

Strategy to decrease rates of hospital acquired infections



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Imagine entering the hospital for a minor illness or a simple procedure and ending up in a critical care unit fighting for your life. That can easily happen to a patient if they develop a hospital acquired infection (HAI). According to the CDC/NHSN Surveillance Definitions for Specific Types of Infections (2013), “ a healthcare-associated infection (HAI) is a localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that was not present on admission to the acute care facility” (p. 17-1). This project will attempt to increase understanding of the transmission, treatment, and prevention of hospital acquired infections (HAI's). In addition, it is important to understand the impact the cost of such preventable infections has on both patients and hospitals in terms of monetary cost as well as physical cost to patients in the form of increased morbidity and mortality. The goal of this project is to help decrease the incidence of HAI's, improve patient outcomes and decrease cost of care by increasing compliance with infection control policies and procedures among healthcare workers.

Types of Hospital Acquired Infections (HAI)

When people think of HAI's, what usually comes immediately to mind is Methicillin-resistant Staphylococcus aureus (MRSA). This is a common HAI that is the result of over use of antibiotics and has made its way into the community to such an extent that standardized screening is common on hospital admission to attempt to control further spread of MRSA (Marshall, Richards, & McBryde, 2013). There are other types of HAI's that have emerged from over use of antibiotics. One of these is Clostridium difficile (CDif) which can cause diarrhea and inflammation of the colon, possibly

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becoming life threatening (*C. difficile*, n. d.). Another HAI cause by over use of antibiotics is Vancomycin-resistant enterococci (VRE) which is caused when enterococci, a normal flora in the intestines and genital tract, becomes resistant to the antibiotic vancomycin (CDC/NHSN Surveillance Definitions for Specific Types of Infections, 2013). Other types of HAI's are hospital acquired pneumonia (HAP), ventilator-associated pneumonia (VAP); catheter associated urinary tract infection (CAUTI), bacteremia, and multidrug resistant organism (MDRO) (Calfee, 2012).

Causes of Hospital Acquired Infections (HAI's)

There are many factors that contribute to patients developing HAI's. According to Chain of Infection (2012), any infection starts with a reservoir, which is where the infectious agent lives and can be human, animal or environmental. Next is a portal of exit which is how the infectious agent leaves the reservoir and then a mode of transmission is required and that can be direct or indirect transmission. Once the infectious agent is transmitted, it needs a portal of entry, which is a way into a susceptible patient. This can be through an opening in the skin, mucous membranes, and the respiratory or gastrointestinal tract with the final link being a susceptible host. People come into contact with infectious agents constantly. If they are healthy with a properly functioning immune system, they suffer no ill effects from this contact. However, if a person's immune system is compromised, they are at a much higher risk of developing an illness or infection from exposure to an infectious agent (Chain of Infection, 2012).

In the case of HAI's, the chain of infection is already in place. Hospitals are full of germs. Healthcare workers go in and out of patient rooms all day long, and the patients are all susceptible hosts. Poor hygiene and poor environmental care can greatly increase the chances of spreading HAI's. If a patient room is not properly cleaned, the bacteria that live on surfaces can be picked up by health care workers or visitors. Healthcare workers and visitors can then carry those bacteria to another patient or home to a person's family if universal precautions, such as hand washing, are not followed. Good hand washing has long been considered one of the most effective means of preventing hospital acquired infections (Lipley, 2012). Other areas that can cause an increased risk of HAI's are implanted devices such as urinary catheters and central lines.

Effects of Hospital Acquired Infections

According to the Nursing Economics Database (2013), one-third of patients with HAI's are re-admitted to the hospital within one year, costing Medicare about \$17.4 billion. As astounding as that figure is, it's only the tip of the iceberg. A study in a Turkish training and research hospital comparing HAI's in elderly patients to younger patients found that urinary tract HAI's were more common in elderly patients whereas lower respiratory tract HAI's were more common in younger patients (Avci, Ozgenc, Coskuner, & Olut, 2012). The same study also found that the overall mortality rate was 22% for elderly patients' verses 12% for younger patients with the cause of death most often being pneumonia, bacteremia, or central line infection (Avci, et al., 2012). Even when the outcome of a HAI is not fatal, it causes a much longer length of stay and increased cost of care than what the original illness

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would have. According to a study carried out in Italy, the length of stay for patients who developed a HAI was 1.5 times the length of stay for a patient with the same diagnosis who did not develop a HAI (Barbaro et al., 2012).

Another study done in New Jersey found that HAI's causes a \$10,375 increase in cost of patient care and a 3.3 day increase in length of stay (Hassan, Tuckman, Patrick, Kountz, & Kohn, 2010).

Management and Prevention of Hospital Acquired Infections

While prevention is the ideal way of managing HAI's, early detection is very important in decreasing the effects of HAI's both in terms of patient morbidity and mortality and in terms of cost of patient care and length of stay. There are many tools in place to help prevent HAI's in patients.

Education, proper use of personal protective equipment and good hand washing are very important steps to help prevent all types of HAI. There are more specific prevention and or treatments in place for certain HAI's. For example, ventilator associated pneumonia (VAP) has a care prevention bundle that helps decrease the incidence or, if the patient is already infected, decrease the severity of this HAI. The care bundle in the study discussed by Rello et al. (2012), consists of hand hygiene, cuff pressure control, oral care, sedation control, and circuit tubing change with a 2% decrease in incidence of VAP after its implementation. There are also standardized care bundles in place for the use of urinary catheters and central lines. One point that both prevention bundles make is to remove all implanted devices such as catheters and central lines as soon as they are no longer needed to reduce the risk of the patient developing a HAI as 97% of urinary tract infections are attributed to catheters and 87% of bloodstream <https://assignbuster.com/strategy-to-decrease-rates-of-hospital-acquired-infections/>

infections are attributed to central lines (Guggenbichler, Assadian, Boeswald, & Kramer, 2011).

