lack of incentives related to ongoing education and improvement. There has been some shift to improve education for staff members, but there are still significant strides that must be made in this area. Additionally, poor staffing ratios take nursing leadership away from education and evaluation of outcomes. This makes it difficult to implement changes in the nursing department.

## Opportunities

Thankfully, there have been a few cultural and policy shifts that will be beneficial for the implementation of this project. The first is that regulating bodies have placed a focus on infection prevention and control. A large portion of state surveys are now dedicated to facilities' policies and practices related to infections. In an effort to assist with this, new state-funded coalitions have been established to assist facilities with infection prevention and control. These coalitions assist facilities to evaluate current policies and procedures in order to make revisions as needed. As a whole, more value has

been placed on continuing education for nursing staff. This supports a project with a focus on providing education to nursing staff.

## Threats

Despite many opportunities, there are still some threats to this project. The biggest threat is that there is on ongoing focus placed on acute care facilities, leaving fewer resources for long-term care. Until more resources are allocated for use in long-term care, these facilities will continue to be placed at a disadvantage. Additionally, there continues to be a national nursing shortage, which makes it difficult to complete continuing education and improvement projects. Because of this, many facilities employ temporary staff or travel nurses to ensure proper care for their residents. This makes it difficult to provide continuing education for these employees as they might not stay at the facility long enough to receive this training. This also might mean a significant amount of staff turnover in the middle of the implementation of a project.

## Resources

Due to continued coronavirus restrictions, the project will require a virtual component to ensure that all nursing staff are able to access the training, despite potential gathering restrictions. This requires access to the human resources staff portal in order to send an interactive module to nursing staff if they are unable to attend in-person training. This will require participation of the Human Resources Assistant, and possibly the Human Resources Director, in order to gain access and assist with sending out the module. Because the facility already utilizes this system, there are no additional costs associated with this aspect of the training, other than the salaries of the human resources staff who will be assisting with uploading the online module.

For the in-person training, the training space will need to be reserved with the Activities Director, so the activities staff does not plan any other activities during that time frame. One of the Activities Assistants will need to assist in setting up the audiovisual equipment. The training space is always open for resident activities, so there are no additional costs associated with the training space. The activities staff members will need to be paid for their time spent coordinating and setting up for the training.

For developing the training, resources will need to be gathered from the state regulating body, state-funded infection prevention and control coalitions, and facility leadership. Pulling resources directly from the state regulating body ensures the information being presented in the training will meet current state survey standards. The state coalition will help bridge the gap between the state and the facility's leadership and ensure that the information meets state standards while also meeting the needs of the individual facility. Ultimately, any training that is being provided will need to be approved by the facility's leadership, both those in nursing roles and beyond. These partnerships will not cost anything; however, there will need to be funds allotted to cover the cost of soap, paper towels, and hand sanitizer for practice and return demonstration. These expenses should total no more than $50.

## Desired and Expected Outcomes

The first outcome for this project is that nursing staff will improve their knowledge of best practices related to hand hygiene as evidenced by an improvement in scores from pre-test to post-test. Knowledge of the information is the first layer in a multi-faceted approach to education related to hand hygiene. The next outcome for this project is that nursing staff will improve their skills related to hand hygiene as evidenced

by passing level performance on return demonstration within one week of completing the training. Hands-on training builds on knowledge and is a crucial part of a well-rounded continuing education program. The final outcome for this project is to see an improvement in infections as evidenced by a decrease in the number of resident infections reported in the monthly infection surveillance data for the facility. This will be the ultimate test of the effectiveness of the training as it will determine if the project had its desired outcome of improving resident infection rates.

## Team Members

The team leader for this project will be the Nurse Educator. The Nurse Educator will be responsible for coordinating with the other team members to assemble the project and for assessing its ongoing effectiveness. The Nurse Educator will also be responsible for working with the Human Resources Department to get the virtual training to those who are unable to attend in person and coordinate return demonstrations for these nursing staff members. As the team leader, the Nurse Educator will also need to schedule the in-person training with the Activities Department as well as ensuring all necessary materials and resources are in place for the training.

