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Hand Hygiene Education for Nursing Homes

David La Rosa-Presume
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Walden University

College of Nursing

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David LaRosa-Presume

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Walden University
2022

Abstract

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by

David La Rosa-Presume

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

February 2022

Abstract

In the health care sector, hand hygiene has been identified as one of the most appropriate approaches to preventing health-associated infections or nosocomial infections. A nursing home in the western United States had repeated survey findings showed that their hand hygiene compliance rates did not meet the expectations of the Long-Term Care Institute. This project was aimed to develop and implement an education program to improve hand hygiene compliance in a nursing home setting. The project practice question asked whether an education program would increase staff's knowledge of hand hygiene methods within a skilled nursing facility. The Joint Commission's Targeted Solutions Tool was used to develop an education plan to address impediments to compliance, particularly attitudes and perceptions about the importance of hand hygiene and safety. A pre- and post-intervention survey that consisted of 12 questions was used to measure the effectiveness of the education provided to the clinical staff (n=?). The data were collected and analyzed using descriptive statistics, percentages. The findings demonstrated that the educational intervention effectively increased the knowledge of most of the participants. The findings further revealed that there were aspects regarding hand hygiene practices and compliance that many of the clinical staff were unaware of and that the education addressed those misconceptions. The implications of project findings for positive social change were targeted at empowering clinical staff through increased knowledge to address negative hand hygiene compliance issues at the front line of clinical practice and sustain long-term positive results.

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Section 1: Nature of the Project

While in the hospital or a health care institution receiving treatment for one health care issue, disease, or condition, patients are at risk of contracting other unrelated health care-associated infections (HAIs). HAIs are a threat to quality health care services. A report by the Centers for Disease Control and Prevention [CDC] (2019) showed that approximately 1 in 25 hospital patients contract at least one HAI caused by germs. People's actions within health care institutions, such as healthcare providers' failure to observe hand hygiene standards, spread most disease-causing germs (Centers for Diseases Control and Prevention [CDC] (2020). To mitigate the spread of infections in the health care setting, it is important for health care professionals to wash their hands, which will reduce HAIs that affects approximately 1 in 31 patients. Even in the 1840s, a health care worker in a health care institution in Vienna noticed that mortality rates in two different maternity clinics were different due to medical students passing infections from autopsy rooms, leading to a handwashing protocol with chlorinated lime before students could enter the maternity clinic (Mathur, 2011; Pittet & Boyce, 2001). Maternal mortality rates subsequently dropped drastically to rates lower than in the clinic staffed by midwives (Mathur, 2011; Pittet, & Boyce, 2001).

HAIs are associated with increases in care costs, higher morbidity, and higher mortality rates, which is exacerbated by the fact that they are preventable (Mathur, 2011). Numerous studies have demonstrated that health care professionals strictly adhering to hand hygiene standards mitigate cross-transmission of infections (Mathur, 2011). The CDC (2020) concurs that healthcare professionals may also get infections from patients if

they do not clean their hands while delivering care to patients. Hand hygiene is thus critical in fostering the delivery of quality care and promoting public health. Therefore, this project involved educational efforts to improve the hand hygiene practice problem identified in the local setting. The health care staff education program on hand hygiene focused on all health care workers at the local facility.

Problem Statement

Health care institutions and, more specifically, skilled nursing facilities have been cited for failure to maintain health care standards essential in delivering quality care. The recent onset and rapid spread of the novel coronavirus caused COVID-19 disease has further highlighted the infection control deficiencies in health care organizations. Facilities that failed to create and implement effective COVID-19 preventative protocols reported increased new COVID-19 infections cases (Ornstein et al., 2020). Where facilities have failed to formulate and implement adequate infection control protocols, higher infection rates have been reported as evidenced in the CDC report and research studies.

The nursing home in which I am conducting my practicum has faced similar challenges. Surveyors cited the facility for 2 consecutive years for poor staff hand hygiene compliance. The local facility's infection control nurse provided data and information from 2018 that showed the average monthly hand hygiene compliance was 65%. Between 2000 and 2009, an estimated 9% of all nursing homes in the United States received a deficiency citation for hand hygiene during their annual inspection (Castle et al., 2012). Nursing home facilities with a compliance rate of 66.3% or less, implying a

low compliance rate, were more likely to report higher infection rates (Castle et al., 2012). Therefore, the data indicate that facilities with hand hygiene compliance rates below benchmark expose patients and staff to infection risks.

Purpose Statement

Cognizant that hand hygiene compliance rates in nursing homes are below the national average, it is imperative to evaluate and implement measures that foster hand hygiene compliance among nurses and other health care professionals. Recognizing the importance of handwashing, in 1975 and 1985, the CDC rolled out handwashing guidelines for health care institutions, encouraging the use of non-antimicrobial soap (Mahur, 2011). The CDC revised the standards later to encourage the use of alcohol-based sanitizers or rubs that had been demonstrated to be more effective in killing microbes. The World Health Organization (WHO; n.d.) also observed that adherence to hand hygiene standards mitigates the spread of infections in patients and health care professionals caring for patients, necessitating the implementation of measures to mitigate the risks by encouraging adherence to established protocols and standards. However, in nursing facilities, health care institutions, and the study location, compliance with handwashing protocols and standards remains low. This doctoral project was conducted to ascertain the main causes of health care professionals' failure to adhere to the provided standards or guidelines as well as develop and propose the implementation of an education program to foster hand hygiene standards compliance among health care professionals particularly among nurses in the study location. The purpose of this study was to set in place a standard of practice through education to improve and sustain a hand

hygiene compliance rate of 90% or higher at the local nursing home using an educational program. The practice-focused question was “Will an education program increase staff’s knowledge of hand hygiene methods for residents of a skilled nursing facility in the western United States?”

Nature of the Doctoral Project

The project sought to support the improvement of hand hygiene compliance through the development of an education program the education program will encourage the adherence to hand washing or hygiene standards and protocols to mitigate HAIs in general, particularly COVID-19 in health care institutions. To achieve the stated purpose, the program involved evaluating the nature and effectiveness of education-based interventions from a literature review to inform the development and implementation of an effective education program within the practice location. Informed by the Target Solutions Tool (TST) by the Joint Commission, and a systematic literature review, the program involved the design and implementation of an education plan to mitigate handwashing non-compliance.

Significance

As demonstrated in various empirical studies over the years, compliance with hand hygiene protocols has prevented the spread of infections in the health care setting among patients and health care professionals. The implication is that improving hand hygiene standards will affect different stakeholders in the health care system. This project will be beneficial to patients through improved patient outcomes related to a possible decrease in infection rates through appropriate staff hand hygiene. The project can impact

nurses and health care professionals at the facility through gained knowledge on current evidence-based practice on hand hygiene. The knowledge gained from the educational program can provide improved quality of care. The government and the public can then realize tax dollars savings and better public health levels through lower infection rates.

Nurses significantly contribute to improving overall clinical outcomes due to their vast amount of patient interactions; therefore, this project has the potential to provide social change through nurses regarding hand hygiene practice and patient care. Due to the high levels of engagement that nurses have with patients, it is essential that bedside nurses have the capabilities to implement an evidence-based practice approach in their clinical practice (Majid et al., 2011). Therefore, within the project location and across the health care system, it is beneficial for nurses to lead the change toward an improved standard of care. An understanding of the importance of hand hygiene standard, the knowledge they have with patients, professionals, and the community will contribute not only in their direct delivery of care but also in advocacy in the interests of the patients, which is one of the main responsibilities of nurses (Flagg, 2015).

Further, nurses play a role in supporting clinical practice changes in health care. Nurses are the key to championing improved infection control practices through their ability to put research into practice (Flagg, 2015). As a DNP student and nursing leader, I played a role in the development and implementation of an effective hand hygiene education program. This doctoral project aimed to enhance staff hand hygiene techniques by providing education on current evidence-based practice. Nurses will be empowered to improve the quality of care provided to patients through staff education. Patients will

benefit through appropriate staff hand hygiene because of the decreased infection rates, and improved health outcomes, thus promoting a positive social change. Through improvements in public health levels, there may also be improvement in socioeconomic outcomes for the community and society because of savings realized in tax dollars that would have been used in providing care to patients with HAIs.

Summary

From the 19th century, scholars and professionals in the health care sector have demonstrated the importance of hand hygiene standards and protocols compliance in mitigating infections, therefore mitigating higher morbidity and mortality rates in health care institutions. With the onset and rapid spread of COVID-19, there has been an increased focus on the importance of hand hygiene in preventing the spread of infections. Section 1 of the project introduced the project focus area, the problem statement, project purpose, nature of the project, and significance to nursing practice and benefits for social change. Section 2 will provide an overview of the background and context of the study, important concepts, models, and theories to be used in the project, the relevance of the study to nursing practice, local background and context, and the roles of the DNP student and the project team in ensuring the completion of the project.

Section 2: Background and Context

Implementation of proper hand hygiene measures in the health care setting is important in ensuring provision of quality care because it reduces the spread of disease-causing pathogens. The goal of this project was to promote staff education on hand hygiene standards at a local nursing home. Section 2 includes a definition and description of the model used in the implementation of the hand hygiene campaign, review the relevance of the project to nursing practice, the local background and context, and the role of the DNP student and the project team.

Concepts, Models, and Theories

Human Care Theory

To support implementing an effective hand hygiene education program, stakeholders such as patients, nurses, other health care professionals, and family and friends must be involved. Consequently, a nursing model of care or theory, which includes focusing on the different stakeholders and involving them in ensuring quality care delivery to patients, was used. The human care theory formed the basis for the implementation of a hand hygiene adherence improvement intervention. The Human Care Theory is a patient-centered nursing theory (Watson, 2008). The 10 pillars are listed as:

1. Development of human-centered value systems: Human-centered value systems will ensure a focus on the health and well-being of the patient all the time and therefore fostering health-promoting behaviors all the time.

2. Cultivation of sensitivity to self and others: Ensures health care professionals' concern for themselves, patients, and communities and therefore, more likely to engage in activities that promote public health.
3. Providing faith and hope: Nurses encourage and provide hope and faith to patients, which encourages health seeking and promotion behaviors.
4. Encouraging expression of feelings: Fosters improved communication and better understanding of healthcare needs and the implementation of interventions to foster better health.
5. Trust-based relationships and interactions: Patients and health care professionals relationships based on trust will ensure intentional actions to promote public health.
6. Application of problem-solving and decision-making approaches: Ensure identification of problems, development, and implementation of solutions to mitigate the health care problems.
7. Promoting teaching and learning: essential in ensuring leveraging teachable moments to ensure imparting of important skills and competencies, such as the importance of handwashing among health care professionals
8. Provision of a supportive environment: A supportive environment will ensure development and implementation of measures to foster public health.
9. Encourage existential-phenomenological approach: Will foster pursuit of approaches that encourage health and well-being of the patient, including innovative approaches.

10. Help with meeting human needs: Healthcare practitioners' activities should foster the satisfaction and gratification of human needs. (Sitzman, & Watson, 2013)

Nurses' and other health care professionals' failure to adhere to hand hygiene standards puts professionals and patients at risk. This theory encourages a more conscientious focus on delivering patient-centered care.

Targeted Solutions Tool

In addition to the human care theory, I used best practices implemented in health care institutions participating in a project implemented by the Joint Commission Center to transform health care. More specifically, the project was guided by the key findings on the possible causes of noncompliance to inform the formulation and implementation of interventions. Further, the project involved the best practice in education, sensitization, and awareness creation to foster competitiveness as identified in the Joint Commission's project to transform health care, with a particular focus on hand hygiene. The study thus used the TST by the Joint Commission.

According to the Joint Commission Center for Transforming Health Care (2020), the TST tool guides the formulation and implementation of solutions aimed at addressing specific issues or problems in health care. Under this model, the first step in addressing the problem is to strive to understand the root cause or causes of the problem. For example, though incidents of noncompliance to hand hygiene protocols have been reported, it is imperative first to ascertain the causes of such noncompliance. For instance, providing training and education to employees, presuming that the

noncompliance had been caused by lack of knowledge about the importance of hand hygiene, may be an act in futility if noncompliance is attributable to lack of the infrastructure, the equipment, and hand sanitization points. Therefore, the TST model ensures that the current health care problems or issues' root causes are identified.

