Reducing the Risk of Clostridium Difficile Hospital-Wide

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Abstract

As our national healthcare system moves towards an increasing emphasis on preventative and primary treatment, it increases the need for more evidence-based strategies to reduce the number of hospital-acquired infections to improve patient care and reduce facility costs. *Clostridium difficile* infection (CDI) has become the leading cause of infectious health-care onset diarrhea in adult inpatients (Echaiz, Veras, Zervos, Dubberke & Jonson, 2014). Statistics show 13 out of every 1,000 patients develop or are colonized with CDI, which most commonly presents as a gastrointestinal infection that can range in severity from mild diarrhea to intestinal perforation with eventual shock and/or death (Greater New York Hospital Association, 2011). The proposed patient safety program is to implement contact precautions and proper personal protective equipment (PPE) in all suspected and confirmed cases of CDI in Oceanside Community Hospital. The goal of this implementation project is to reduce the risk of health-care associated infections, specifically CDI, hospital wide by 50% within one year.

Reducing the Risk of Clostridium Difficile Hospital-Wide

As our national healthcare system moves towards an increasing emphasis on preventative and primary treatment, it increases the need for more evidence-based strategies to reduce the number of hospital-acquired infections to improve patient care and reduce facility costs. Patients continue to acquire health care–associated infections at an alarming rate (The Joint Commission, 2015). According to the Centers for Disease Control (CDC) (2011), "one of every 10-20 hospitalized patients in the United States develops a hospital-acquired infection (HAI)" (p. 7). *Clostridium difficile* infection (CDI) has become the leading cause of infectious health-care onset diarrhea in adult inpatients (Echaiz, Veras, Zervos, Dubberke & Jonson, 2014). Statistics show 13 out of every 1,000 patients develop or are colonized with CDI, which most commonly presents as a gastrointestinal infection that can range in severity from mild diarrhea to intestinal perforation with eventual shock and/or death (Greater New York Hospital Association, 2011).

In the last several years, there has been an increase in morbidity and mortality associated with CDI (Walter & Zuckerman, 2014). *C. difficile* is a gram positive bacterium that produces toxins when infection occurs (Nazarko, 2015). CDI can cause diarrhea or life-threatening colitis. The bacteria can produce spores that can survive on surfaces for weeks or months (Mayo Clinic, 2013). *C. difficile* spores can withstand routine cleaning products that do not contain bleach. There is a potential for person to person transmission with the *C. difficile organism*. Transmission of the organism can be passed between patients if health care staff do not use proper precautions (Echaiz et al., 2014). Hand hygiene, contact precautions, as well as cleaning and disinfecting patient care equipment are essential strategies for preventing the spread of health care–associated CDI (The Joint Commission, 2015). Prevention and control strategies must be customized to the specific needs of each hospital based on its risk assessment.

Implementing evidence-based interventions and increasing public awareness can decrease the incidence of CDI.

Patient Safety Program

A critically important National Patient Safety Goal identified by The Joint Commission is to reduce the risk of health care-associated infections (The Joint Commission, 2015). Specific goal 07.03.01 is to "Implement evidence-based practices to prevent health care–associated infections due to multidrug-resistant organisms in acute care hospitals" (The Joint Commission, 2015, p. 8). The proposed patient safety program is to implement contact precautions and proper personal protective equipment (PPE) in all suspected and confirmed cases of CDI in Oceanside Community Hospital. The goal of this implementation project is to reduce the risk of health-care associated infections, specifically CDI, hospital wide by 50% within one year.

Change is never easy, but it is essential in order to stay up to date with the best current practices. First, it is important to fully assess the relevancy of the change to be implemented and analyze whether it is a legitimate change. Also, it is important to assess the availability of resources, any environmental pressures, support from all involved parties, and the complexity of the change (Viens, Lavoie-Tremblay, Leclerc, & Brabant, 2005). Implementing specific CDI protocol in Oceanside Community Hospital is a legitimate change because it not only improves patient and employee safety but it also reduces overall facility costs.