Additional team members from the nursing department leadership include the following: the Director of Nursing, the Assistant Director of Nursing, and the shift supervisors. These specific team members can assist with ensuring the nursing staff is well-informed about the purpose and importance of the project. They will need to be available to answer any questions as well as assist with return demonstrations. There will also need to be nursing staff member volunteers on the team to offer opinions and

provide feedback regarding the project. Ideally, these staff members will cover all of the roles and shifts to ensure all types of opinions are able to be expressed.

## Cost/Benefit Analysis

This project is relatively inexpensive to complete. The facility already has many of the resources in place to be able to accomplish the project. Employee salaries are factored into the facility's operating budget, including any necessary overtime needed for special projects or situations. Utilizing a training space that is already operational on a daily basis saves funds on utilities, such as lighting, HVAC, and electricity to run audiovisual equipment. The average utility cost for a space this size is $120 per month, so the most cost-effective option is to use this space with the utilities already included in the operating budget. The same premise is noted for the online training component through the use of the already existent Human Resources employee portal system, which already costs the facility several thousand dollars a year. The largest expense associated with this project is the supplies for hand hygiene return demonstrations, which should total about $50.

The benefits of this project outweigh any costs that might be associated with it. The nursing staff will receive vital continuing education. Not only this, but the ultimate goal of reducing infection rates will provide a tremendous benefit to the high-risk, elderly residents of the facility. Severe infections can not only be traumatizing to the ongoing health of the elderly, but it can be quite costly for them financially as well. According to Preidt (2021), the average out-of-pocket hospital cost for an individual with private insurance is $778, while it is $277 for someone with Medicare. This cost can be even higher for a more serious infection, such as Covid-19. A focus on practices to reduce and

prevent infections fits into the current standards being evaluated by the state regulating bodies. This assists the facility to maintain or even improve state survey results. Overall, the outcomes of this project will lead to an even better image of the facility in its community and abroad.

# Chapter IV: Project Design

## Goal and Objectives

The goal of this project is for improved hand hygiene in nursing staff to reduce the number of resident infections recorded on the monthly infection surveillance report. There are several objectives that will ensure this goal is met. The first objective states: At least 80% of nursing staff will attend the hand hygiene training, either in-person or virtually, within one month of its initial launch. This objective ensures there is enough nursing staff trained in order to make a difference. The next objective states: Nursing staff will improve their knowledge of hand hygiene as evidenced by improved scores from pre- to post-testing. This objective addresses the most fundamental element of the project, which is to build knowledge. The next objective states: Nursing staff will improve hand hygiene skills as evidenced by obtaining a passing score on a return demonstration with the shift supervisors within one week of completing the training. Staff must have the appropriate skills in order for the project to be effective. The next objective for this project states: Nursing leadership will see nursing staff implement the elements of the training into daily practice within two weeks of completion of the training. The final objective states: The Nurse Educator will record all resident infection data for the month by the 3rd of the following month.

## Plan and Material Development

The first step in implementing this project is reserving the space and preparing the materials. The Nurse Educator will coordinate with the activities staff to determine a day and time that fits into the schedule. Once this is reserved, the Nurse Educator can print any paper materials needed for the training and purchase supplies for return

demonstrations. The nursing leadership, including the Director of Nursing, Assistant Director of Nursing, and shift supervisors will help remind staff about the in-person training as the date approaches.

On the day of the training, the Nurse Educator will begin by distributing the Hand Hygiene Pre-Test (Appendix A). This will include several general knowledge questions as well as a few questions regarding attitude and intentions as outlined in the theory of planned behavior. The Nurse Educator will then complete the training, utilizing the Hand Hygiene Prezi Presentation/Video (Appendix B). Immediately following this, the Nurse Educator will administer the Hand Hygiene Post-Test (Appendix C). This will be identical in layout to the Pre-Test, including sections on both knowledge and attitude.