Considering the objectives of this study, the TST web-based solution, as evaluated in other studies, was an appropriate basis for implementing the hand hygiene compliance program at the location of the study. The tool is effective in the identification of the possible causes of noncompliance to hand hygiene standards, and therefore the implementation of evidence-based interventions, such as education and sensitization, and the infrastructure to promote hand hygiene standards compliance (Shabot et al., 2016). Similarly, the TST facilitates an understanding of the impediments to compliance, particularly attitudes and perceptions about the importance of hand hygiene and safety, which may then be used to develop and implement interventions to foster compliance (Kowalkowski et al., 2018; Trembley et al., 2019). Consequently, the TST tool, together with the human care theory, formed a foundation for this study because they ensure compliance to hand hygiene standards to promote better health outcomes for patients.

Key Terms and Concepts

The key terms and concepts or constructs used in this study are operationalized in this section.

Education: Encompasses the training and sensitization campaign to inform healthcare professionals of the importance of observing hand hygiene standards for better health outcomes.

Hand hygiene standards: Strategies, policies, rules, and regulations that stipulate handwashing frequency during care and mandate total adherence without exception (CDC, 2020; Mathur, 2011).

Socioeconomic outcomes: The positive and desirable changes in health, wealth, and demographic factors attributable to better health.

Consequently, to search for important resources and materials used in the study from different databases, the keywords and phrases to be used were *hand hygiene protocols, prevention of infections (health-associated infections), prevention of cross-infection, COVID-19 prevention protocols, hand hygiene protocols compliance, hand hygiene protocols non-compliance and hygiene standards noncompliance, improving hand hygiene standards compliance, and education hand hygiene standards compliance.*

Relevance to Nursing Practice

Studies have demonstrated the importance of hand hygiene in promoting health and wellness in healthcare institutions. However, nursing homes and health care institutions have not instituted sufficient measures to encourage handwashing. For example, between 2013 and 2017, an estimated 82% of nursing homes that were surveyed were cited for infection prevention and control deficiencies in one or more years (Paulin, 2020). These same nursing homes were cited for the same deficiencies during prior surveys (Paulin, 2020). Even recently, during the COVID-19 pandemic, health care institutions have been cited for poor hand hygiene standards observance and practices, resulting in higher infection rates among institutions with poor hand hygiene compliance rates (The Center for Medicare Advocacy, 2020; Wiener, 2020). Despite

hand hygiene being demonstrated as integral to better health outcomes, there is evidence of noncompliance in many health care institutions, with key causes of noncompliance being insufficient and ineffective education (Health Research & Educational Trust, 2010).

From recent assessments, the study location was given a rating of three stars. Based on the trend of low ratings and increased infection rates, the study location may be deemed to have in place low infection control compliance rates, more specifically, poor hand hygiene compliance measures. Identification and correction of hand hygiene deficiencies has the potential to improve both the star rating and hand hygiene compliance, mitigating spread of infectious diseases, including COVID-19. One of the most common transmission methods for COVID-19 is proximity to an infected and symptomatic person and coming into contact with surfaces touched by an infected person (WHO, 2020). Similar transmission methods have been identified for different other infectious diseases, even from the earliest studies, where mortality rates were higher in maternity wing because of poor hand hygiene practices. Therefore, considering that health care workers are working at the front line, particularly in the study location, and treating the most vulnerable patients, the immunocompromised elderly patients, there is a need for fostering hand hygiene standards compliance. If poor hand hygiene practices continue, nurses and other health care professionals will be placing the patients they are caring for in harm's way. Reinforcing proper hand hygiene compliance through staff education provides an opportunity to enhance patient safety and improve care standards and mitigate the risk of spreading any virus or infection.

Hand Hygiene Protocols and Standards

Hand hygiene has been instrumental in the delivery of quality care to patients by mitigating cross-transmission, including lowering the risk of HAIs or nosocomial infections, and within the context of the prevailing global pandemic, preventing the spread of COVID-19. Hands are a principal source for the transmission of micro-organisms when people do not wash their hands effectively (Alzyood et al., 2020). To prevent the spread of COVID-19 in addition to other micro-organisms, there has been an effort to increase awareness through education.

Hospital data collected from different countries demonstrated a hygiene compliance rate of only 40% (Erasmus et al., 2010). A meta-analysis conducted revealed that in practicing proper hand hygiene, the rate of cross-transmission was reduced by 24% (Mohammed Al Mutairi et al., 2020). By December 20th, 2020, the number of confirmed COVID-19 cases in nursing homes in the United States peaked at 34, 287 cases (CDC, 2021). Different studies conducted over the years in nursing homes reported low compliance rates with established hand hygiene standards and protocols (Hocine & Temime, 2015). Through increased education of clinical staff, the rate of transmission can be reduced by improved hand hygiene practices.

Basic Mechanisms of Infection Control

The presence of COVID-19 has caused agencies such as the CDC and Centers for Medicare & Medicaid Services (CMS) to revisit their previously recommended hand hygiene protocol and make revisions. CMS developed a survey for nursing home aimed at addressing crucial areas that if corrected could support the reduction of COVID-19

transmission. The CMS (2020) survey consisted of the following questions in relation to hand hygiene.

1. Are staff performing hand hygiene when indicated?
2. If alcohol-based hand rub is available, is it readily accessible and preferentially used by staff for hand hygiene?
3. If there are shortages of alcohol-based hand rub, are staff performing hand hygiene using soap and water instead?
4. Are staff washing hands with soap and water when their hands are visibly soiled (e.g., blood, body fluids)?
5. Do staff perform hand hygiene (even if gloves are used) in the following situations:
 - Before and after contact with the resident
 - After contact with blood, body fluids, or visibly contaminated surfaces
 - After contact with objects and surfaces in the resident's environment
 - After removing personal protective equipment (e.g., gloves, gown, facemask)
 - Before performing a procedure such as an aseptic task (e.g., insertion of an invasive device such as a urinary catheter, manipulation of a central venous catheter, and/or dressing care)?
6. When being assisted by staff, is resident hand hygiene performed after toileting and before meals?
7. How are residents reminded to perform hand hygiene?

8. Are hand hygiene supplies (e.g., alcohol-based hand rub, soap, paper towels) readily available and if not, who do they contact for replacement supplies?

Guidance provided by both the CDC and CMS provided an outline that supports clinicians in addressing the hand hygiene questions presented in the CMS survey.

Facilities that can successfully implement these strategies should witness an increase in appropriate hand hygiene practice by both clinicians and their patient population. The increased adherence to the appropriate practice will reduce the potential that microorganism will be spread through daily clinical interactions. The following sections describe the best practices indicated by both the CDC and CMS that would support the improvement of hand hygiene compliance (CDC 2020; CMS 2020).

Indications for Hand Hygiene

- Before touching a resident for any type of intervention.
- Before moving from a soiled site on the resident's body to a clean site.
- After removing a soiled brief and before assisting the resident with clean clothing.
- After fluid exposure or assisting with toileting.
- After direct contact with a resident and contact between residents.
- After touching medical equipment or the resident's belongings.
- After the removal of gloves

Alcohol-Based Sanitizers Versus Soap and Water

- Soap and water are more effective than hand sanitizers at removing certain kinds of germs, like *Cryptosporidium*, norovirus, and *Clostridium difficile*.

- People may not use a large enough volume of the sanitizers or may wipe it off before it has dried.
- Sanitizers with an alcohol concentration between 60–95% are more effective at killing germs than those with a lower alcohol concentration or non-alcohol-based hand sanitizers.
- When hands are heavily soiled or greasy, hand sanitizers may not work well. Handwashing with soap and water is recommended in such circumstances.

Gloves Versus Hand Hygiene

- Wearing gloves is not a substitute for conducting hand hygiene
- Remove or change gloves if
 - Gloves are damaged
 - Moving from a contaminated body site to a clean body site
 - Gloves are visibly soiled

Commonly Missed Areas of the Hand When Using Alcohol-Based Sanitizers

- Fingertips
- Thumbs
- Between fingers

Resident Engagement in Hand Hygiene

- Explain to the resident how and why you clean your hands before, after and during their care.
- Let the resident know that it is OK to remind you about conducting hand hygiene before their care.

- Assist the resident with cleaning their hands.

Importance of Hand Hygiene Protocols Compliance

Nurses, including registered nurses and nurse practitioners, have active interactions with patients, and their families and friends, as well as with other healthcare professionals. According to Sitzman and Watson (2013), nurses play a significant role in delivering care to patients at different levels of the healthcare services delivery process, interacting regularly and continuously with patients. Making similar observations, Flagg (2015), observed that nurses are pivotal to delivering quality care to patients, including regularly and continuously interacting with patients and other healthcare professionals to ensure the delivery of quality care to patients.

Therefore, nurses' failure to adhere to established hand hygiene standards and protocols not only exposes the nurses but also patients, their families, and friends, as well as other healthcare professionals and other staff in healthcare institutions to infections. In the case of an infectious disease, such as COVID-19, nurses' failure to adhere to hand hygiene protocols makes them the weak link in the endeavors to mitigate the spread of the diseases because they can facilitate the transmission of the disease. Consequently, systematic review conducted by Akanji et al., (2017) supports the idea that formulating and implementing measures to foster compliance and adherence to hand hygiene standards, more particularly an educational program, will help nurses and other healthcare staff to mitigate the risk of HAIs, COVID-19, and person to person cross-transmission which is defined by WHO (2009) as the transfer of disease-causing microorganisms via direct or indirect contact with another patient or with an inanimate

object that will come into direct contact with the patient. The project participants will have a better understanding of the nature of hand hygiene protocols and standards and the importance of compliance with the standards and protocols in ensuring delivery of quality healthcare from the education and training project implemented.

Understanding Causes of Non-Compliance

The facility received various hand hygiene compliance citations in the past from the Long-Term Care Institute. The institute noted that the facility did not consistently maintain an infection prevention and control program designed to help prevent the development and transmission of disease and infections. The specific areas in which the organization was cited was related to not performing hand hygiene before donning sterile gloves and after removing sterile or non-sterile gloves, medication vial and skin not cleansed properly for subcutaneous medication administration and not cleaning glucose monitoring supplies between uses.

The organization responded to these citations by developing plan of action which included, re-education regarding performing appropriate hand hygiene, including before and after removing gloves through feedback regarding direct observations. Nurse Managers counseling staff with repeat non-compliance. All clinicians would complete a read and sign regarding infection control practices during SC Med Administration and the cleansing of glucose monitoring equipment between patient use.

This project's findings will provide clinicians, particularly nursing leadership and administration with an understanding of the different possible causes of noncompliance to hand hygiene protocols and standards. According to Farhoudi et al., (2016), a multi-

faceted approach should be utilized to improve the rates of hand hygiene adherence within hospital care settings. Such approaches should be focused (a) system change to ensure access of healthcare workers to hand hygiene facilities with emphasis on availability of alcohol-based hand rub formulations at the point of care, (b) ongoing training and education, (c) evaluation of practices and feedback, (d) reminders at the workplace, and (e) providing a climate of safety through institution (Farhoudi et al., 2016).

Interventions to Foster Hand Hygiene Compliance

Drawing from different studies and reports, such as Kowalkowski et al. (2018), Hocine and Temime (2015), and Mathur (2011) as well as reports by the CDC (2020), the hand hygiene project will entail the implementation of education, training, and sensitization on the importance of observance and compliance with hand hygiene protocols. Education, training, and sensitization have been demonstrated to be effective in fostering healthcare professionals' compliance with hand hygiene standards and protocols set within healthcare institutions. From their study conducted in Taiwan, Huang et al., (2008) indicated that the nursing assistants were more knowledgeable on hand hygiene and were more compliant, with compliance rates growing from 9.34% to 30.36%, resulting in a 1% drop in nosocomial infections following the implementation of an education program.