Literature Review

According to Echaiz, Veras, Zervos, Dubberke, and Johnson (2014), CDI has been known for its high transmission rate. This article looks at the spread of CDI within the hospital setting among patients who share the same room (Echaiz et al., 2014). Two main sources of contracting CDI are: a contaminated environment, and healthcare workers failing to wash their

hands thus spreading it through contact. The study performed by Echaiz and associates (2014) determined that there was a correlation among patients who had roommates with CDI and development of the infection. This article further supports the need for personal protective equipment, hand hygiene, and proper cleaning techniques with CDI, to prevent the spread of this organism.

As stated by Walters and Zuckerbraun (2014), CDI has increased in morbidity and mortality due to its increasing resistance to treatment. Prevention and management of CDI consists of: early detection of CDI, proper contact isolation precautions (including: face shield, gown, gloves, bleach wipes, and more), thorough sanitization policies, and the correct use of antibiotics. CDI can range in severity of mild diarrhea to sepsis and even death (Walters & Zuckerbraun, 2014). Since 2001, there has been a steady decrease in nosocomial infections, except for CDI, in which there has been an increase. The major risk factor to CDI is a recent (within the last 3 months) administration of antibiotics. Antibiotics change the normal flora within the intestinal tract making it easier for organisms like *C. difficile* to grow out of control. There are many clinical manifestations of CDI, including: no symptoms, abdominal pain, diarrhea, abdominal distention, high white blood cell count, hypotension, altered mental status, foul odor, and more (Walter & Zuckerbraun, 2014). A positive diagnosis of CDI should be completed with a stool sample. Controlling the infection and spread is very important for the healthcare setting, as CDI can be transmitted directly and indirectly. As stated by Walters and Zuckerbraun (2014), “Spores can exist for years on surfaces, leading to transmission throughout the health care environment” (p. 29). Hand hygiene is vitally important to stop the spread of CDI. A multidisciplinary approach is needed to reduce the morbidity, mortality, and financial burden for patients and healthcare.

There are various tests used to detect CDI, and determine if the strain that is present produces toxin (American Association of Clinical Chemistry, 2015). The tests vary in sensitivity and amount of time needed (some tests take days to yield results, while others yield results within several hours). The Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA) have proposed a two-step testing process. The two-step process includes:

- Perform an initial screen on stool samples using a test for a *C. difficile* antigen called glutamate dehydrogenase (GDH). This test detects an antigen that is produced in high amounts by *C. difficile*, both toxin and non-toxin producing strains. It is considered to be very sensitive, but it is not very specific for toxin-producing *C. difficile*. This test indicates if *C. difficile* is present but not if the bacteria are producing toxins.
- Follow up positive screening results with either of the following for confirmation and to detect the presence of toxins:
    - Cell cytotoxicity test is a tissue culture to detect the *C. difficile* toxin. It is a test that looks for the effects of the cytotoxin (cytotoxicity) on human cells grown in culture. It is a more sensitive method to detect toxin, but it requires 24 to 48 hours to get the test result.
    - Toxigenic stool culture is still considered the gold standard but it can take 2 to 3 days for results and it cannot distinguish between *C. difficile* colonization and overgrowth/infection; therefore, further testing must be performed.
    - Polymerase chain reaction (PCR) assays are very rapid and sensitive but costly.

The Greater New York Health Association (GNYHA) and the United Hospital Fund (UHF), in collaboration with the New York State Department of Health (DOH), launched the *C.*

difficile Collaborative in March 2008, with the primary goal to reduce hospital-associated CDI in hospitals within the greater New York region. The toolkit includes the rationale for hospitals to address CDI; preliminary steps healthcare institutions are recommended to undertake in order to launch a comprehensive CDI reduction program; data collection strategies and tools; tactical methods to sustain CDI reduction efforts; and various resources located in the appendices.

Strategic Planning

According to Simpson and Doig (2007), "the most effective and robust way to achieve knowledge translation is to use a multifaceted change strategy composed of as many specific practice change interventions as possible" (p. 2). A study was conducted to evaluate the optimal combination of practice change interventions needed to overcome barriers to practice change (Simpson & Doig, 2007). Two healthcare personnel from each of the 14 hospitals were recruited to participate in a two-day guideline development conference to train them to use the components of a multifaceted change strategy to implement evidence-based practice guidelines. The various strategies implemented include: interactive lecture-style in-services; academic detailing which addresses non-compliant staff members and provides them with more information to try to change their behaviors; peer-nominated influential opinion leaders to help educate others; unit managers using active reminders to assess whether the protocol is being followed; timely audits and feedback to assess patient outcomes and evaluate the effectiveness of the protocol; passive reminders such as brightly colored signs posted around the nurses' station and other areas of the facility to remind all personnel of the protocol; and employee surveys to evaluate the staff's opinions of the protocol.

