

Hand Hygiene

Question: Evaluate a best practice to improve hand hygiene

Domains: Individual and Organizational Behavior/ Performance Measure and Improvement

Method of Research/Model: Literature Review/ Donabedian Model

Assumptions: Hand washing and associated campaigns are fundamental in preventing and controlling HAIs (Lipley, 2012).

Overview:

According to a hospital acquired infection (HAI) survey, 25% of hospital patients are diagnosed with at least one HAI, and out of approximately 722,000 of these infected patients in 2011, about 75,000 died during their hospitalizations (CDC, 2014). These morbidity and mortality statistics are not only devastating, but extremely costly to the country's healthcare system. An estimated 5.7 to 6.8 billion dollars can be attributed to HAIs as a result of increased hospital length of stay and treatment costs (Aboumatar et al., 2012). As acknowledged in countless studies, hand washing and associated campaigns are fundamental in preventing and controlling HAIs (Lipley, 2012).

“Hand hygiene is recognized as a primary determinant of the incidence of health-care associated infection and the cross-transmission of nosocomial pathogens, but compliance rates among healthcare workers (HCWs) are often less than 40%” (Sax, Uçkay, Richet, Allegranzi, & Pittet, 2007). Beliefs, attitudes, and perceptions have influenced healthcare workers behavior in hand hygiene.

A study conducted at The Johns Hopkins Hospital reviewed the effectiveness of the WIPES Infection Prevention Program that was developed and implemented in November 2007 (Aboumatar et al., 2012). This acronym stands for wash/clean hands, identify and isolate early, precaution use (e.g. use of gowns, gloves, and masks), environment kept clean, and share the commitment. The study used the prevention programs and applied a Predisposing, Reinforcing, and Educational Diagnosis and Evaluation (PRECEDE) framework for the program's design (Aboumatar et al., 2012). The framework is based on behavior change theories. The approach addresses both environmental and individual factors, such as knowledge, attitudes, and beliefs (Aboumatar et al., 2012). The study targeted two behaviors: cleaning hands in accordance with guidelines and reminding other colleagues to clean their hands. Components of the program include a communications campaign, education, environment optimization, leadership engagement, performance monitoring, and a timely feedback system (Aboumatar et al., 2012).

Various studies showed that placing hand sanitizer pumps with identification beacons (e.g. flashing lights) in convenient and usable locations, such as at the bedside, improve hand hygiene compliance (D'Egidio et al., 2014; Stone et al., 2012).

Proposed COA:

The goals developed to reduce the number of HAIs: implementation of a good hand hygiene campaign in the healthcare system, incorporating the WIPES infection prevention program and the PRECEDE model. Steps include: (1) observation and assessment, (2) training, education, and equipment, (3) implementation, (4) continuous evaluation, (5) retraining and reeducation, and (6) reinforcement and observation. All steps required application, monitoring, and reinforcement for thorough compliance and effective use.

Findings:

The WIPES infection prevention program, in conjunction with the PRECEDE model, has proven to be a highly effective tool that increases hand washing adherence rates by almost 40% (Aboumatar et al., 2012). The combined results for the PRECEDE model, strategic placement of alcohol hand rub dispenser with sensor technology, and displaying of hygiene posters to influence healthcare workers to effectively and consistently wash hands was determined to be the best practice to decrease HAI rates.

Lessons Learned:

Applying the Donabedian Model of Structure-Process-Outcome, we saw that changing the *structure* by implementing hand hygiene campaign, and developing new *processes* (WIPES infection prevention program, PRECEDE model, strategic placement of alcohol hand rub dispenser with sensor technology, and displaying of hygiene posters) resulted in lower rates of HAIs. We saw measureable *outcomes* though increased hand washing adherence rates by almost 40% and the nearly tripled volume of alcohol hand rub and soap used per patient-bed day.

References

- Aboumatar, H., Ristaino, P., Davis, R. O., Thompson, C. B., Maragakis, L., Cosgrove, S., ... & Perl, T. M. (2012). Infection prevention promotion program based on the PRECEDE model: Improving hand hygiene behaviors among healthcare personnel. *Infection*, *33*(2), 144-151.
- Center for Disease Control and Prevention (CDC). (2014). Healthcare-associated infections (HAIs). Retrieved from <http://www.cdc.gov/HAI/surveillance/index.html>
- D'Egidio, G., Patel, R., Rashidi, B., Mansour, M., Sabri, E., & Milgram, P. (2014). A study of the efficacy of flashing lights to increase the salience of alcohol-gel dispensers for improving hand hygiene compliance. *American Journal of Infection Control*, *42*(8), 852-855.
- Fenton, T. (2010). Healthcare reform pressures hospitals to control HAIs. Retrieved from <http://www.remel.com/hai/Article.aspx?ID=1>
- Lipley, N. (2012). Handwashing initiative cuts incidence of infections. *Nursing Management – UK*, *19*(3), 4.
- Mah'd Alloubani, A., Taktak, W. F. J., Hussein, A. A., AlZanoun, R. M., Rabadi, H. N., & Joyce, T. (2014). Improving compliance of hand hygiene practices among intensive care unit employees in AL-Istishari Hospital in Jordan. *American Journal of Medicine and Medical Sciences*. *4*(5): 139-149. DOI: 10.5923/j.ajmms.20140405.01
- Sax, H., Uçkay, I., Richet, H., Allegranzi, B., & Pittet, D. (2007). Determinants of good adherence to hand hygiene among healthcare workers who have extensive exposure to hand hygiene campaigns. *Infection Control and Hospital Epidemiology*, *28*(11), 1267-1274.