Similar findings and arguments are presented by Higgins and Hannan (2013), who from their quasi-experimental study ascertained that learning, achieved through the application of innovative pedagogical methods, including teaching technology, improves adherence to hand hygiene protocol. Making interesting observations, Duggan et al.

(2008), in their study, observed that nurses had higher compliance levels than physicians, concluding that professional training and education did not determine the levels of compliance. However, they concluded that training and awareness creation or education within the workplace setting to foster compliance to hand hygiene protocols resulted in improved compliance levels among the previously non-compliant groups.

Current Organizational Policy

Consequently, the interventions implemented will include encouraging the clinicians to adhere to the current policy. The organization categorizes this project as a teaching and teaching evaluation. Due to that categorization, the organization does not require institutional review board approval for this project. The organization where this project will take place follows a directive (Veterans Health Administration Directive 2011-007) that is provided by the parent organization. The policy outlines the recommended hand hygiene practices that must be followed. The practices written within the organization's policy utilizes recommendation components from the CDC and the WHO. When developing the staff education, it will be essential to include the required components of the policy within the education outline. Outlined within the directive, all health care workers who may have direct patient contact must:

1. Use an alcohol-based hand rub or antimicrobial soap to routinely decontaminate their hands before and after having direct contact with a patient.
Note: If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands. When hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids, wash

hands with either a non-antimicrobial soap and water or an antimicrobial soap and water.

2. Use an alcohol-based hand rub or antimicrobial soap and water before inserting an indwelling urinary catheter, peripheral vascular catheter, or other invasive devices that do not require a surgical procedure, or before donning sterile gloves when inserting a central venous catheter.
3. Put gloves on when contact could occur with blood or other potentially infectious materials, mucous membranes, or non-intact skin. Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient, and do not wash gloves between uses with different patients. Use an alcohol-based hand rub or antimicrobial soap and water to decontaminate hands after removing gloves.
4. Wash hands with an antimicrobial or non-antimicrobial soap and water: whenever hands are visibly soiled or contaminated with body fluids; before eating; and after using a restroom.
5. Use either an antimicrobial soap or an alcohol-based hand rub with persistent activity before donning sterile gloves for surgical procedures.
6. All healthcare workers (supervisory or non-supervisory) who regularly or occasionally provide direct, hands-on care to patients must not wear artificial fingernails or extenders.

Veterans Health Administration facilities must provide appropriate supplies as follows:

1. Make an alcohol-based hand rub available at the entrance to each patient room and/or at the bedside, as well as in other convenient locations. Install and store alcohol-based hand rubs consistent with fire safety requirements and the current Life Safety Code requirements.
2. Antimicrobial soap must be available in all patient care areas where soap is provided (i.e., at all sinks with a soap dispenser). Soap must not be added to partially empty dispensers (i.e., no “topping up”).
3. Pocket-sized containers of alcohol-based hand rub must be available to all health care workers.

Note: This does not imply a requirement for all health care workers to carry pocket-sized alcohol hand rubs.

4. Hand lotions or creams must be readily available to minimize irritant contact dermatitis. Note: Provide products designed specifically for healthcare applications.

Local Background and Context

The study location, a local Long-Term Care facility in California, continues to struggle to maintain a hand hygiene compliance rate above 70%. The patient population within the environment consists of all geriatric nursing home residents, many of whom are immunocompromised. The study location is in Northern California, where currently, there are concerns about the spread of COVID-19. The elderly patient population within the facility, fall within the most vulnerable groups among the most susceptible to infectious pathogens (Bedford et al., 2020). The elderly have a more depleted immune

system and are therefore at a greater risk of contracting highly infectious diseases, such as COVID-19, succumbing to the infection. Accordingly, appropriate preventive measures need to be in place to minimize the residents' exposure to infections, and by so doing, mitigate the higher mortality rates reported in the demographic group because of infectious diseases.

The facility currently has a patient census of 98 geriatric veterans. The approximately 87 staff taking care of these veterans are comprised of 14 registered nurses, 15 licensed practical nurses, 35 nursing assistants, five social workers, three physical therapists, two occupational therapists, one psychologist, five physicians, three dietitians, three recreational therapists, and one nurse practitioner. They are well-trained professionals qualified to deliver high-quality care to patients within the institution. However, the delivery of quality care requires more than just utilizing the professional and technical training received. It also requires a conscientious and concerted holistic focus on the health of the patient. In this case, healthcare professionals must take all the measures necessary to protect and promote the patient's holistic health.

The medical director of the facility observed and reported to me that hand hygiene non-compliance standards had been identified as a key challenge to delivering quality care to patients for the past two years. Surveys conducted within the institution revealed that many of the healthcare staff failed to perform appropriate hand hygiene practices before they interacted with a patient, after they interacted with a patient and when providing medications. The institution had initiated a process improvement plan implemented for 90 days, which consisted of identifying nurse champions with the unit

that would conduct ten random monthly audits within the unit. During those 90 days, the institution reported an improvement in the rate of handwashing compliance. After hand hygiene audits were discontinued, the facility experienced several cases of human metapneumovirus. The virus spread rapidly throughout the facility and caused the facility to go under quarantine. The quarantine lasted over a month because of new cases. Poor hand hygiene was discovered to be a factor that contributed to the rapid spread of the virus. Therefore, in an institution, such as the study's location, staff and patients can be educated on effective hand hygiene standards and protocols to promote adherence.

Role of DNP Student

As the project leader, I identified that insufficient education and training were some of the leading causes of staff non-compliance with hand washing at the project facility. In addition, the facility leadership did not engage with the staff to discover some of the barriers that they have experienced in attempting to be compliant with the facility regulations. I will work to develop an education program covering the best practices that will help improve hand hygiene compliance within the facility. During the education session, I will engage the participants in conversation that will assist in better understanding their perspective and the obstacles that they have experienced. This interaction will assist in providing recommendations to the facility leaders regarding areas of improvement.

Summary

Section 2 provided an overview of the background and context of the study, important concepts, models, and theories to be used in the project, the relevance of the

study to nursing practice, local background and context, and my role in completing this project. The utilization of the Human Care Theory will support in reinforcing the importance of the healthcare professional's actions in improving hand hygiene compliance. Section 3 will discuss the project design, including the plan for the collection and analysis of evidence.

Section 3: Collection and Analysis of Evidence

Section 3 will explain the practice-focused question that guided the project and describe the different sources of evidence to inform the development and dissemination of the training and education program to foster compliance with the established handwashing hygiene standards.

Practice-Focused Questions

Considering the purpose and objective of the study, the practice-focused question asked “Will an education program increase staff’s knowledge of hand hygiene methods for residents of a skilled nursing facility in the western United States?”

Sources of Evidence

I used evidence-based practice principles and guidelines to create and implement an education program to foster the improvement of hand hygiene compliance among nursing home staff. A systematic literature review on current hand hygiene principles and protocols, including best practices, was used to create the staff education program. Keywords, phrases, and search strings were used in identifying articles and relevant materials from the Walden library databases, such as PubMed, CINHL, and guidelines for hand hygiene from the CDC, CMS and WHO. The inclusion criteria included English language articles published in the last 5 years.

Participants

All clinical staff in the facility were invited to participate in the staff education program. I planned to have at least 50% of the staff participate in the education session. Currently the facility employees approximately 87 staff members, which are 14 registered

nurses, 15 licensed practical nurses, 35 nursing assistants, five social workers, three physical therapists, two occupational therapists, one psychologist, five physicians, three dietitians, three recreational therapists, and one nurse practitioner. Educational sessions were conducted during the three separate shifts: midnight–8:00 a.m., 7:30a.m.–4:00 p.m., 3:30 p.m.–midnight, to allow for maximin staff participation. Due to the current patient workload and staff taking time off, I did not expect that all clinical staff members would be available to participate in the educational sessions.

The clinical staff were selected due to their direct clinical involvement with the patients within the facility. These clinicians come in contact with the facility patients more often than any other staff member within the facility. The improved hand hygiene practice of these clinicians will assist in reducing the potential of the spread of infectious microorganisms. The clinicians who participate will then educate those who were not able to participate in the sessions in order to help sustain the best practices, thus enacting in a train the trainer approach.

Procedures

The education and training program was developed through a cycle of planning, implementation, and evaluation. The planning phase entailed meeting with the expert panel, which consisted of the medical director, chief nurse, and the infection control nurse to evaluate the selected area for appropriateness, conducting preliminary research, and developing the curriculum and other materials to be used in the educational endeavors. The second phase, implementation, entailed providing the training (Appendix C) after consultation with the institutional leadership as well as ensuring that the

materials required were ready. The final phase involved evaluating the implemented program to ascertain the achievement of the training program goals, in this case, to ensure that the staff had an appreciation of the importance of observing hand hygiene standards and guidelines.

Protections

I worked in collaboration with the chief nurse to assist in the recruiting of clinicians to participate in the sessions. The clinical staff members were sent an email inviting them to the educational sessions. The staff members were notified that their participation is voluntary and that they can withdraw from participating at any point before or during the session. Any information collected during these sessions is safeguarded through digital encryption and passwords, to which I am the only one capable of accessing and providing access. The participants were informed that any survey data collected will be anonymous.

Walden University Institutional Review Board

The role of the Walden University Institutional Review Board in approving the doctoral project is in ensuring that it is beneficial to the student by fulfilling the learning outcomes, which are a must for the work and also ensuring that the study is compliant with academic best practices and standards. These are precautions that must be taken for the study to be accepted. It is necessary for it to be shown as impeccably done, ethical, conscientious and responsible. When this is done, the recommended best practices can be published with a clear conscience on the part of all people and organizations who had a hand in the crafting of the report.

Analysis and Synthesis

The educational session included a pre- and post-survey (Appendix A) through Qualtrics. The application is designed to help gather participant feedback and display the findings in an analytical format for easy interpretation. The same survey was used for the pre- and post-education evaluation. The expert panel was also invited to participate in a separate posteducation survey (Appendix B) in order to gather their feedback. The participants were allowed only one opportunity to complete the online anonymous survey and were required to answer all questions asked within the survey. These constraints reduced the possibility of the data tampering.

Once the survey data were obtained, I compiled all the participants' pre- and post-survey data into two categories, pre-education session and post education session, and compared the findings. The pre- and post-surveys responses were compared for variations in the participant responses. The response variations were presented to the expert panel members to demonstrate the effectiveness of the program. The goal was to determine if the content in the education program enhanced the knowledge of the participants and increased the likelihood that the participants will use the recommendations in their daily practice. The information gathered from the survey will help the facility leaders identify what issues need to be addressed to gain and sustain positive results. I also reviewed the feedback provided by the expert panel to measure the effectiveness of the presentation content and my ability to deliver the content to the participants.

Summary

This section of the study included a description of the research method, which involved a systematic literature review to identify best practices in line with the study objectives. The section also provided an overview of the background information to the practice-research question, which addressed how the study will be beneficial to nursing practice, focusing on how it will facilitate the resolution of the identified problem area. To answer the practice question, levels of evidence or hierarchy of evidence criteria were applied. Finally, this section described the approach and methods used to analyze and synthesize the findings to inform the inferences and conclusions and therefore the recommendations for implementation of interventions to improve hand hygiene.

Section 4 describes the study's findings, conclusions, implications, and recommendations. In this case, the recommendations will encompass the measures implemented, the education, training, sensitization, and awareness creation to foster adherence to hand hygiene standards and protocols. The education program has three key phases: planning, implementation, and evaluation. In the planning phase, the program will entail liaising with the leadership to develop goals and objectives of the teaching a program. The implementation phase involves disseminating the materials to the target learners with the support of the leadership. The final phase, the evaluation phase, entailed conducting assessments to ascertain that the training and education objectives have been met.