Oceanside Community Hospital

This is a twenty bed hospital, employed with forty-five registered nurses. The mission statement of Oceanside Community Hospital is to improve the health and well-being of those we serve by providing quality health care services. Our vision is "Extraordinary People. Excellent Care. Every Time." To depict the values our hospital stands for, a pneumonic is used:

- **H**olistic Care
- **E**vidence-Based Practice
- **A**ccountability
- **L**oyalty
- **T**eamwork
- **H**umility

The philosophy at Oceanside Community Hospital states**, "**Our hospital is committed to providing quality, holistic care for our patients in a safe environment. We strive to provide for our patients' needs across the healthcare continuum by continually improving our care through professional growth and development."

Organizational Resources

Implementing a change project with this goal in mind requires many organizational resources to be successful. Oceanside Community Hospital has to have an adequate budget with the capability of setting aside a specific amount needed to carry out the change project. An adequate budget is crucial to be able to provide staff with the proper PPE, teaching and in-service materials, patient and staff surveys, and various other resources used to effectively implement the CDI protocol.

Second, a CDI prevention team will need to be created to develop, implement, manage, and evaluate the compliance and effectiveness of the protocol (GNYHA, 2011). The prevention team should consist of a variety of disciplines (infection control, physicians, nursing staff,

laboratory, housekeeping, maintenance, etc.) throughout the facility to increase communication and collaboration facility wide. According to the Greater New York Hospital Association (2011), "a crucial component to the success and sustainability of any process change is senior leadership involvement and support" (p. 7). It is crucial that hospital administration, medical directors, and nursing leadership make reducing CDI a priority in order for the protocol to succeed.

The third organizational resource crucial for the success of the change project is a CDI assessment tool. The facility needs to be able to test our patients for the infection in a quick and timely manner that will yield correct results to adequately track the incidence rate. There are a variety of testing tools available to assess patients for the CDI, including a stool culture, antigen detection assays, toxin testing, and polymerase chain reaction (PCR) (GNYHA, 2011). All four of them have various advantages and disadvantages. The stool culture delivers the results in 48-96 hours and it has a high sensitivity, but it is also labor intensive, has the highest false positive rate, and special equipment is needed. The antigen detection assays take less than 60 minutes and they are simple to perform but they have to be verified with a toxin test. The toxin testing takes less than 24 hours to yield results and it can test for both toxin A and B, however, it is less sensitive than a stool culture test. The PCR test takes less than 2 hours to yield results and it has a high sensitivity but it is costly. According to the American Association of Clinical Chemistry (2015):

> The Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America have proposed a two-step testing process including an initial screen on stool samples using a test for a C. *difficile* antigen called glutamate dehydrogenase. The test delivers results in less than 60 minutes and it indicates if C.

> difficile is present but not if the bacteria are producing toxins. If there is a positive stool sample, the follow-up test is the cell cytotoxicity test which is a tissue culture to detect the C. *difficile* toxin. It takes up to 24 hours to yield results but it is a more sensitive method to detect the toxin ('How is it used' section, para. 2).

The fourth organizational resource includes the implementation of a CDI prevention bundle. The first component is initiating contact precautions immediately for any patient presenting with diarrhea (GNYHA, 2011). It is vital for a good patient assessment by nursing staff and physicians to implement the precautions and order laboratory tests. A standard component for all patient contact is proper hand hygiene which should be enforced for everyone. A second component is to have the necessary PPE equipment readily available in carts to be put directly outside the patient's rooms. A guide should be readily accessible on the carts to show the correct way to don and doff the PPE. A third component is placing the patients with possible CDI in a private room. If this is not possible, proper assessment as to whether patients can cohort together will be necessary. Finally, contact precaution signage must be immediately placed upon the patient's door when he or she are deemed to be at risk to warn all other individuals that they need to take special precautions before entering. The sign should have "STOP" written in large and bold print on the top with information to check in at the nurses' station before entering the patient's room. Other information on the sign should include wearing a gown and gloves at all times; washing hands with soap and water; and cleaning all surfaces with bleach products.