After the training is completed, the shift supervisors will begin following up with their employees to complete return demonstrations, utilizing the Hand Hygiene Return Demonstration Checklist (Appendix D). These will need to be completed within one week of the staff completing the training to ensure staff is able to remember the material that was taught. Simultaneously, the Director of Nursing and Assistant Director of Nursing will be monitoring the units to ensure employees are beginning to utilize the skills in everyday practice.

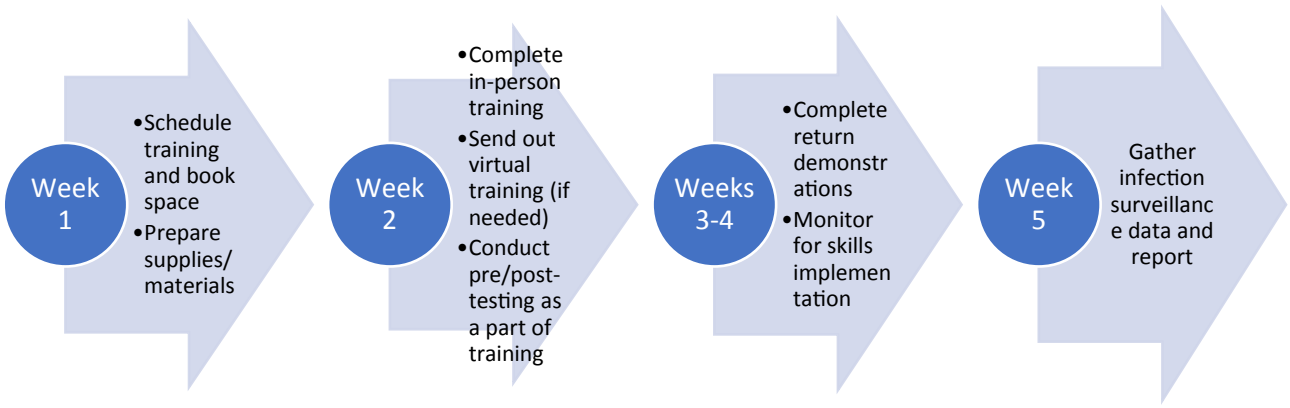
Any employees who were unable to complete the training in person will have the option of completing the training electronically through the employee portal. The Nurse Educator will work with the human resources department to upload the training and distribute to these nursing staff members. Following notification of completion, the shift supervisors can then begin working on return demonstrations with these employees.

Finally, the Nurse Educator will record the number, type, and class of resident infections on the infection surveillance paperwork. This includes the Unit Infection Tracking Report (Appendix E) and the Facility Infection Surveillance Report (Appendix F). The month's data will need to be recorded by the 3rd of the following month to ensure data accurately portrays the infections post-training.

## Timeline

**Figure 2**

*Project Timeline*




Due to the way the surveillance data must be recorded and reported, this project needs to take place in at least a month time frame, but no more than six weeks. The first week of the project will be set aside for preparation. This is when the training space needs to be reserved and all necessary training materials need to be printed. This portion will rely entirely on the Nurse Educator. The following week, the in-person training will be completed, and the virtual training will be sent to those who were unable to attend. The in-person training will be conducted by the Nurse Educator, and the human resources department will assist the Nurse Educator to post the virtual training. The next two weeks need to be designated for return demonstrations and monitoring for skill implementation.

This will be completed by the shift supervisors, Director of Nursing, and Assistant Director of Nursing. Finally, the last week of the project will consist of the Nurse Educator gathering, analyzing, and reporting the infection surveillance data for the facility.