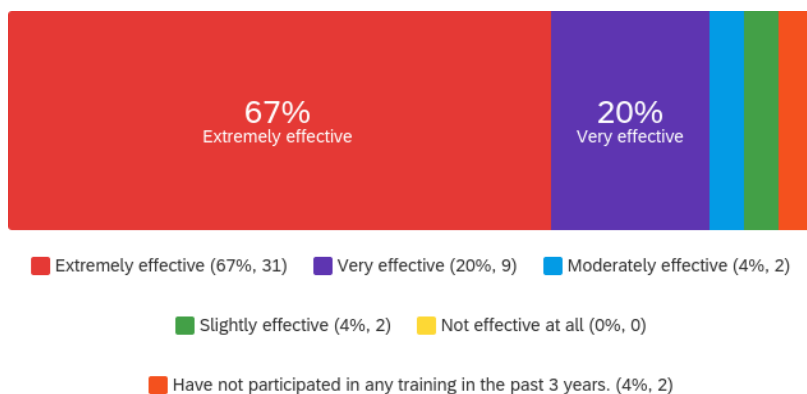
Section 4: Findings and Recommendations

This project was developed to improve hand hygiene compliance through education, which enhances knowledge and provides a forum for insightful discussion. The hope was that through these sessions, participants would leave more knowledgeable. I had the opportunity to hold an education session with 46 nursing staff members in the facility. Through the session the staff and I were able to address misconceptions related to hand hygiene, share insight related to their daily clinical experience, and discuss methods of improvement and sustainment. The staff members participated in a 45-minute session and completed a pre- and post-survey. The data collected from the surveys presents effectiveness of the education that was created to support the facility in improving their hand hygiene compliance.

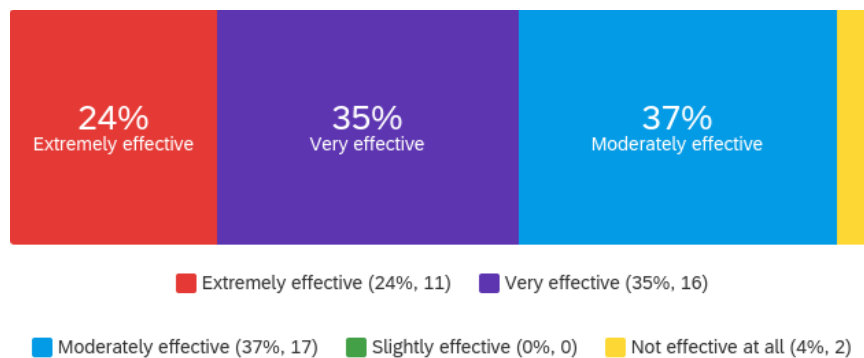
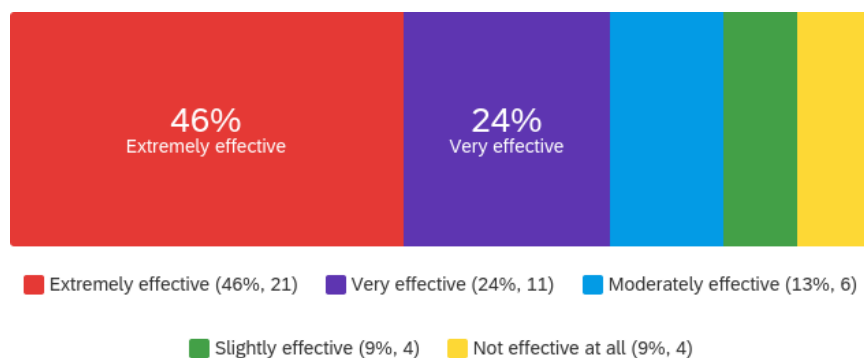
Findings and Implications

A total of 46 clinical staff members participated in the education sessions. The same staff members completed a pretest and posttest. No demographic data were collected during the education sessions. The following graphs depict the results of the pretest and posttest, including a summary of the significant findings. The summaries will focus on the results of the majority of those who attended the sessions.

Question 1 asked the participants, “If you participated in hand hygiene training within the last 3 years, how effective do you believe the training was in improving hand hygiene compliance within your area?” When comparing the data from the pretest and posttest, the posttest reflected a 43% increase in the number of participants who viewed their training as extremely effective (see Figures 1 and 2).

Figure 1*Pretest Responses to Question 1***Figure 2***Posttest Responses to Question 1*

Question 2 asked the participants, “How effective do you believe hand sanitizers are against germs when compared to hand washing with soap and water?” When comparing the data from the pretest and posttest, the posttest reflected a 22% increase in the number of participants who viewed hand sanitizers as extremely effective when compared to hand washing with soap and water (see Figures 3 and 4).

Figure 3*Pretest Responses to Question 2***Figure 4***Posttest Responses to Question 2*

Question 3 asked the participants, “How effective do you believe hand sanitizers are in preventing the spread of microorganisms?” When comparing the data from the pretest and posttest, the posttest reflected a 2% decrease in the number of participants who viewed hand sanitizers as extremely effective in preventing the spread of microorganisms (see Figures 5 and 6).

Figure 5

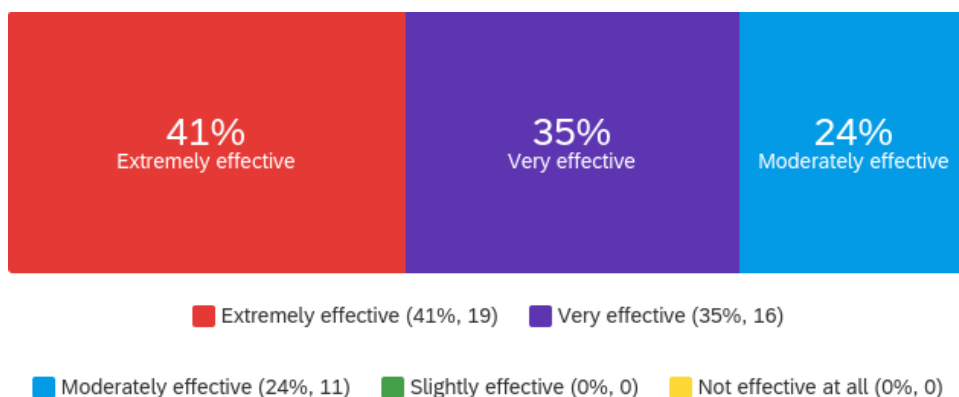
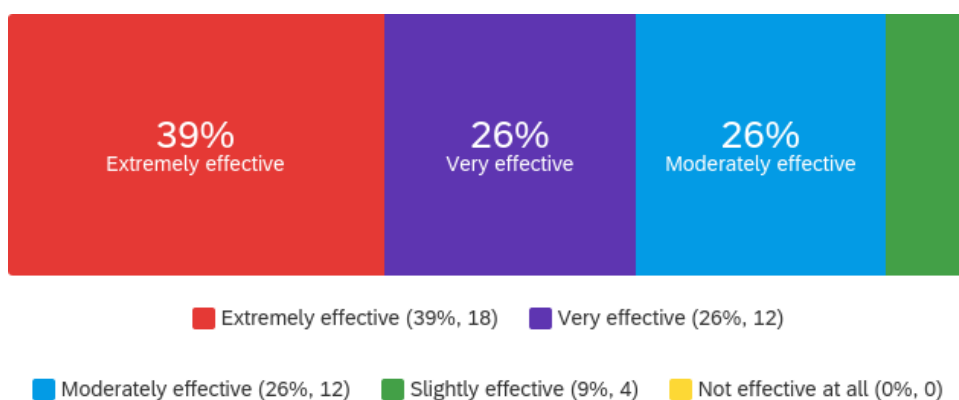
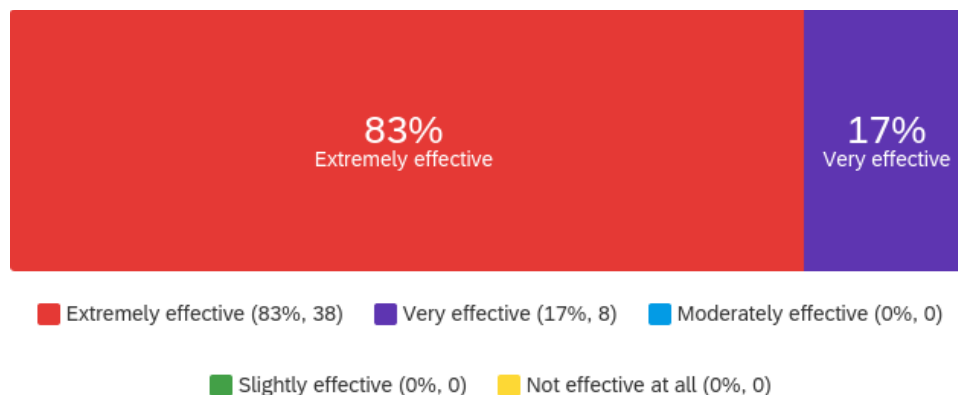
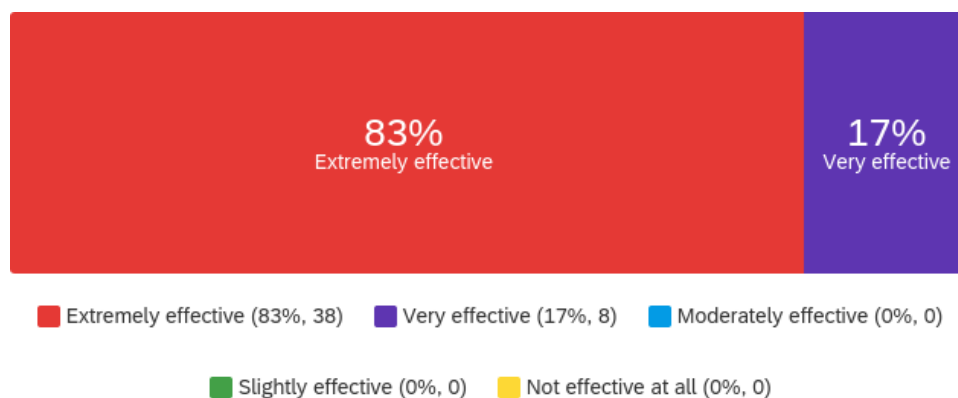
Pretest Responses to Question 3

Figure 6

Posttest Responses to Question 3

Question 4 asked the participants, “How effective do you believe hand washing with soap and water is in preventing the spread of microorganisms?” When comparing the data from the pretest and posttest, the posttest reflected no change in how the number of participants viewed the effectiveness of hand washing with soap and water in preventing the spread of microorganisms (see Figures 7 and 8).

Figure 7*Pretest Responses to Question 4***Figure 8***Posttest Responses to Question 4*

Question 5 asked the participants, “How effective would the following actions be to improve hand hygiene permanently in your institution? Leaders and senior managers at your institution support and openly promote hand hygiene.” When comparing the data from the pretest and posttest, the posttest reflected a 16% increase in the number of participants who viewed the effectiveness of leaders and senior managers as extremely

effective in supporting and openly promoting hand hygiene as extremely effective (see Figures 9 and 10).