The fifth organizational resource necessary for the success of the change project is adequate teaching and in-services. All staff must have the knowledge to know why the change is being implemented and the importance of the change. The in-services must include a brief

overview of what *C. difficile* is, how it is spread, and the implications for the patient and facility. It will also include what the various steps are in the protocol relating to CDI, and what each member of the healthcare team is responsible for relating to proper signage, proper PPE (and how to wear it properly), cleaning the patient's rooms, etc. It is important to seek feedback from the employees to promote buy-in and success of the protocol. According to Viens et al., (2005), "managers in charge are often the most important people on the work team because they play an essential role in the culture of the organization and directly influence the behavior of their subordinates" (p. 7).

Legal/Ethical

Cleaning supplies need to be readily available to staff in order to prevent the spread of Clostridium difficile (C. diff) infection. Staff members of the healthcare facility need to be adequately trained on how to use cleaning supplies and standards of practice need to be followed at all times.

Stakeholders and Buy-In

There are a multitude of important groups of people to include in the development and implementation of this patient safety program. Patients, hospital staff including multiple individuals from each health discipline, and hospital administration, are some of the essential stakeholders who must be included in this project. Patients should be included because they have the most direct input about the care they receive and they should be informed about why proper PPE is needed to prevent the spread of CDI. Hospital staff should be included in the development of the program and will have a say in the policy and procedure because the staff must care enough about the program and the safety goal to want to change. In addition, the hospital staff members are going to be the ones implementing the program so it is essential that

they are committed to change. Hospital administration must be included because they will be the ones approving and critiquing the budget. They are also the ones that will have the final say in whether the patient safety program gets approved for implementation.

When a change is introduced, there will essentially be people that oppose the change and are resistant to modifying their actions. It is necessary to combat this resistance by encouraging the staff to accept the change. Staff must first understand the goals of the program and the benefits it poses to the patients. Resistance to change can occur due to a number of different reasons. Some staff members are content with the way things are. They believe that change is unnecessary and it will not improve the situation (Sullivan, 2013). Other common reasons why staff members resist change include: fear of failure; fear of the unknown; and misunderstanding of the purpose of change (Sullivan, 2013).

To promote buy-in, involving the entire staff is important for acceptance of the change (Sullivan, 2013). The patient safety goal and program timeline will be presented at a mandatory staff meeting to ensure the same information is delivered to all staff members. This provides an opportunity for staff members to voice suggestions, state concerns, and have questions addressed. During the meeting, the program task force members will specifically address how this program will benefit not only the patients, but staff members and the organization as a whole. If there are staff members resistant to change, it is essential for the task force to get the individual's opinions, correct any misinformation they may have, provide accurate facts that eliminate misconceptions, keep an open mind to suggestions, and maintain an environment of trust in order to instill confidence in the staff (Sullivan, 2013).

Decision-Making Processes

In order for decisions to be made in the facility, a strong group of change agents is needed to bring about a change and to motivate all other employees. In Havelock's change theory model (1973), he describes a six-step process to change which involves building a relationship, diagnosing the problem, acquiring the resources, choosing the solution, gaining acceptance or buy-in, and stabilization/self-renewal (Sullivan, 2013). The change agent must use a participative approach which is appropriate because all employees need to be on board for the CDI protocol to succeed. The multidisciplinary CDI prevention team will be the leaders of the change project, but it takes everyone on board to make it successful, especially the senior administrators. After the protocol has been implemented, frequent follow-up with employee surveys will be conducted to initiate active participation and feedback with the new protocol. If there are comments or concerns related to changing the protocol, the concerns will be heard and taken into account. Also, unit managers and the heads of each department will participate in environmental surveys to assess whether the protocol is being followed correctly.

Implementing Change

Change agent is defined by Sullivan (2013) as someone who, "works to bring about change" (p. 340). The primary change agents are the nurses because they are the professionals most involved in direct patient care and are highly educated on preventing the spread of infection. Sullivan (2013) identifies several characteristics associated with a successful change agent all of which nurses possess, including human relation skills, trustworthiness, ability to handle resistance, and ability to energize others and keep interest levels up. Although nurses are the change agent, the task force must include other healthcare professionals such as physicians

and unlicensed assistive personnel, as well as clients in order to reduce healthcare associated infections. Everyone must be involved for program success.

