

NAON Position Statement: Preventing Infection in the Inpatient Orthopaedic Patient

Issue

Healthcare-associated infection (HAI) has been identified as the most common complication of healthcare, resulting in nearly 1.7 million infections and over 99,000 deaths annually (Klevens et al., 2007). The impact of HAI on healthcare costs range from 28-33 billion dollars annually (Scott, 2009).

Patients who acquire a HAI may experience an increased length of stay or additional hospitalizations, are subjected to prolonged exposure to antibiotics, may be required to undergo one or more surgical interventions, and may lose mobility, functionality, and income. Along with morbidity issues, medical costs related to HAI may threaten emotional well-being.

Common HAIs include, but are not limited to, surgical site infection (SSI), catheter-associated urinary tract infection (CAUTI), central line-associated bloodstream infection (CLABSI), and *Clostridium difficile* infection. Each of these infections can have devastating consequences.

NAON's Position

The National Association of Orthopaedic Nurses (NAON) supports the recommendations and guidelines provided by the Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services (HHS), The Joint Commission (TJC), Association for Professionals in Infection Control and Epidemiology (APIC), the World Health Organization (WHO), and affiliated organizations in preventing HAI. In order to prevent infection in all patients, the following nursing interventions are expected to be employed:

1. Strict adherence to required hand hygiene guidelines.
2. Utilization of standard precautions for all patients and adherence of appropriate isolation precautions for those noted to have an infectious organism.
3. Consistent utilization of aseptic technique for all invasive procedures and dressing changes.
4. Proper skin cleansing and preparation for all medically indicated procedures.
5. Adherence to applicable Surgical Care Improvement Project (SCIP) measures.
6. Rapid identification and corrective action taken for any inappropriate practice/or break in technique by any member of the healthcare team.

7. Monitoring for signs of infection in sites such as surgical wounds, urine, blood, and lungs with timely notification of the treating practitioner.
8. Safe injection practices including appropriate cleansing of intravenous catheter hub, utilization of clean needle and syringe with injections, and avoidance of multiple use vials.
9. Removal of all invasive devices as soon as medically possible.
10. Appropriate cleaning of non-disposable items prior to use on subsequent patients.
11. Regular education and monitoring of HAI prevention practices.
12. Post-discharge education for the patient/care giver regarding hand washing, dressing changes, monitoring for signs and symptoms of infection, appropriate antibiotic usage, and resources for chronic condition management.

Background/Rationale

Considering the amount of orthopaedic surgical procedures projected to increase with an aging population, it is important that all nurses, as well as the entire healthcare team, utilize evidence-based practice to minimize incidence of all HAIs. Each nursing intervention listed above is aimed at preventing the occurrence of HAI in those who seek medical care. Simple measures such as hand hygiene and utilization of standard and isolation precautions can prevent patient-to-patient and nurse-to-patient transmission of infectious organisms. Proper pre-procedure skin preparation reduces the bacterial load available to enter sites caused by invasive devices or procedures. Adherence to SCIP measures regarding antibiotic use and discontinuation, as well as thorough patient education regarding subsequent antibiotics, may assist with reducing development of multi-drug resistant organisms and conditions such as *Clostridium difficile* infections.

Routine care, such as aseptic dressing changes, safe injection practices, and cleaning of portable equipment ensure that organisms are not introduced into the patient's wound or body fluid through outside means. Discontinuations of indwelling catheters in accordance with SCIP measures, as well as discontinuation of other invasive devices once deemed no longer necessary, provide an opportunity to reduce the means for which bacteria may enter the body and attach to prosthetic equipment.

Finally, monitoring for signs of infection in surgical sites and other known portals of entry allow for timely interventions by nursing staff and licensed practitioners. Regular education and monitoring of prevention practices provide nurses and healthcare workers with real-time feedback and creates awareness to drive changes in practice.

References

- Centers for Disease Control and Prevention (2002). Guideline for hand hygiene in health-care settings: Recommendations of the healthcare infection control practices advisory committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *MMWR*, 51(No. RR-16). Retrieved from <http://www.cdc.gov/mmwr/PDF/rr/rr5116.pdf>
- Edwards, J. R., Peterson, K. D., Mu, Y., Banerjee, S., Allen-Bridson, K., Morrell, G., . . . & Pollock, D. A. (2009). National Healthcare Safety Network (NHSN) report: Data summary for 2006 through 2008, issued December 2009. *American Journal of Infection Control*, 37, 783-805. Retrieved from <http://www.cdc.gov/nhsn/PDFs/dataStat/2009NHSNReport.pdf>

Greene, L. R, Mills, R., Moss, R., Sposato, K., & Vignari, M. (2010). *Guide to the elimination of orthopedic surgical site infections*. Retrieved from www.apic.org

Klebens, R. M., Edwards, J. R., Richards, C. L., Horan, T., Gaynes, R., Pollock, D., & Cardo, D. (2007). Estimating healthcare-associated infections in U.S. hospitals, 2002. *Public Health Report 2007, 122*, 160-166. Retrieved from http://www.cdc.gov/HAI/pdfs/hai/infections_deaths.pdf

No author. (2012). National Healthcare Safety Network (NHSN) Overview. Retrieved from http://www.cdc.gov/nhsn/PDFs/pscManual/pcsManual_current.pdf

No author. (2012). *The surgical care improvement project (SCIP)*. Retrieved from http://www.nmmra.org/providers/hospitals_scip.php

O'Grady, N. P., Alexander, M., Burns, L. A., Dellinger, E. P., Garland, J., Heard, S. O., . . . Saint, S., and the Healthcare Infection Control Practices Advisory Committee. (2011). *Guidelines for the prevention of intravascular catheter-related infections, 2011*. Retrieved from <http://www.cdc.gov/hicpac/pdf/guidelines/bsi-guidelines-2011.pdf>

Scott II, R. D. (2009). *The direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention*. Retrieved from http://www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf

Siegel, J. D., Rhinehart, E., Jackson, M., Chiarello, L., and the Healthcare Infection Control Practices Advisory Committee. (2007). *Guideline for isolation precautions: Preventing transmission of infectious agents in healthcare settings, 2007*. Retrieved from <http://www.cdc.gov/ncidod/dhqp/pdf/isolation2007.pdf>

Links for additional resources/information

Agency for Healthcare Research and Quality (AHRQ): www.ahrq.gov

Association for Professionals in Infection Control and Epidemiology: www.apic.org

Centers for Disease Control and Prevention: www.cdc.gov

National Healthcare Safety Network: www.cdc.gov/nhsn/dataStat.html

The Joint Commission: www.jointcommission.org

The Society for Healthcare Epidemiology of America: www.shea-online.org/

US Department of Health and Human Services: www.hhs.gov

World Health Organization: www.who.int