Figure 9

Pretest Responses to Question 5

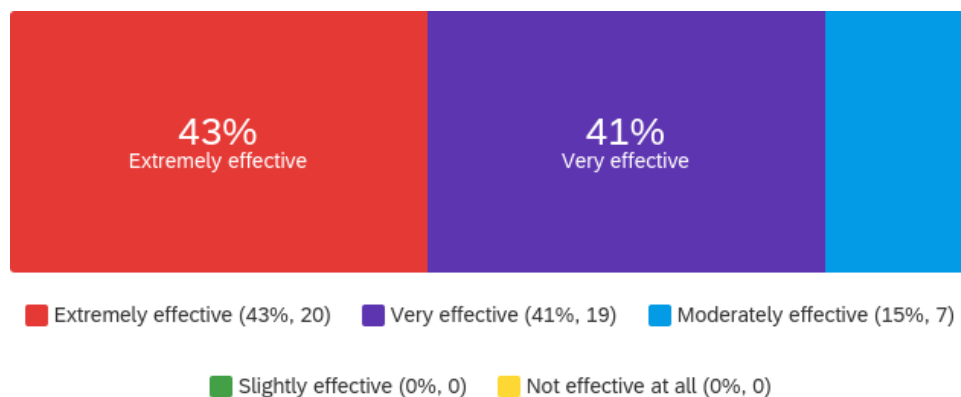
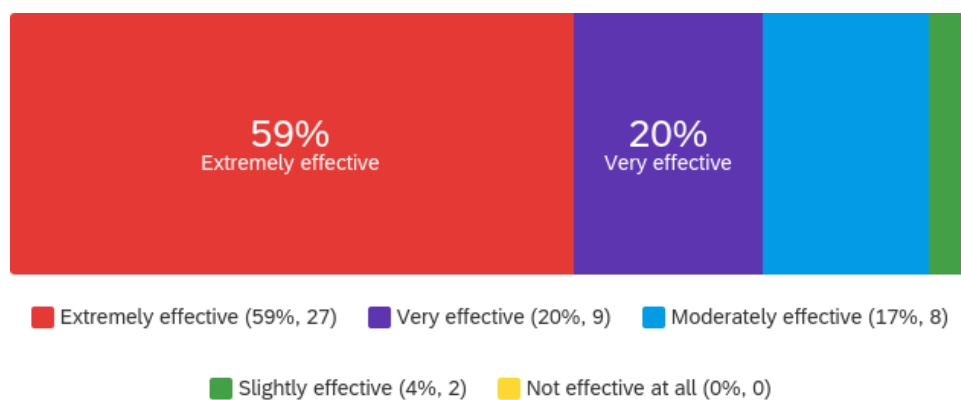


Figure 10

Posttest Responses to Question 5



Question 6 asked the participants, “How effective would the following actions be to improve hand hygiene permanently in your institution? The health care facility makes alcohol-based hand sanitizers always available at each point of care.” When comparing the data from the pretest and posttest, the posttest reflected a 15% increase in the number

of participants who viewed the effectiveness of the availability of alcohol-based hand sanitizers as extremely effective (see Figures 11 and 12).

Figure 11

Pretest Responses to Question 6

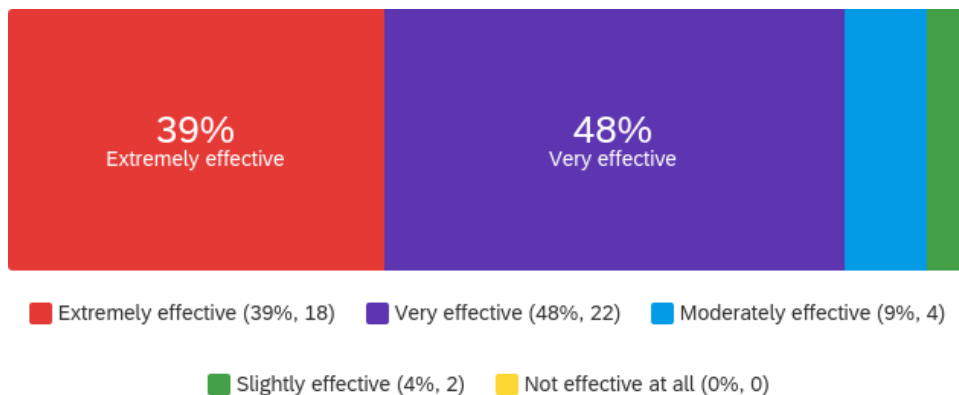
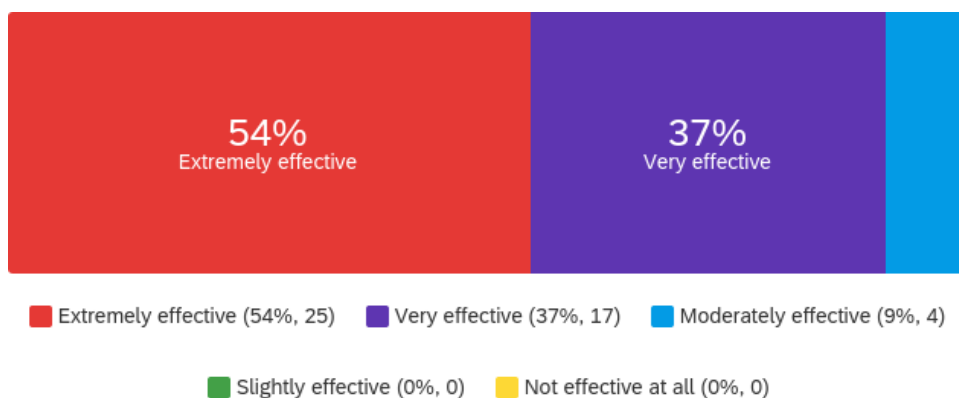


Figure 12

Posttest Responses to Question 6



Question 7 asked the participants, “How effective would the following actions be to improve hand hygiene permanently in your institution? Hand hygiene posters are displayed at point of care as reminders.” When comparing the data from the pretest and posttest, the posttest reflected a 26% increase in the number of participants who viewed

the effectiveness of displaying posters at points of care as extremely effective (see Figures 13 and 14).

Figure 13

Pretest Responses to Question 7

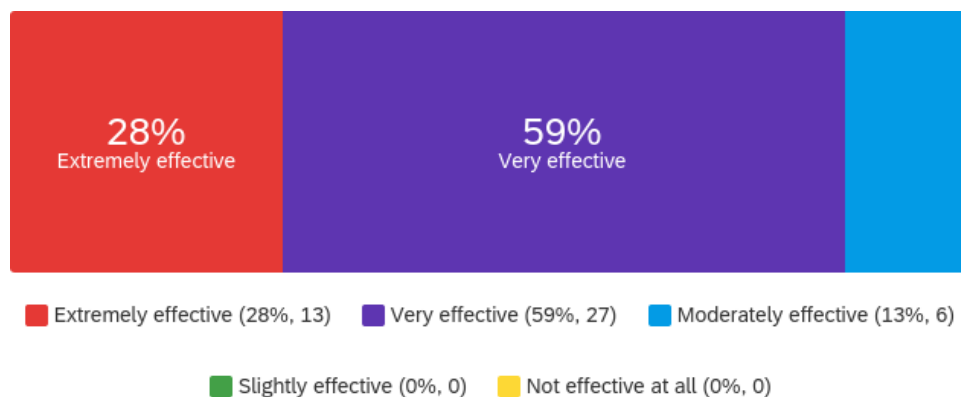
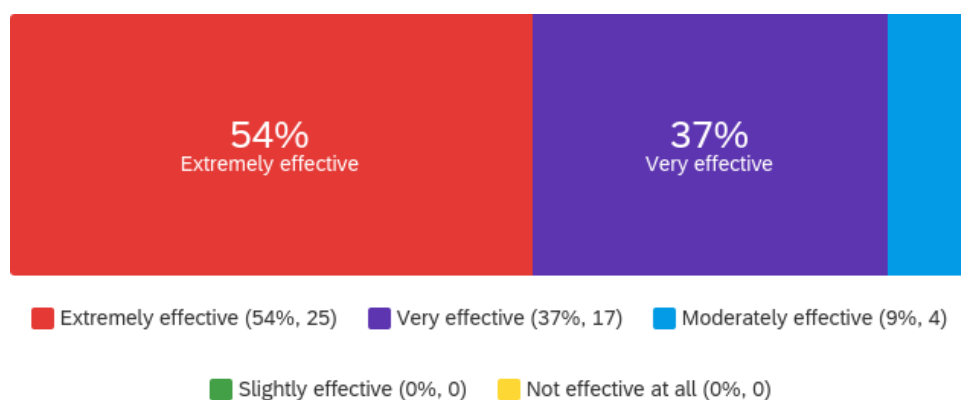


Figure 14

Posttest Responses to Question 7



Question 8 asked the participants, “How effective would the following actions be to improve hand hygiene permanently in your institution? Each health care worker receives education on hand hygiene.” When comparing the data from the pretest and posttest, the posttest reflected a 31% increase in the number of participants who viewed

the effectiveness of each health care worker receiving education on hand hygiene as extremely effective (see Figures 15 and 16).

Figure 15

Pretest Responses to Question 8

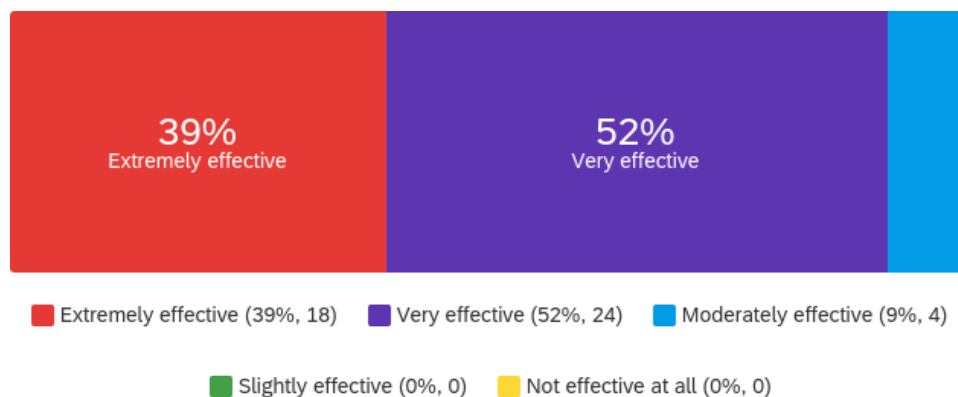
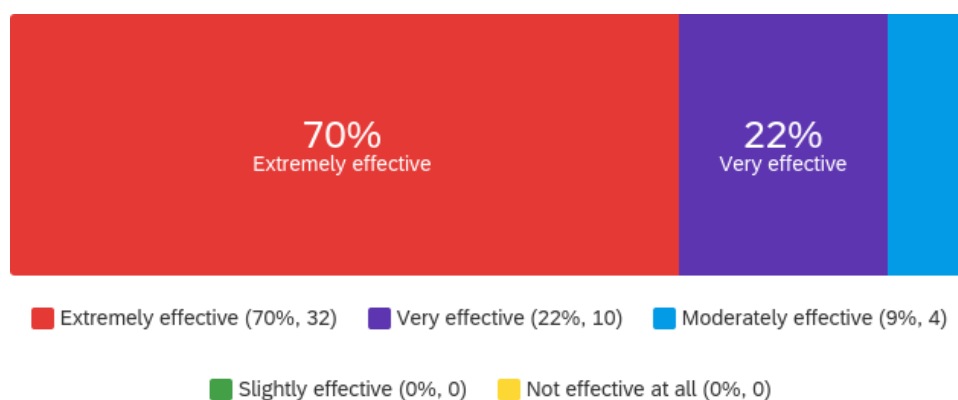


Figure 16

Posttest Responses to Question 8



Question 9 asked the participants, “How effective would the following actions be to improve hand hygiene permanently in your institution? Clear and simple instructions for hand hygiene are made visible for every health care worker.” When comparing the data from the pretest and posttest, the posttest reflected a 21% increase in the number of

participants who viewed the effectiveness of the visibility of clear and simple instructions as extremely effective (see Figures 17 and 18).