There are several driving and resisting forces that must be addressed for success of the project. Driving forces facilitate change because they push participants in the desired direction (Sullivan, 2013). Conversely, resisting forces push participants in opposite directions. In the project, the driving forces include higher patient satisfaction, reduce infections, lowering unnecessary healthcare costs, and better reputation of facility resulting in potential salary increase for hospital employees. Resisting forces include: increased supervision, the charge nurse's lack of change agent skills, fear of job loss if unable to live up to implemented changes, workload increase, lack of knowledge regarding personal protective equipment, and increased workplace tension related to change in job responsibility.

Change is always difficult for individuals to accept but necessary to improve patient care outcomes and organizational goals. Conflicts that could result from program implementation include lack of trust, vested interest in status quo, fear of failure, loss of status income, misunderstanding, belief that change is unnecessary, laziness, and the belief that change will not improve the situation. Some strategies identified by Sullivan (2013) to manage potential resistance include investigate the reasons opposition to change, provide information clarification, welcome suggestions from others but remain clear about what must remain to achieve program outcome, educate personnel about consequences of resistance, emphasize positive consequences and potential benefit for individuals, have supporters influence the resistors, and most importantly, the change agent must maintain a trusting relationship with staff members.

Additional conflicts include those existing between staff members. These could include employees that resist change because they dislike or disapprove of the person implementing the

change. Another potential conflict includes increased conflict between staff members from various hierarchies correcting other's behaviors for example a nurse telling a physician to put on a gown when entering a patient room. Conflict can also arise from peers correcting other peer behavior. Strategies to reduce staff member conflict include proper communication techniques and education for all staff members on reasonability to voice concerns when improper techniques are notice.

The nurse manager will play an important leadership role when implementing the change project. The responsibilities of the nurse manager may include communicating openly and honestly with those that resist change, understanding the resistance to change, and maintaining support and confidence in staff. The nurse manager must also ensure employees are aware of the positive outcomes and find solutions to problems that may arise.

In order to implement the program, a set hierarchy for change must be established. The primary individual responsible for the program and policy is the department manager. The individuals responsible for implementation are the first level nurses including nurse managers, charge nurses, and staff nurses. Monitoring program success would include tracking the number of individuals who acquire CDI while staying in the hospital. All healthcare professionals should be involved with communication by following the chain of command when reporting issues or incidents.

Chain of Command

According to GNYHA (2011), preventing the incidence of CDI requires a multidisciplinary team with ongoing communication for hospital wide collaboration. The team would be responsible for developing, implementing and managing the CDI prevention strategy.

Disciplines included are: infection control, representatives from physicians, nurses, housekeeping, laboratory, maintenance, and quality improvement.

When a patient is being transferred from a department with a known case of CDI, the patient's current nurse will call the charge nurse of the floor the patient is being transferred to, to report the case of CDI. The charge nurse will then report the case of CDI to the nurse manager, the nurse, housekeeping, the nursing assistants and the ward secretary. These five areas have their role defined in the staffing assignment.

When a patient is experiencing signs and symptoms of CDI, the nurse will contact the physician for an order to obtain a stool sample and send to the laboratory for testing. If the specimen is positive, the laboratory worker will call the patient's floor to report the findings to the charge nurse, and will document the finding in the patients chart. The charge nurse is now responsible for sharing the information to the other disciplines to start their roles. If the specimen is negative, the laboratory worker will document the results in the patient chart.

Staffing Assignments

To prevent the spread of CDI, many members of the hospital team are needed. The focus is on one medical surgical floor of the hospital, to give a description of the tasks team members who come in contact with fecal matter are expected to do to prevent the spread of CDI. The medical surgical floor is staffed with a nurse manager, a charge nurse, nurses, a ward secretary, nurses' aides and housekeeping. There are other staff who round on the floor: physicians, laboratory, dietary, laundry, respiratory, social workers, case managers, volunteers, and physical/occupational therapy.

