

TNI: Prevention of Transmission of Pathogens in the Perioperative Setting

Vickie Rogers

Old Dominion University

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There are many aspects of patient care to consider in the perioperative setting. Being a perioperative nurse, I consider infection control and prevention of surgical site infections a priority to ensure a positive post-operative outcome. Surgical patients are at an increased risk for infection due to the invasive aspect of the surgical procedures. Patients of all ages and levels of health come to the operating room (OR) for elective and emergent procedures.

Surgical site infections (SSIs) are considered hospital acquired infections (HAIs). HAIs are infections patients acquire while in the hospital related to their care. They are a significant cause of morbidity and mortality. The estimated number of patients with HAI's in 2011 was 721,800 ("HAI's," 2015). HAIs cost the healthcare system billions of dollars each year. The economic cost is small compared to the emotional, financial, and medical consequences for the patient and their families ("National Action Plan," 2015). The Centers for Disease Control (CDC) reported in 2011 there were 157,500 surgical site infections, and that 75,000 patients died of HAI's during their hospitalizations ("HAI's," 2015). Newer estimates for the rate of SSIs indicate a rate of two per 100 procedures which is approximately 500,000 per year (Allen, 2014). These numbers are alarming and unacceptable.

Multidrug resistant organism (MDRO) control and prevention is a national priority for the healthcare system. MDROs are bacteria that are resistant to at least one or more classes of antimicrobial agents making them difficult to treat. Methicillin resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile* (*C. difficile*), and vancomycin resistant enterococci (VRE) are a few of the present MDROs. Patients that contract MDROs have higher complication, morbidity, and mortality rates (Allen, 2014).

When patients with MDROs present to the OR for surgical procedures it is important that the staff understand and follow infection control policy and precautions (Allen, 2014).

Transporting, transferring, and care of these patients require the staff to practice contact precautions. Contact precautions consist of the wearing of a gown and gloves when in close contact with the patient or equipment, a mask if there could be splashing of blood or body fluids, and strict hand hygiene. When precautions and protocols are not followed the patient with the MDRO, staff, and other patients are put in jeopardy from the risk of transmission through direct or indirect contact. Direct contact transmission occurs when the pathogen is transferred from the host to another host. Indirect transmission involves the transfer of the pathogen from a contaminated object or person (Allen, 2014).

As previously stated, the consequence of developing a SSI can be devastating and life altering. This is especially true for those with SSIs with MDROs. This point is clearly illustrated in the case of Mr. B. Mr. B underwent a vascular bypass procedure and developed a SSI post operatively. The wound was cultured and the organism was found to be MRSA. After several more weeks in the hospital and multiple antibiotics the infection would not clear. The patient had to have an above the knee amputation due to the infection.

Current Practice

Policies based on evidenced based care and guidelines are in place to guide the staff on how to care for a patient with a MDRO. Staff cites confusion about the current policy, preconceived ideas, lack of knowledge, time constraints, and management's failure to enforce compliance, as reasons for not following the policy and precautions. The inconsistency of staff in following the current policy and precautions is increasing the risk of contamination and transmission of MDROs.

The current policy follows recommended guidelines for the prevention of transmission of MDROs. The policy states contact precautions should be employed when caring for a patient with a MDRO (*MDRO Policy*, 2014). Contact precautions require the wearing of personal protective equipment (PPE) such as a gown and gloves when caring for these patients. If the possibility of splashing of body fluids is present a mask must be worn. After the PPE is removed hand hygiene should be done immediately. The policy states that patients with MDROs coming to the OR or holding area must have a clean sheet applied over the bed for transport and the transporting staff must wear protective gowns and gloves (*MDRO Policy*, 2014). The nurse in the holding area should wear a gown and gloves when caring for the patient. Another problem with compliance is that communication of a patient having an MDRO is disjointed. Often, staff have transported or provided care for a patient before they know the patient has a MDRO. All levels of staff, including the transporters, nurses, anesthesia personnel, residents, students, and surgeons, are inconsistent in following the policy and precautions.

Current policy and recommendations is that patients with MDROs should be scheduled as the last case of the day if possible. Patients with MDRO's procedures are being scheduled in the middle of the cases. The scheduling staff does not know if a patient has a MDRO and there is no mechanism in place to prevent this from occurring. Policy and recommendations require the OR suite be cleaned with an approved disinfectant after the patient leaves the room. Some staff are holding on to old information and recommendations and want to "soak" the room with disinfectant, change their OR attire, and leave the room sitting for a designated period of time. Other staff members barely acknowledge the need for precautions or extra cleaning after these cases.