Figure 17

Pretest Responses to Question 9

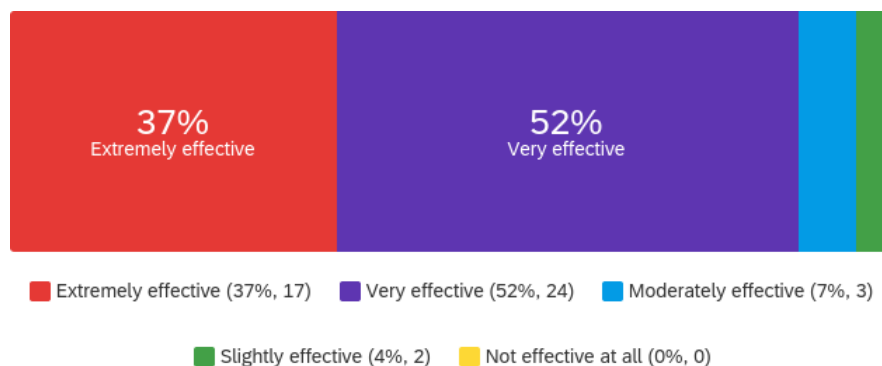
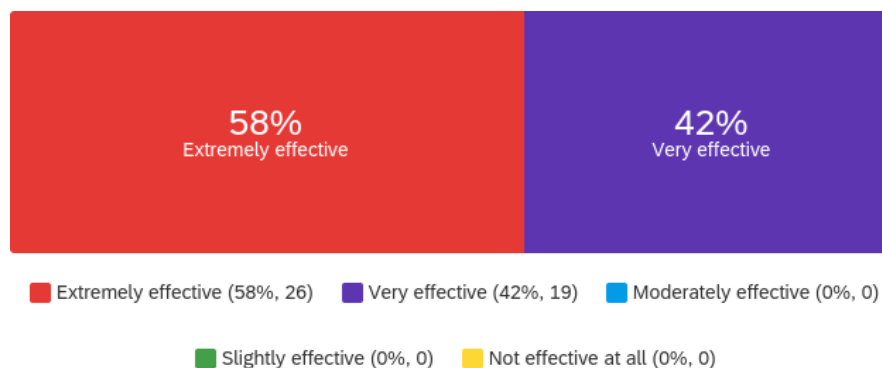


Figure 18

Posttest Responses to Question 9



Question 10 asked the participants, “How effective would the following actions be to improve hand hygiene permanently in your institution? Health care workers regularly receive feedback on their hand hygiene performance.” When comparing the data from the pretest and posttest, the posttest reflected a 21% increase in the number of participants who viewed the effectiveness of the visibility of health care workers

regularly receiving feedback on their hand hygiene performance as extremely effective as extremely effective (see Figures 19 and 20).

Figure 19

Pretest Responses to Question 10

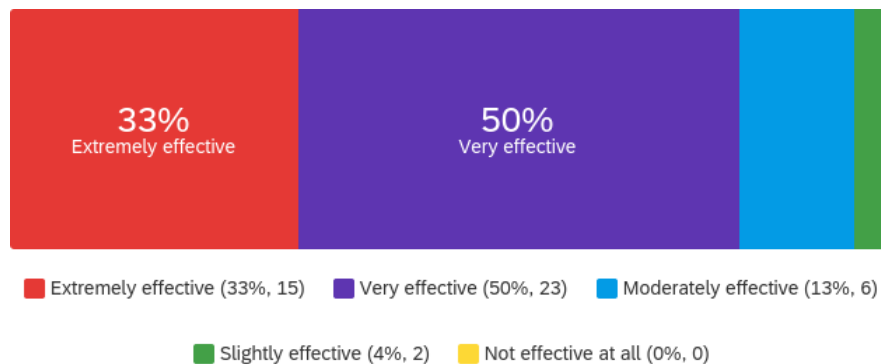
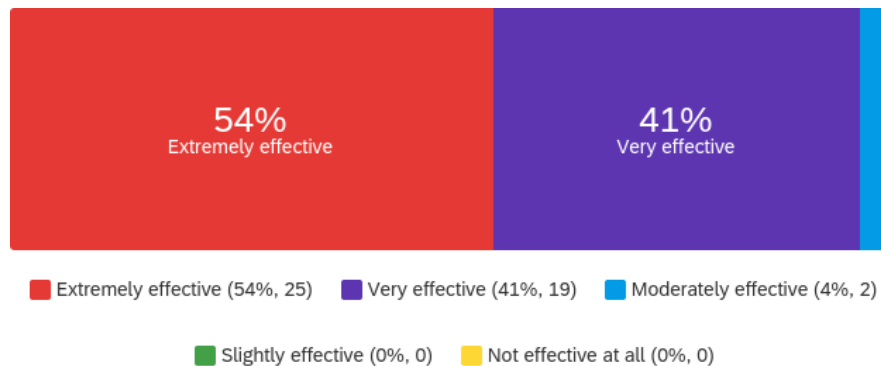


Figure 20

Posttest Responses to Question 10



Question 11 asked the participants, “How effective would the following actions be to improve hand hygiene permanently in your institution? You always perform hand hygiene as recommended (being a good example for your colleagues).” When comparing the data from the pretest and posttest, the posttest reflected a 6% increase in the number

of participants who viewed being a good example for their colleagues as extremely effective (see Figures 21 and 22).

Figure 21

Pretest Responses to Question 11

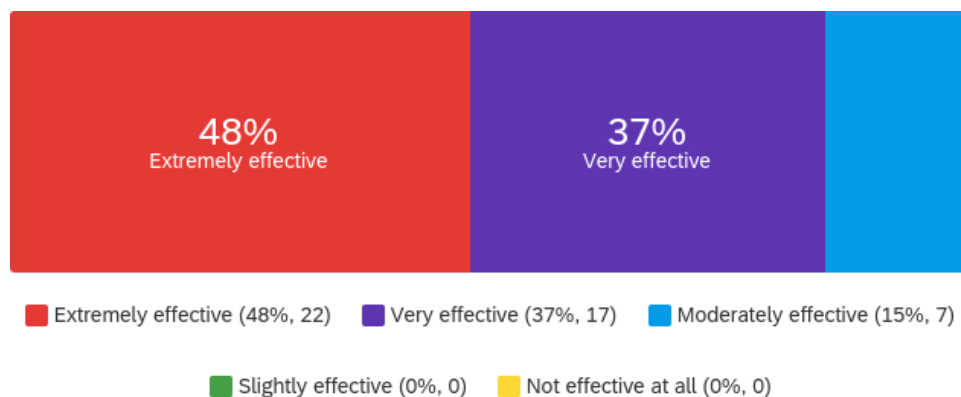
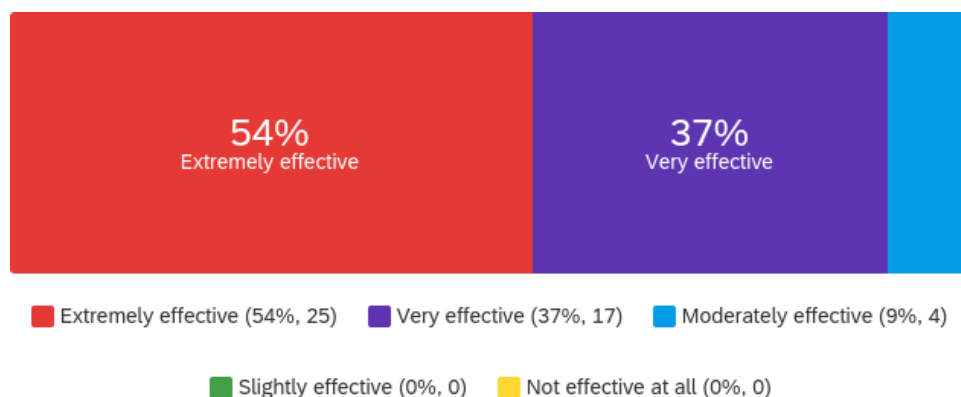


Figure 22

Posttest Responses to Question 11



Question 12 asked the participants, “How effective would the following actions be to improve hand hygiene permanently in your institution? Patients are invited to remind health care workers to perform hand hygiene.” When comparing the data from the pretest and posttest, the posttest reflected a 18% increase in the number of participants

who viewed inviting patients to remind health care workers to perform hand hygiene as extremely effective (see Figures 23 and 24).

Figure 23

Pretest Responses to Question 12

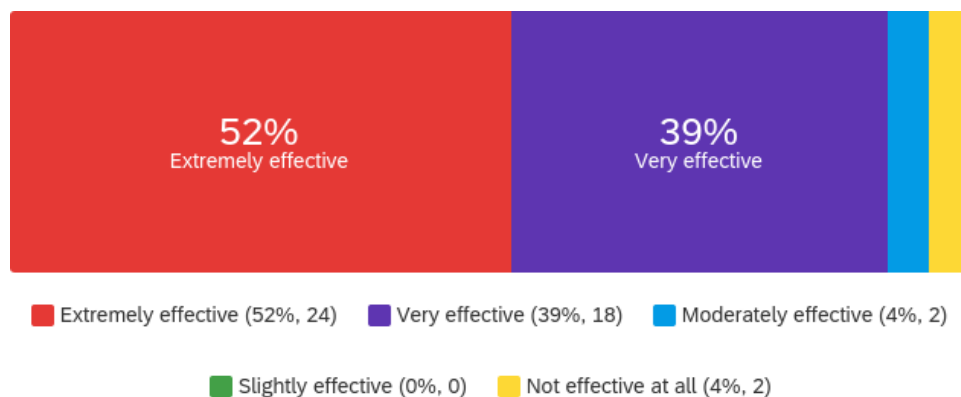
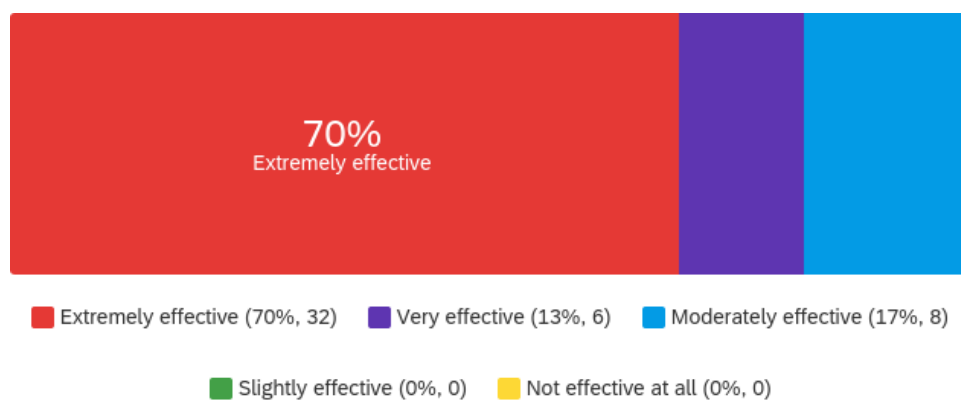


Figure 24

Posttest Responses to Question 12



Recommendations

Sustaining and building upon the positive interventions is a goal that I hope to achieve with this project. Both the clinical staff and management team have taken steps

to improve hand hygiene compliance within the facility. The staff who participated in the educational sessions were able to speak to some of the changes that they have witnessed since the last facility survey. The staff expressed that since the pandemic there has been increased hand hygiene support visible by the access to more resources such as soap and hand sanitizers. It has also been noted that more clinical staff have acted to self-correct their prior noncompliant behaviors. During the educational sessions, the participants expressed that they were not aware of how much they had improved from the prior survey. The staff mentioned that whatever hand hygiene data that are collected are not displayed in an area that is easily accessible to them.

The staff should be knowledgeable of what occurs within their environment. The hand hygiene data provides the staff a metric that they should aim to reach and or sustain based on the findings. I recommend that the leadership team take the time both display the data in an area easily accessible to the staff and displayed in a format in which the staff can easily interpret. Additionally, I recommend that periodic conversations are held with the clinical staff to provide them both an update of their hand hygiene compliance rate and gain insight from the staff regarding their perspective in relation to daily hand hygiene experience.

Contribution of the Doctoral Project Team

The members of the doctoral project team assisted in moving this project forward amidst a pandemic. Throughout the execution of this project, the requirements to gain access to the facility have changed due to the clinical concerns related to COVID-19

exposure. The chief nurse supported in navigating the various restrictions to allow me the opportunity to hold the education sessions with the clinical staff.