## Budget

Many of the costs of this project are already factored into the facility's operating budget. The only employees who might receive overtime for attending this project are hourly, full-time employees. The average hourly rate for this group is $20 per hour, including all members of the nursing staff. With an average of 40 full-time employees and 30 minutes dedicated to the training, the maximum cost for overtime associated with this project is $600. Salaried employees are not eligible for any overtime, and part-time employees should not exceed the 40 hour per week mark. This cost is factored into the annual budget for overtime associated with education or special projects. The training space is already utilized on a daily basis, so all utility costs associated with it are already included in the annual budget. This space's operational costs are about $120 per month, so the average daily rate for use is $4. This includes all utilities: HVAC, electricity, internet access, water, etc. The online human resources portal is the other cost that is already factored into the operating budget. The facility already spends $7,000 per year on this software. An average of 35 trainings are put into this portal every year for nursing staff members. Other departments only have an average of 3-5 trainings per year in this system. This means that adding this training only increases the use of this system by about 3%. There are no additional costs to add hand hygiene training to this portal.

There are two costs associated with this project that will be counted towards the nursing department's annual education budget. The first is supplies for hand hygiene return demonstrations. The average bottle of soap is between $1-3, and the average cost of a bottle of alcohol-based hand rub is $5. A roll of paper towels averages out around $1. Each shift supervisor will need a hand hygiene kit, meaning the total cost of these supplies is around $27. The other cost deducted from the education budget is the cost of print materials. Each employee will have a print out of the hand hygiene return demonstration as well as a pre-test and post-test. The facility charges $0.08 per sheet of paper printed. With around 90 nursing employees, this total should be approximately $21.60. A total of $48.60 will be deducted from the nursing education budget. These costs should remain the same, aside from inflation, each year to continue the project.

## Evaluation Plan

Each step of this project includes a measuring tool to assess competency and effectiveness of the project. Due to the nature of this project, quantitative measures are utilized. Utilizing a pre-test and post-test immediately before and after the training allows for analysis of both basic knowledge and attitudes related to hand hygiene. Each test includes ten questions. A passing rate will be 70% or higher. In order to determine success of the improvement in knowledge and attitudes, overall scores will need to increase between the two tests. It is expected that 80% of nursing staff members will pass the post-test.

Utilizing a return demonstration for hand hygiene competency within one week of completion of the training will determine success related to skills. By following the steps outlined in the training presentation, nursing staff members will be expected to wash their

hands with soap and water as well as use alcohol-based hand rub. The competency checklist includes all steps in the order they were taught during the training. A passing rate will include one mistake or less. It is expected that 80% of nursing staff members will be able to obtain a passing rate on hand hygiene return demonstrations. This competency will be completed annually after hand hygiene training and will remain in the employees' files.

The final method of evaluating the project's success is the use of infection surveillance data. This information is required to be documented for state regulatory purposes. It includes the number of infections on each unit, the type of infections, and any necessary treatments. These numbers will be tallied and compared to the previous three-month average. The success of the project will be determined by a 10% decrease in resident infection rates.

# Chapter V: Dissemination

## Dissemination Activity

An oral presentation was given to the target facility's Health Services Administrator, Director of Nursing, and Nurse Educator. Each of the attendees were given access to the training materials, including the following: the Hand Hygiene Pre-Test (Appendix A), the Hand Hygiene Prezi Presentation/Video (Appendix B), the Hand Hygiene Post-Test (Appendix C), and the Hand Hygiene Return Demonstration Checklist (Appendix D). They also had access to the infection surveillance materials, including the Unit Infection Tracking Report (Appendix E) and the Facility Infection Surveillance Report (Appendix E). Additional information presented to the key personnel included the need for the project within both the facility and the industry, the costs and benefits of the project, and the logistics of implementing the project within the facility.

The facility representatives were all extremely complimentary of the project. The project is feasible and attainable for this facility. The Nurse Educator suggested additional return demonstration opportunities for the nursing staff at various time frames throughout the year to monitor continued hand hygiene compliance. This is one way the facility feels they can best maintain the staff learning from the hand hygiene training. No changes need to be made directly to the project to implement this change. The Hand Hygiene Return Demonstration Checklist (Appendix D) will need to be utilized at various intervals throughout the year as random audits for nursing staff members.