Management of a HAI involves several steps. The patient must be treated for the infection with antibiotics if that is the needed treatment; at times a daily chlorhexadine bath may be ordered to help decontaminate the skin (Climo et al., 2013), any unnecessary lines need to be removed, and staff and other patients protected from having the infection transmitted to them. It is important to remember that when a patient has a HAI the impact can be emotional as well as physical, they are often placed in isolation to help contain the infection and keep it from being transmitted to other susceptible patients which can increase anxiety and depression level in the patient. If the infection is CDiff, it can cause incontinence which can be very humiliating for the patient. Hand washing comes up in every discussion related to HAI's as a primary prevention. It is also listed in every prevention bundle of care. According to Monistrol et al. (2012), healthcare workers most compliant with hand hygiene were nurses and nursing assistants but even these two groups were frequently non-compliant with hand hygiene prior to patient contact even after intervention. One study suggests that placing alcohol based hand sanitizer at each patient bedside increases compliance with hand hygiene (Slekovec et al., 2013).

In the prevention of central line associated blood stream infections (CLABSI), hand hygiene is again a very important component. Other tools that assist in this area are Curox Port Protectors, which are alcohol impregnated caps designed to protect the swabbable end of an IV access port (The Curox Port Protector, 2013). According to S. Burkey RN, the infection control nurse at <https://assignbuster.com/strategy-to-decrease-rates-of-hospital-acquired-infections/>

Select Specialty Hospital of Zanesville (personal communication, September 23, 2013), there was a significant decrease in the number of CLABSI at Select Specialty Hospital of Zanesville in the quarter following the implementation of Curoc Port Protectors being applied on all ports not in use. She also states that the reduced number has remained steady in the two years the port protectors have been used.

Literature Review

In reviewing the literature that addresses the issue of hospital acquired infections (HAI's), the majority of the literature focuses on the importance of hand hygiene, the monetary impact that HAI's have on patient care and reimbursement, ventilator associated pneumonia and catheter associated urinary tract infections. Monistrol, et al, (2012), does a very good job of showing the impact that improving compliance with hand hygiene can make. In their study, over a two year period, improved compliance with hand hygiene was a focus. The rates for HAI decreased and remained low during the follow up period. Slekovec, et al, (2013) also addresses the importance of compliance with hand hygiene, but while it addresses an improvement of use of hand hygiene opportunities, it does not address the impact it had on incidence of HAI. The article by Guggenbichler, Assadian, Boeswald, & Kramer, (2011), very clearly addresses the reasons that implantable devices cause HAI's and why it is important to remove them as soon as the patient no longer needs them but it does not address interventions to help reduce the risk of HAI from implantable devices while the patient needs to have them in place. Overall, the literature on the topic of HAI's is very plentiful,

but very little of it gives information on both the problem and solution for the HAI it addresses.

Project Plan Description

The stakeholders impacted by this project are the patients, hospital staff, and management. Everyone involved in healthcare has a stake in improving and controlling HAI's. For the patients, their health and well-being is at stake as well as the cost of their care. For hospital staff, the desire to improve patient care and outcomes is effected as well as staff income because money that could go for raises may not be available if it is used up in patient care costs that are a result of a preventable illness or infection. For the management, a hospital is a business and needs money to run. The budget is affected by the use of moneys for preventable illnesses or infections that could have been used for operating costs.

This project could be implemented during a monthly staff meeting at the hospital. By utilizing a staff meeting for presenting this capstone project, the potential is higher for making the greatest impact since all levels of staff attend these meetings. If the project is successful, it will improve understanding of the causes of HAI and importance of adhering to infection control policies. The presentation will include a demonstration of proper technique for donning and doffing isolation gowns, gloves and masks as well as proper use of hand sanitizer and hand washing techniques with a return demonstration by members of the audience. Any members of the staff that are not able to perform these tasks satisfactorily will require immediate follow up education and re-evaluation from the infection control nurse.

Possible limitations and barriers to implementing this project would include not having enough time during the staff meeting for the project to be presented and staff members not staying to hear the project since this part of the staff meeting would not be mandatory.

The expected outcome from implementing this project would be an increase in compliance with infection control policies and procedures. Evaluating the success of the project would be done by following up with the infection control nurse for two quarters to see if the rates of HAI went down and if there was an increased percent of compliance in the random audits of infection control practices.

In order to make this presentation more appealing to staff members who require CEU's and attempt gain more attendance when presenting the project at a monthly staff meeting, the presentation could possibly be approved for contact hours. This would be done by applying to an Ohio Board of Nursing certified approver (Ohio Board of Nursing (OBN) Approvers, 2013).

Conclusion

Hospital acquired infections are an issue that affects every part of healthcare from the patients, to the healthcare workers, to the hospital management, to the insurance companies. As healthcare workers, we have a vested interest in reducing, managing and preventing hospital acquired infections. Most of these infections are avoidable if infection control policies are adhered to stringently with hand hygiene being a very simple, inexpensive and effective management tool. Following the implementation of this presentation, the expected result would be a reduction in the incidence of HAI's and an <https://assignbuster.com/strategy-to-decrease-rates-of-hospital-acquired-infections/>

improvement in the compliance with infection control policies due to helping to increase knowledge and understanding among the staff of the reasons for and importance of each staff member doing their part to help prevent HAI's.

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