Strengths and Limitations of the Project

Initially, the limitations of the project were not apparent to me as I drafted the concepts and ideas for the project execution. During the drafting phase of the project, the reviewed literature presented strong evidence that an evidence-based hand hygiene education program would be effective in improving hand hygiene compliance. The literature that I reviewed and capture in my education program both highlighted and addressed some misconceptions of hand hygiene performance and the use of hand hygiene products. The information presented to the staff was concise and easy to comprehend. The aspect that I did not take into consideration was the staff culture.

The staff who participated in the education session was largely comprised of registered nurses and nursing assistants. During the education session the nursing staff mentioned that the hardest aspect of enforcing hand hygiene was their inability to address the negative behaviors among some colleagues. The staff mentioned that they felt it was not considered appropriate to correct the practices of physicians and senior leaders. The staff mentioned that they preferred to avoid any conflict due to the perceived hierarchy that existed within the facility. I did not have an appropriate response to address the cultural conflict issue presented to me by the nursing staff.

The cultural aspect of the organization plays a large role in ensuring that the education plan can be sustained. If I had tailored the education plan to address the organizational culture, I would have been able to provide recommendations that could

have been more sustainable. The next section will cover my dissemination plan, my self-analysis, challenges, and proposed solutions.

Section 5: Dissemination Plan

Hospitals and other health care institutions are at risk of contracting unrelated HAIs as patients receive treatment for one health issue, disease, or condition. The COVID-19 experience has shown that behavioral barriers and obstacle can be overcome by implementing multiple actions to sustain successful hand hygiene improvements. My dissemination plan for the organization consists of creating systems change, enforcing continued education, providing health care staff continuous reminders, and creating an environment that fosters a safety culture (Hammerschmidt & Manser, 2019). My dissemination plan involves providing the facility leadership a PowerPoint outline several recommendations. My recommendations are based on my observations and the literature review that I conducted. If these recommendations are implemented by the facility leadership, I expect that the facility will be able to sustain positive hand hygiene results. The following describes the recommendations that I will provide the facility.

Recommendations

System Change

Working with the facility leaders to ensure that the infrastructure is in place will enable health care workers to practice proper hand hygiene. The leaders of the organization must set the standard to ensure that best practices are sustained. The facility leaders have the ability to enact rules and regulations that would reinforce those best practices are followed. These leaders also can empower the frontline staff by providing them the resources and platform to ensure that proper hand hygiene actions are a daily process.

Continuous Training/Education

Creating a comprehensive health care just-in-time education program that would emphasize hand hygiene in 5 minutes and handwashing procedures could be a resource to address instances when health care staff and or patients do not follow the appropriate guidelines hand hygiene protocols. Education will always be a powerful tool in addressing hand hygiene noncompliance. The staff will need to be educated on both a periodic basis and on an as-needed basis to address staff turnover, episodes of noncompliance, and the presence of high-risk contagions within the facility. The unit committee that I recommended in the prior statement can lead the creation of an effective education plan that would be fined tuned to the needs and culture of the unit.

Reminders in the Workplace

Infection control marketing could be an effective tool to provide the staff a visual reminder of what is occurring within the unit. The staff should be able to visually see their performance and a breakdown of their success and opportunities for improvement. Visual displays of the facts of common preventable infections are a useful tool to keep staff aware of infections that pose a danger to both themselves and the patients but can be prevented through proper hand hygiene. These reminders make staff aware of the constant threat of transmissible infections.

Institutional Safety Climate

Fostering a culture that promotes safety through clinical practice and safety from retaliation will be effective in allowing staff members to call out behavior that does not promote appropriate hand hygiene culture. Those within the facility should be

comfortable enough to engage in conversations that would allow for behavior correction. Some staff may not feel comfortable addressing inappropriate hand hygiene behavior due to the fear of the other individual becoming angered. The staff must feel that organizational culture supports quality improvement as a non-punitive action. The staff must also be open to obtaining feedback from each other. Developing a climate of safety allows staff and veterans to feel safe directly addressing inappropriate hand hygiene behavior.

Analysis of Self

As a health care professional, I play a vital role in implementing proper hand hygiene strategies. In my role as a health care practitioner, I have a strong sense of empathy toward those working in the frontline of clinical care. I reflected on the current situation of these health care providers, and I questioned the safety of working in an environment that did not have a strong control over their infection control protocols. The COVID-19 pandemic has demonstrated that health care workers are willing to place themselves in danger to help others. As a health care practitioner, I understand that in order to respect the sacrifices of these health care heroes, everyone must do everything they can to keep them safe.

As a scholar I reviewed literature describing attitudes and challenges in promoting good hand hygiene practices. Throughout this project, I investigated the impact of perceptions of infection prevention management on hand hygiene compliance in the nursing home environment using a mixed-methods approach. I provided multiple perspectives on infection control, a collection of survey data from nurses on their

knowledge of hand hygiene, behavior, and compliance. I held discussions with the facility leaders about their perceptions of organizational influence on infection control.

The data that I collected described the different perspectives related to knowledge, behavior, compliance, and role modeling. By analyzing the views from management and health care staff, we were able to identify parallels and differences related to the topic of hand hygiene. I demonstrated strong mastery over that subject matter, which created sense of trust between myself and the facility leaders. The time spent working on this project has taught me that to be an effective influential scholar, I must be willing to dedicate time to learn the various details of the subject matter.

Project management also involves managing teams, motivating team members, managing stakeholder expectations, and communicating ongoing project status. As a project manager, I demonstrated that I can be an effective leader with the ability to initiate, design, plan, execute, monitor, and complete projects. I firmly understood my role in modeling the best infection control behaviors and ensuring that other leaders within the facility modeled similar behavior.

Furthermore, I became more aware of the strength of my influence as I became more of an expert on the subject matter. As I grew in my knowledge and demonstrated my thoughts with the leadership team, I was solicited to consult on various issues related to infection control. This demonstrated to me that I had become an effective resource for the organization. As trusted source for the facility, I was effective in leading small work groups with the identified stakeholders. Through these groups discussion I was able to design an effective education program that was tailored to the healthcare workers of the

facility. Though there were many successes, there were also difficult moments in which I needed to learn how to become more mentally resilient to overcome.

Challenges and Solutions

Education, motivation, and system change are essential components of behavioral change. The organization's willingness to promote hand hygiene and maintain a high level of proper compliance at the individual or facility level remains a challenge.

Awareness of hand hygiene as an institutional priority, sanctions for noncompliance, and the climate in institutions to encourage safety are additional barriers to compliance.

Health care workers may need to implement changes to their system to improve hand hygiene. According to one study, the absence of scientific information regarding the effect of hand hygiene on infection rates in hospitals could be a barrier to the implementation of recommendations (WHO, 2009). More than a century has passed since hospitals have recognized that infections are a severe problem affecting the patient quality of care. At least a third of all hospital infections can be prevented, according to studies (WHO, 2009). A significant proportion of infections are caused by cross-contamination, and exposure to micro-organisms from health care workers is known as the most common form of transmission.

As health care workers enter and leave the profession, it remains essential that ongoing conversations are held with these professionals to better understand their daily experiences. Hand hygiene is one of the most effective methods of preventing the spread of disease. The factors that vary are the barriers that some health care workers face in accomplishing the task. Rather than provide an education manual to an individual, it is

important have a discussion that allows better insight of the various factors that may be missing when action plans are created to resolve the issues surrounding hand hygiene noncompliance.

Summary

Scholars and professionals have demonstrated the importance of hand hygiene practices and protocols compliance since the 19th century, which will help reduce infections and, consequently, morbidity and mortality rates. But without adequate training, system changes will not be accompanied by behavioral changes that will lead to a sustainable improvement in hand hygiene and the use of alcohol-based hand rubs compliance process. Improving infection control practices consists of interventions that must support individual and group creativity, a continuous assessment of the stage of social change, and intervening appropriately. Typically, single interventions fail due to the complexity of the process of change. Increased awareness through education allows individuals to adapt their interventions to resolve a problem that will always be an everchanging challenge.

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Appendix A: Hand Hygiene Questionnaire

Q1 If you participated in hand hygiene training within the last three years, how effective do you believe the training was in improving hand hygiene compliance within your area?

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
 - Have not participated in any training in the past 3 years.
-

Q2 How effective do you believe hand sanitizers are against germs when compared to hand washing with soap and water?

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q3 How effective do you believe hand sanitizers are in preventing the spread of microorganisms?

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q4 How effective do you believe hand washing with soap and water is in preventing the spread of microorganisms?

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q5 How effective would the following actions be to improve hand hygiene permanently in your institution? Leaders and senior managers at your institution support and openly promote hand hygiene.

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q6 How effective would the following actions be to improve hand hygiene permanently in your institution? The health-care facility makes alcohol-based hand sanitizers always available at each point of care.

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q7 How effective would the following actions be to improve hand hygiene permanently in your institution? Hand hygiene posters are displayed at point of care as reminders.

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q8 How effective would the following actions be to improve hand hygiene permanently in your institution? Each health-care worker receives education on hand hygiene.

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q9 How effective would the following actions be to improve hand hygiene permanently in your institution? Clear and simple instructions for hand hygiene are made visible for every health-care worker.

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q10 How effective would the following actions be to improve hand hygiene permanently in your institution? Health-care workers regularly receive feedback on their hand hygiene performance.

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q11 How effective would the following actions be to improve hand hygiene permanently in your institution? You always perform hand hygiene as recommended (being a good example for your colleagues).

- Extremely effective
 - Very effective
 - Moderately effective
 - Slightly effective
 - Not effective at all
-

Q12 How effective would the following actions be to improve hand hygiene permanently in your institution? Patients are invited to remind health-care workers to perform hand hygiene.

- Extremely effective
- Very effective
- Moderately effective
- Slightly effective
- Not effective at all

Appendix B: Hand Hygiene Expert Panel Feedback on Questionnaire

Q1 The training goals and objectives clearly stated before you started the course.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q2 The content was in-depth enough.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q3 The quality of the content consistent throughout the course.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q4 The course's title and description easy to comprehend.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q5 The types of assessments used were appropriate.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q6 You felt equally engaged in each course section.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q7 There were external distractions while taking the course.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q8 There were noticeable delays in the delivery of the content.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q9 The course's content was too challenging for an average learner to understand.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q10 The trainer was effective at communicating the course content.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q11 The trainer displayed expertise in the subject matter.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q12 The training met your expectations.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q13 The overall learning goals were achieved.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q14 I would recommend this course to a colleague.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

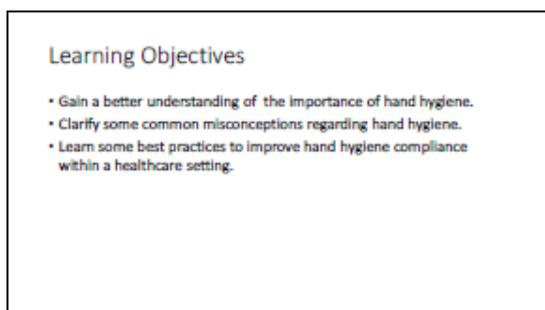
Appendix C: Hand Hygiene Staff Education



1



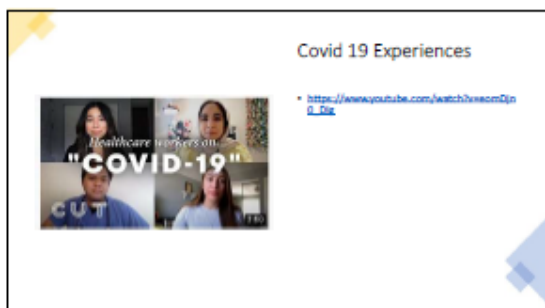
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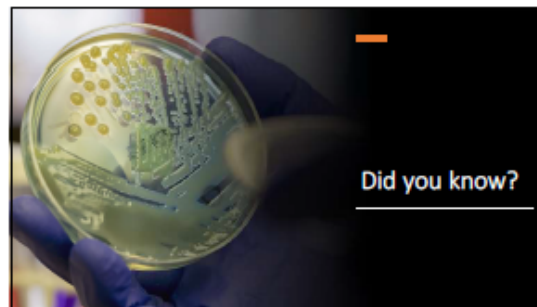
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6



7



8

Do I really need to wash my hands for 20 seconds?