In addition to dissemination to the target facility, the project will also be presented to the larger community at an online scholar's event. The project will be presented utilizing the Hand Hygiene Poster Presentation (Appendix G). This presentation includes

an introduction to the problem, the purpose of the project, the theoretical framework guiding the project, the project design, implementation plan for the project, evaluation methods, and some final thoughts regarding the project. This is intended to provide a brief overview of the project for a larger audience.

## Limitations

All known limitations related to project implementation have been attempted to be addressed. However, the facility is currently undergoing a rebrand and transformation. There are still several staffing changes taking place as well as many unknowns, which may have an impact on the implementation of the project. Any additional limitations will be addressed as they present themselves.

## Implications for Nursing

Hand hygiene has the ability to impact every member of the nursing team, as well as the residents, in long-term care. With the number of infections and the development of new infections on the rise, it is imperative that nursing staff members receive ongoing training related to hand hygiene. A multi-faceted approach utilizing all learning styles and addressing the theory of planned behavior will ensure that all nursing staff members have the opportunity to improve their knowledge and skills related to hand hygiene. This training should change the way that members of the nursing team approach hand hygiene and infection prevention and control. Because of the relationship between hand hygiene and infection rates, this project has the potential to improve resident infection rates and lead to better resident outcomes, which is the ultimate goal of those caring for them.

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# Appendix A

## Hand Hygiene Pre-Test

1. Which scenario would it be most appropriate to utilize alcohol-based hand rub for hand hygiene? (Select one)
    a. When caring for a resident with a diagnosis of C-difficile
    b. After noticing a glove hole while cleaning a resident's bowel movement
    c. After going to the restroom prior to eating lunch
    d. When exiting the room of a resident with an upper respiratory infection
2. Gloves prevent germs from making contact with skin. (True or False)
    a. True
    b. False
3. Residents are most likely to catch an infection from a health care worker. (True or False)
    a. True
    b. False
4. Which of the following best describes the correct times to complete hand hygiene? (Select all that apply)
    a. Before entering a resident's room
    b. Before taking a finger stick blood sugar
    c. After taking a finger stick blood sugar
    d. After assisting a resident to a lying position
    e. After assisting a resident with a water pitcher
5. Which of the following best describes the need for hand hygiene? (Select one)
    a. Between gathering supplies and charting
    b. Between dressing a resident and applying their compression stockings
    c. Between feeding a resident courses of a meal
    d. Between taking a resident to the bathroom and brushing their teeth
6. What is the correct order of the steps of alcohol-based hand rub?
    a. Apply hand rub, wait 20 seconds for rub to dry, rub hands together to activate

b. Apply hand rub, rub hands together until dry

c. Apply hand rub, rub hands together for 10 seconds to activate, wave hands to finish drying

d. Apply hand rub, rub hands together for 20 seconds, once dry move to next task

7. Our facility believes hand hygiene is important. (True or False)

   a. True

   b. False

8. Nursing staff members can prevent resident infections through proper hand hygiene. (Select one)

   a. Totally agree

   b. Somewhat agree

   c. Neither agree or disagree

   d. Somewhat disagree

   e. Totally disagree

9. Part of the role of the nursing team is to improve hand hygiene procedures. (Select one)

   a. Totally agree

   b. Somewhat agree

   c. Neither agree or disagree

   d. Somewhat disagree

   e. Totally disagree

10. Each nursing staff member can make a difference by improving hand hygiene techniques. (Select one)

    a. Totally agree

    b. Somewhat agree

    c. Neither agree or disagree

    d. Somewhat disagree

    e. Totally disagree

## Appendix B

## Hand Hygiene Prezi Presentation/Video

https://vimeo.com/user40695181/review/499371649/eb338cb791?sort=lastUserActionEventDate&direction=desc