Nursing interventions

As previously mentioned, staff cite a lack of knowledge as one reason for not following the policy when caring for patients with MDROs. A wealth of information is available from the CDC and many research studies. An appropriate nursing intervention would be to educate the staff on the policy, contact precautions, hand hygiene, and recommended standards of care. The Healthcare Infection Control Practices Advisory Committee (HICPAC) of the CDC emphasizes the importance of educating HCW about the risks and prevention of MDROs. They also recommended HCWs be educated about the epidemiology of MDROs (Grotta, 2007). A qualitative study done by Seibert, Speroni, Oh, DeVoe, and Jacobsen examined healthcare workers attitudes and suggestions on preventing the spread of MRSA (2014). The healthcare workers (HCWs) felt that ongoing education and training on MRSA, contact precautions, and hand hygiene would aid in compliance. It has been noted that surgical patients are at high risk for MDROs. Tailoring the educational offerings to the perioperative environment would create more interest and would ensure the staff are receiving the information necessary to prevent the transmission of pathogens in the OR. The Association of perioperative Registered Nurses (AORN) recommended practices for prevention of transmissible infections is an evidenced based document intended to help perioperative personnel implement standard and transmission-based precautions and would be helpful in educating all levels of staff. AORN asserts, "Personnel should receive initial and ongoing education and should complete competency verification activities as applicable to their roles" (Patrick & Hicks, 2013, p. 620).

Another nursing intervention would be to have the patients MDRO status reported as part of the standard handoff between caregivers. This would minimize or eliminate the caregivers inadvertently exposing themselves and other patients to infectious pathogens. "Communication of essential information during the transfer of patient care from one perioperative care provider

to another is critical to patient safety and continuity of care,” (Johnson, Logsdon, Fournier, & Fisher, 2013, p. 495). The Joint Commission (TJC) has recognized that health care organizations have struggled to ensure necessary and critical patient care information is adequately relayed from caregiver to caregiver (Joint Commission Center for Transferring Healthcare website, n.d.).

The last nursing interventions would center on surveillance, enforcement of the policy and precautions, and giving staff monthly reports on SSI rates, related procedures, and the organisms involved. Staff currently does not know the SSI rates. Reporting the SSI rates will encourage the staff to be more diligent in prevention strategies and examination of current practices. Researchers have noted that hand hygiene compliance rates rise when staff knows they are being monitored. Direct observation of compliance can provide the care givers with feedback which has been an integral part of successful programs (Boyce, 2008). Providing the SSI rates to the OR personnel may promote accountability and aid in detecting trends and patterns and to correct the causes of the infections (Drinka, Vance, & Crnich, 2011). AORN’s recommended practice VII emphasizes that, “perioperative nurses should take an active role to prevent the transmission of health-care associated infections,” (Patrick & Hicks, 2013, p. 619).

Conclusion

Prevention of HAI’s and transmission of MDROs is a priority for all healthcare workers. Perioperative staff must be well educated on the policies, precautions, and guidelines when caring for patients with MDROs in the OR to prevent direct or indirect contamination and subsequent transmission of these infections pathogens. Providing education and surveillance will aid staff by providing feedback and enforcing current policies and precautions. Staff may feel more accountable if management reports the number of SSIs and the specialties involved to the staff at the monthly meetings. This information may lead to better clinical practice and

positive patient outcomes. Communication of a patient's MDRO status in the standard handoff between caregivers will increase both patient and staff safety.

References

- Allen, G. (2014, May 2). Contact precaution in the perioperative setting [Journal article]. *OR Nurse*, 8(3), 14-16. <http://dx.doi.org/10.1097/01.ORN.0000446033.02323.89>
- Boyce, J. M. (2008). Hand hygiene compliance monitoring: current perspectives from the USA. *Science Direct*, 70(S1), 2-7. [http://dx.doi.org/10.1016/S0195-6701\(08\)60003-1](http://dx.doi.org/10.1016/S0195-6701(08)60003-1)
- Drinka, P., Vance, J., & Crnich, C. (2011, June). Clinically speaking. Infection prevention. *Long-Term Living: For the Continuing Care Professional.*, 60, 22-26. Retrieved from <http://www.ltlmagazine.com/>
- Grota, P. (2007, June). Perioperative management of multidrug-resistant organisms in health care settings [Journal article]. *AORN Journal*, 86(3), 361-372. <http://dx.doi.org/10.1016/j.aorn.2007.06.001>
- Healthcare associated infections (HAIs). (2015). Retrieved June 27, 2015, from <http://www.cdc.gov/HAI/surveillance/>
- Johnson, F., Logsdon, P., Fournier, K., & Fisher, S. (2013). SWITCH for safety: Perioperative hand-off tools [Journal article]. *AORN Journal*, 98(5), 494-507. <http://dx.doi.org/10.1016/j.aorn.2013.08.016>
- Joint Commission Center for Transforming Healthcare website. (n.d.). <http://www.centerfortransforminghealthcare.org/projects/detail.aspx?Project=1>
- Multidrug resistant organisms, prevention and management for surgical services* [Policy]. (2014). Christiansburg, VA: Carilion New River Valley Medical Center.
- National action Plan to prevent health care-associated infections: Road map to elimination. (2015). Retrieved June 27, 2015, from http://www.health.gov/hcq/prevent_hai.asp

Patrick, M. R., & Hicks, R. W. (2013, December). Implementing AORN recommended practices for Prevention of transmissible infections [Journal article]. *AORN Journal*, 98(6), 609-628. <http://dx.doi.org/doi:10.1016/j.aorn.2013.08.018>

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