A nurse manager has many roles involving the decreasing the spread of CDI. Along with influencing the staff on the changes, the nurse manager is to educate the staff on the policy

and procedure for a patient with CDI. The nurse manager will monitor the occurrence of patients with CDI and report the findings to the CDI prevention team and to staff. This will allow the staff to understand if the measures being taken are successful or unsuccessful.

The charge nurse is expected to direct the ward secretary to place a contact precaution cart and sign outside of the infected patient's room. When giving shift change assignments, the charge nurse will mention the CDI patient to all staff coming onto the shift. CDI patients will be assigned a private room or a room with another patient with CDI.

The ward secretary is to get a precaution cart from the equipment closet and put it in front of the patient's room. They will also stock the cart when necessary; put a sign on the outside of the door to remind others of contact precautions; and bring a stethoscope, bleach wipes, thermometers, and a linen bag into the room.

The staff nurse's first responsibility is to understand the disease process of CDI. If a patient is experiencing signs and symptoms of CDI, a staff nurse should call the provider for an order for a stool sample. Once the sample is collected it will be sent to lab to be tested. Staff nurses are to implement and remind staff of contact precautions for patients. It is also the nurse's duty to provide information to the patient's visitors about CDI and how to avoid infection. Staff nurses are to dress in PPE. The staff nurses' will not remove items from the room unless bagged or cleaned with bleach. After caring for the patient, staff nurses will wipe items in the patient room with bleach wipes. The staff nurses will wash their hands with soap and water after caring for the patient.

All nurse's assistants will don PPE whenever entering the room, this includes when assisting the patient, bringing in food, and restocking the room. When removing meal trays they will be bagged and brought to the dirty utilities room. Housekeepers will be trained to wear PPE

and will be trained to wash surfaces with bleach. During room turnover, adequate time will be taken to ensure the room is cleaned properly with bleach. Important places to clean include: beds, toilet seats, sinks, call buttons, bed rails, and telephones. All other staff that assist the patient should gown and glove before entering the patient's room. If removing equipment from the room it should be cleaned with bleach wipes or removed in a plastic bag.

Model of Nursing and Management Theory

The model of nursing that would support the change project within our facility would be shared leadership. According to Sullivan (2013) shared leadership relays on a well-educated, professional workforce comprised of many leaders of various levels in the organization that are responsible for goal outcomes. It focuses on teamwork versus individual leadership. Shared leadership allows for a shared governance model to be implemented within the organization. Shared governance is define by Sullivan (2013) as a nursing staff that is formally organized to make key decisions about clinical practice standards, quality assurance and improvement, staff development, professional development, and overall decision making. The shared leadership model allows for everyone's opinion to be considered and allows for achievement of a shared goal leading to greater success.

The management theory chosen to support this program is the team nursing theory. According to Sullivan (2013), "Team members provide patient care under the direction of the team leader. The team is lead by an RN and may include other RNs, licensed practical nurses (LPNs), and unlicensed assistive personnel (UAPs)." Team nursing supports a holistic patient centered care approach because everyone is involved in direct patient care. The benefit of this model of care is the involvement of all healthcare professionals from physicians to unlicensed assistive personnel. Team nursing theory supports our program by ensuring all members of the

healthcare team share responsibility for patient outcomes. Therefore, individuals are invested in the success of the program.

Policy and Procedure

1. For all patients with diarrhea, contact precautions will be implemented immediately.

Nursing actions to implement include:

- Follow contact precautions
- Place contact precaution signs and carts outside patient rooms
- Patient assessment
- Notify healthcare provider
- Notify Infection Control

2. Hand hygiene

- Use soap and water to prevent spread of CDI
- Follow facility's hand hygiene policy

3. Personal Protective Equipment (PPE) & Cleaning Supplies

- All units will have PPE available including gowns and gloves
- Wear gowns and gloves at all times
- Clean all surfaces and equipment with bleach products

4. Patient Placement

- Preferred option: Private room
- Second option: If no private room available, cohort with another patient with CDI

5. CDI Prevention Bundle Tool (Appendix A)

This tool allows the hospital to track patient data to determine the number of patients affected by CDI. This tool includes patient name and medical record number as well as components nursing staff are required to follow.