https://prezi.com/view/i75CRGvg7GOBPbmW70f0/

# Appendix C

## Hand Hygiene Post-Test

1. In which of the following scenarios would it be most appropriate to utilize alcohol-based hand rub for hand hygiene? (Select one)
    a. When caring for a resident with a diagnosis of C-difficile
    b. After noticing a glove hole while cleaning a resident's bowel movement
    c. After going to the restroom prior to eating lunch
    d. When exiting the room of a resident with an upper respiratory infection
2. Gloves prevent germs from making contact with skin. (True or False)
    a. True
    b. False
3. Residents are most likely to catch an infection from a health care worker. (True or False)
    a. True
    b. False
4. Which of the following best describes the correct times to complete hand hygiene? (Select all that apply)
    a. Before entering a resident's room
    b. Before taking a finger stick blood sugar
    c. After taking a finger stick blood sugar
    d. After assisting a resident to a lying position
    e. After assisting a resident with a water pitcher
5. Which of the following best describes the need for hand hygiene? (Select one)
    a. Between gathering supplies and charting
    b. Between dressing a resident and applying their compression stockings
    c. Between feeding a resident courses of a meal
    d. Between taking a resident to the bathroom and brushing their teeth
6. Which of the following is the correct order of the steps of alcohol-based hand rub?
    a. Apply hand rub, wait 20 seconds for rub to dry, rub hands together to activate

b. Apply hand rub, rub hands together until dry

c. Apply hand rub, rub hands together for 10 seconds to activate, wave hands to finish drying

d. Apply hand rub, rub hands together for 20 seconds, once dry move to next task

7. Our facility believes hand hygiene is important. (True or False)

   a. True

   b. False

8. Nursing staff members can prevent resident infections through proper hand hygiene. (Select one)

   a. Totally agree

   b. Somewhat agree

   c. Neither agree or disagree

   d. Somewhat disagree

   e. Totally disagree

9. Part of the role of the nursing team is to improve hand hygiene procedures. (Select one)

   a. Totally agree

   b. Somewhat agree

   c. Neither agree or disagree

   d. Somewhat disagree

   e. Totally disagree

10. Each nursing staff member can make a difference by improving hand hygiene techniques. (Select one)

    a. Totally agree

    b. Somewhat agree

    c. Neither agree or disagree

    d. Somewhat disagree

    e. Totally disagree

## Appendix D

## Hand Hygiene Return Demonstration Checklist

Employee Name: _____ Job Title: _____

| Hand Hygiene with Soap & Water | Competent | Not Competent |
|---|---|---|
| **1.** Checks to ensure sink area is stocked with supplies | | |
| **2.** Turns on faucet and assesses/adjusts temperature | | |
| **3.** Wets hands and applies soap | | |
| **4.** Scrubs all areas of hands, including backs of hands, between fingers, and wrists, for at least 20 seconds | | |
| **5.** Rinses hands fully with fingers pointing down | | |
| **6.** Completely dries all hand surfaces with a paper towel | | |
| **7.** Discards paper towel | | |
| **8.** Uses new paper towel to turn off faucet and discards | | |

| Hand Hygiene with Alcohol-Based Hand Rub | Competent | Not Competent |
|---|---|---|
| **1.** Adequately applies rub to cover all hand surfaces | | |
| **2.** Rubs all areas of hands, including backs of hands, between fingers, and wrists, for at least 20 seconds until dry | | |

_____ _____

Employee Signature/Date Validator Signature/Date

## Appendix E

## Unit Infection Tracking Report

Month: _____ Unit: _____ Number of Infections:

Date of First Symptoms: _____Name of Resident: _____

Symptoms: _____

Relevant Tests: _____

Type of Infection: _____ Date of Diagnosis: _____

Treatment: _____

Date of First Symptoms: _____Name of Resident: _____

Symptoms: _____

Relevant Tests: _____

Type of Infection: _____ Date of Diagnosis: _____

Treatment: _____

Date of First Symptoms: _____Name of Resident: _____

Symptoms: _____

Relevant Tests: _____

Type of Infection: _____ Date of Diagnosis: _____

Treatment: _____

## Appendix F

## Facility Infection Surveillance Report

Month: _____ Total Number of Facility Infections:

| Date of Diagnosis | Resident Name | Type of Infection | Treatment |
|---|---|---|---|
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# Appendix G

## Hand Hygiene Poster Presentation