Scientific studies show that you need to scrub for 20 seconds to remove harmful germs and chemicals from your hands. If you wash for a shorter time, you will not remove as many germs (CDC, 2020).

9

Is antibacterial soap better than plain soap?

Use plain soap and water to wash your hands. Studies have not found any added health benefit from using antibacterial soap, other than for professionals in healthcare settings (CDC, 2020).

10

What if I have water but no soap to wash my hands?

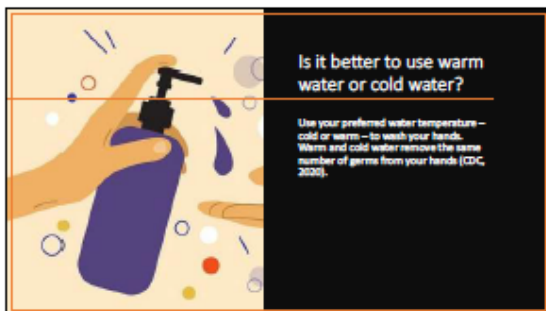
If you don't have soap and water, use a hand sanitizer with at least 60% alcohol. If you don't have hand sanitizer or soap, but do have water, rub your hands together under the water and dry them with a clean towel or air dry. Rubbing your hands under water will rinse some germs from your hands, even though it's not as effective as washing with soap (CDC, 2020).

11

Which is better, hand sanitizer or handwashing?

Washing hands with soap and water is the best way to remove all types of germs and chemicals. If soap and water are not available, use an alcohol-based hand sanitizer with at least 60% alcohol (CDC, 2020).

12



13



14



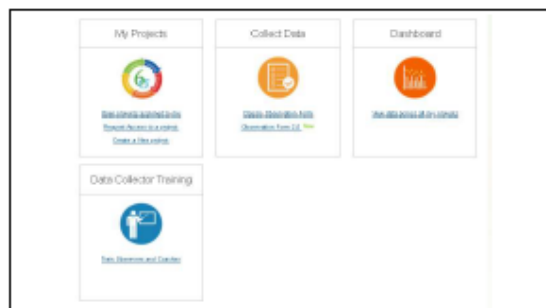
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17



18

	HH data collector (observer)	Just-in-time coach
Purpose	To be an unbiased observer for hand hygiene compliance	To collect data, interview, and coach staff when hand hygiene non-compliance is observed
Data Collected	Hand hygiene compliance data is used for establishing the baseline Hand Hygiene performance "Secret shoppers" acceptance observes collected data on physical barriers of non-compliance without influencing the observed behavior	Data collection will begin after the baseline data has been collected and the compliance data shared with staff JIT coaches capture non-observable cultural barriers by interviewing health care providers after an observed instance of non-compliance
Who	Examples include housekeeping, lab staff, chaplains, volunteers	Examples include unit managers, charge nurses, infection-control practitioners, executive leadership, and quality coaches or unit-based educators

19

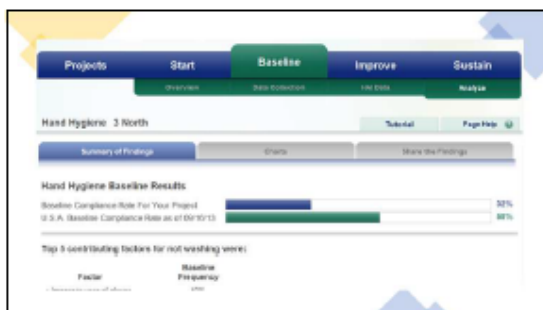
Hand Hygiene Compliance Data Table

Date	Time	Location	Compliance
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10/1/2013	08:30	ICU	90%
10/1/2013	09:00	ICU	92%
10/1/2013	09:30	ICU	88%
10/1/2013	10:00	ICU	91%
10/1/2013	10:30	ICU	89%
10/1/2013	11:00	ICU	93%
10/1/2013	11:30	ICU	90%
10/1/2013	12:00	ICU	87%
10/1/2013	12:30	ICU	94%
10/1/2013	13:00	ICU	91%
10/1/2013	13:30	ICU	89%
10/1/2013	14:00	ICU	92%
10/1/2013	14:30	ICU	90%
10/1/2013	15:00	ICU	88%
10/1/2013	15:30	ICU	91%
10/1/2013	16:00	ICU	89%
10/1/2013	16:30	ICU	93%
10/1/2013	17:00	ICU	90%
10/1/2013	17:30	ICU	88%
10/1/2013	18:00	ICU	91%
10/1/2013	18:30	ICU	89%
10/1/2013	19:00	ICU	92%
10/1/2013	19:30	ICU	90%
10/1/2013	20:00	ICU	88%
10/1/2013	20:30	ICU	91%
10/1/2013	21:00	ICU	89%
10/1/2013	21:30	ICU	93%
10/1/2013	22:00	ICU	90%
10/1/2013	22:30	ICU	88%
10/1/2013	23:00	ICU	91%
10/1/2013	23:30	ICU	89%
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10/2/2013	18:30	ICU	88%
10/2/2013	19:00	ICU	91%
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10/2/2013	20:00	ICU	93%
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10/3/2013	20:30	ICU	90%
10/3/2013	21:00	ICU	88%
10/3/2013	21:30	ICU	91%
10/3/2013	22:00	ICU	89%
10/3/2013	22:30	ICU	92%
10/3/2013	23:00	ICU	90%
10/3/2013	23:30	ICU	88%

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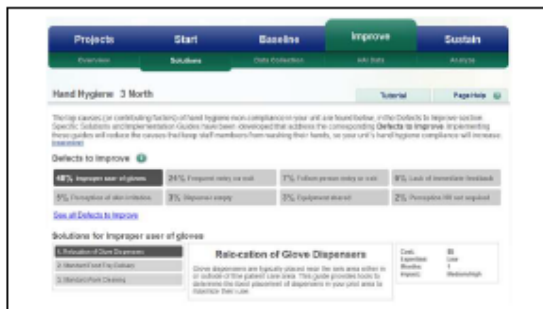
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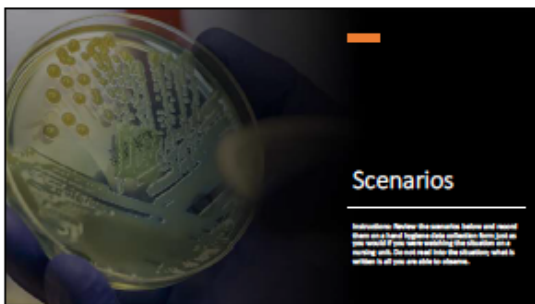
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Project Charter	
Project Context or Quality of Sign Factors	Project Management Factors
<p>Project Context or Quality of Sign Factors</p> <p>Project Description: (What is the project?)</p> <p>Project Purpose: (Why is this for the benefit of the organization?)</p> <p>Project Objectives: (What are the project's goals?)</p> <p>Project Risks: (What are the project's risks?)</p> <p>Project Stakeholders: (Who are the project's stakeholders?)</p> <p>Project Resources: (What resources are needed?)</p> <p>Project Constraints: (What are the project's constraints?)</p> <p>Project Deliverables: (What are the project's deliverables?)</p> <p>Project Milestones: (What are the project's milestones?)</p> <p>Project Budget: (What is the project's budget?)</p> <p>Project Timeline: (What is the project's timeline?)</p>	<p>Project Management Factors</p> <p>Project Manager: (Who is the project manager?)</p> <p>Project Sponsor: (Who is the project sponsor?)</p> <p>Project Steering Committee: (Who is the project steering committee?)</p> <p>Project Team: (Who is the project team?)</p> <p>Project Communication: (How is the project communicated?)</p> <p>Project Reporting: (How is the project reported?)</p> <p>Project Monitoring: (How is the project monitored?)</p> <p>Project Control: (How is the project controlled?)</p> <p>Project Closure: (How is the project closed?)</p>

26



27

Scenario 3

A nurse prepares to enter an isolation room by putting on a gown and gloves. She then enters the patient room.

- Wash on entry
- Wash on exit
- No wash on entry
- No wash on exit
- Unable to determine

28

Scenario 3

A nurse prepares to enter an isolation room by putting on a gown and gloves. She then enters the patient room.

- Wash on entry
- Wash on exit**
- No wash on entry
- No wash on exit
- Unable to determine

29

Scenario 4

A code blue is called. These health care workers run into the patient room without washing their hands to stabilize the patient.

- Wash on entry
- Wash on exit
- No wash on entry
- No wash on exit
- Would not monitor in an emergency situation

30

Scenario 4

A code blue is called. Three health care workers run into the patient room without washing their hands to stabilize the patient.

- Wash on entry
- Wash on exit
- No wash on entry
- No wash on exit
- Would not monitor in an emergency situation**

31

Scenario 5

A physical therapist enters a patient room without washing her hands. She asks the patient several questions while reading her hands on the bedrail. She exits the room without washing her hands.

- Wash on entry and exit
- No wash on entry or exit
- No wash on entry but wash on exit
- Wash on entry but no wash on exit
- Unable to determine

32

Scenario 5

A physical therapist enters a patient room without washing her hands. She asks the patient several questions while reading her hands on the bedrail. She exits the room without washing her hands.

- Wash on entry and exit
- No wash on entry or exit**
- No wash on entry but wash on exit
- Wash on entry but no wash on exit
- Unable to determine

33



Just-in-Time Coaching

Instructions: Review the scenario, below and record items on a hand hygiene data collection form just as you would if you were coaching the situation and a writing unit. Do not read into the situation, what is written is all you are able to observe.

34

Just-in-Time Coaching

Replay: recall and tell in group or self work

- Hello, my name is [X] and my challenge records for just one moment? (If the answer is "no" then observe the request and follow up with the proper patient answer.) This may not be aware that this unit is involved in a project with The Joint Commission to improve hand hygiene and ultimately patient safety. I noticed that while you washed hands on the way out of the room, did not see anyone washing hands when you entered the room. Please help me understand why hand hygiene would be performed at room exit and not at room entry? [Wait for response] Thank you for taking the time to speak with me, I would be interested in hearing any other barriers to hand hygiene this group finds. [Wait for response.] Thank you again.
- Do [X], I noticed that you did not wash your hands just now as you were entering the room (patient care area). In an effort to improve patient safety, this unit is a part of a hand hygiene project with The Joint Commission. My role in this project is to understand the barriers to hand washing, so I like to ask you a couple of questions. What do you think prevented you from washing your hands? What are the barriers that prevent you from performing hand hygiene?


35

Just-in-Time Coaching

Dietary personnel: wearing gloves (some gloves in all patient rooms) to deliver patient food trays

- Hello, my name is [X] and this unit is part of a Joint Commission-sponsored hand hygiene project. As a part of this project I am questioning staff in order to understand the barriers to hand hygiene in the clinical setting. I noticed that you are wearing gloves while passing out food trays and that you're wearing the same gloves as you enter each patient room. Would you please explain why you're wearing gloves? [Wait for answer.] Did you know that using gloves is not necessary when delivering clean trays to patient rooms, but that washing your hands at room entry and exit is recommended? What barriers to hand washing do you face when delivering food trays?

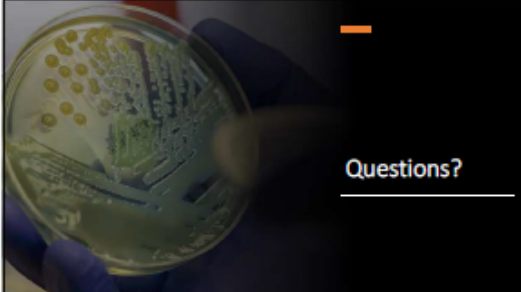
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Conclusion

- Get Started
- Build your team
- Define your hand hygiene compliance expectations
- Train observers and staff
- Collection data
- Analyse the baseline data
- Develop targeted solutions
- Sustain the gains

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Questions?

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