Budgetary Implications

Although, the implementation of this patient safety program hospital wide would initially consist of a large increase in budget expenses, in the years to come the hospital would end up saving a significant amount of money based on preventing the spread of infection from patient to patient. Evidence shows if a patient contracts CDI the resulting cost to the hospital is an additional $3,669 per patient, which is 54% greater than the cost without the infection (Kemmerly & Reed, 2009). Additional staff salaries that must be included in the budget for the implementation of this project include staffing for a task force, with which 50% of their time would be spent on the implementation of the change project; and a staff member/s that will be in charge of presenting the two hour in-services to the rest of the staff members. An average hourly wage for an RN in California is $43/hour (Bureau of Labor Statistics, 2011). Based on a 72 hour work week, with 50% of their time towards the budget, an additional $18,576 per RN on the task force would need to be accounted for. The majority of the budgetary costs would initially comprise of staff salaries for the task force, equipment and supplies would take over in the long run. The supplies needed for an isolation cart specific for contact precautions for CDI would include gloves, gowns, face shields, disinfecting products such as bleach, disposable thermometers, isolation carts, and isolation stethoscopes. The cost of one isolation cart worth of supplies would be approximately $600 (Colonial Medical Assisted Devices, 2015; Grainger.com, 2015; GloveAmerica.com, 2012; Emergency Medical Products Inc., 2015; Personal Touch

Health Care Apparel, 2015). The following is a breakdown of what would be needed for each isolation cart and the specific costs for these items.

Gloves - $20 (4 boxes)

Stethoscope - $6

Gowns - $240 (24 gowns)

Thermometer - $14 (100)

Face shields – $29 (50)

Bleach – $4 (64 oz. bottle)

Isolation cart - $286

If one cart for a CDI isolation patient costs $600, and the additional staff expense for the task force during the first year initially costs the hospital a significant amount of money, some hospital administrators may not see the benefit; but the hospital would actually be saving money long term. If it costs the hospital $3,669 per patient (the additional cost of one CDI infection), and the hospital sees 1,000 patients per year, and based on the statistics above 13 of them develop a CDI, that would cost the hospital $47, 697 per year or more. Because the training and task force budgetary implications only apply during the first year, the only expenses for each additional year would be less than $350 for each CDI patient for the PPE and supplies because the isolation carts can be reused. Therefore the comparison is the hospital spends $350 to prevent the spread of infection, and saves $3,669 per infection prevented.

Timeframe

Oceanside Community Hospital would initially identify a task force comprised of hospital staff and administration personnel. This group of people would be the ones dedicating time to the development and implementation of this patient safety program. During the first

month, the task force will identify a leader, begin planning a budget, and talk to hospital staff to prepare them for upcoming change, and gather opinions and data. During month three, the task force will have finalized the budget, begun to gather and purchase supplies necessary for implementation, and hold in-service meetings to educate staff about the patient safety program. During month six the program will be fully implemented throughout the hospital. Staff will be following the new policy and procedure related to PPE and proper precautions to follow when caring for a patient with CDI. During month twelve, the project committee will evaluate the effectiveness of change. If the program is successful, the change needs to be permanently implemented within the organization.

Tools

Appendix B contains the contact precaution sign used on patient doors in our hospital. The sign has a stop sign in the middle to remind people entering the room to stop and read the sign. The top left has a nurse's hat and reads, visitors check in at the nurses' station before entering. The top right has hands with water running over them to remind staff to wash hands with soap and water. The bottom left has a gown and gloves to remind people to gown and glove before entering the room. The bottom right has a bottle of bleach to remind staff to clean the room and items with bleach.

Appendix C has our C. diff tracking tool. This tool made by GNYHA (2011) is to determine the number of patients affected with CDI . This tool includes patient name, medical record number, and other columns for surveillance.

Appendix D contains the Environmental Service Training video for cleaning a room after a CDI patient is discharged. This video is to be watched by all staff to ensure proper cleaning for the removal of CDI.

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APPENDIX A:

Oceanside Community Hospital

CDI - Prevention Bundle Tool Checklist

Date	
Patient Name	
Medical Record #	
Unit	
Room Number	

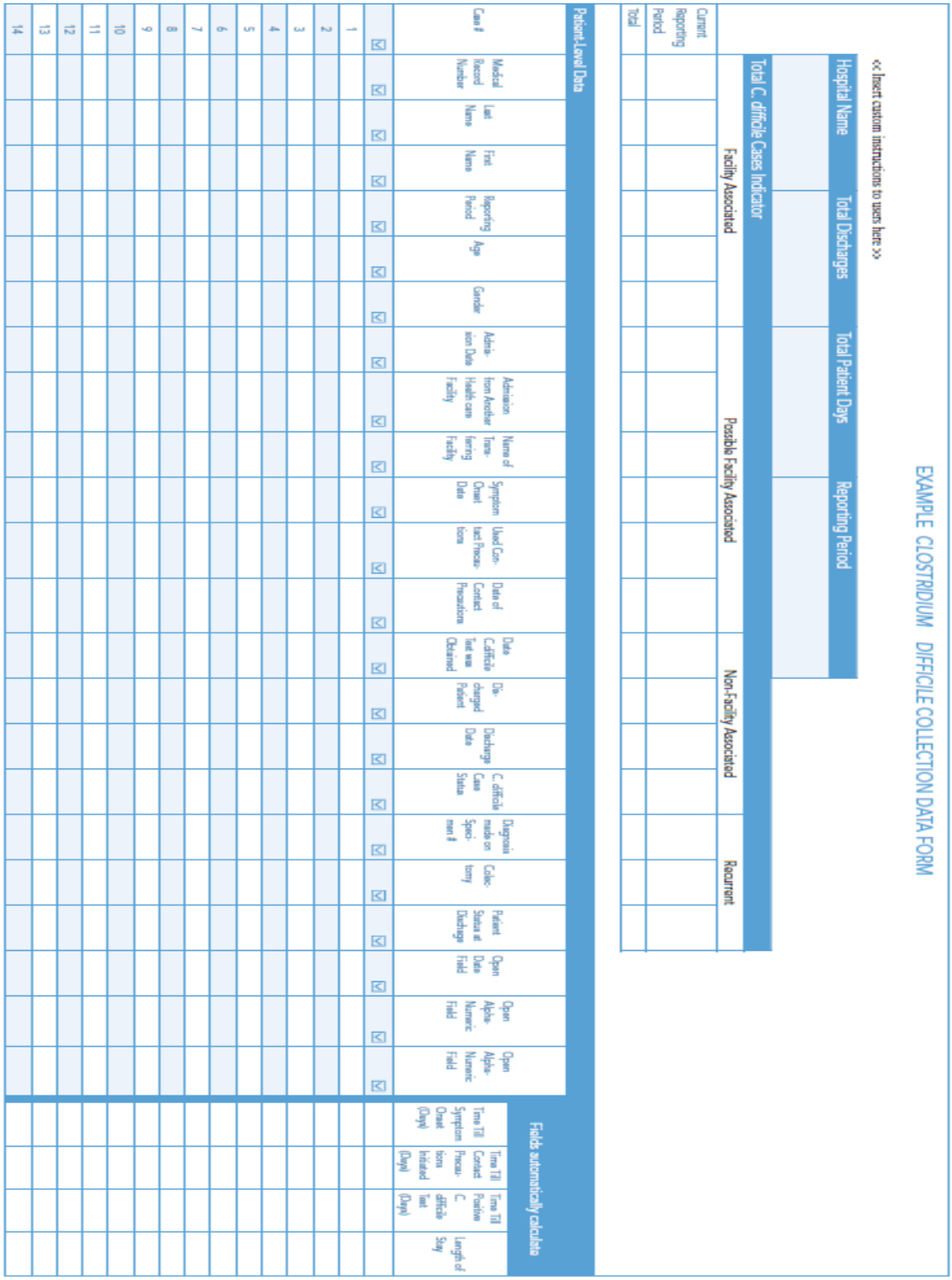
COMPONENTS		Yes	No	
Patient placed on CONTACT PRECAUTIONS?				
SIGN PLACED at infected patient's room?				
PPE available?				
HAND Hygiene followed?				
Patient Placement - Private Room				
Patient in Shared Room/cohort				
		Yes	No	
Total				

1. Enter total - Yes column
2. Enter total – No column

3. Report the count of “Yes” and “No” responses

Appendix B Contact precaution sign

Appendix C CDI tracking tool



Appendix D Environmental Services Training Video

Available at: https://www.youtube.com/watch?v=rHCwUv4Gujw