AORN Guidance Statement: Sharps Injury Prevention in the Perioperative Setting

Introduction

The purpose of this guidance document is to assist perioperative registered nurses in the development of sharps injury prevention programs using identified best practices to reduce percutaneous injuries. It also suggests strategies to overcome obstacles to compliance with established sharps safety protocols.

The perioperative setting is a high-risk environment, and perioperative RNs are routinely faced with high risk for exposure to bloodborne pathogens from percutaneous injuries. Although the scope of the problem is not completely known, the National Institute for Occupational Safety and Health (NIOSH) estimates that 600,000 to 800,000 percutaneous injuries occur annually among heath care workers.[1] Percutaneous injuries primarily are associated with occupational transmission of the hepatitis B virus (HBV), hepatitis C virus (HCV), and HIV, but they may be implicated in the transmission of more than 20 other pathogens.[2] Understanding the etiology of percutaneous injuries in the perioperative setting is paramount to developing a safe prevention program.

Background

Percutaneous injuries occur throughout all health care facilities, and many occur in the perioperative setting.[3,4] Exposure to bloodborne pathogens occurs during all phases of the perioperative process. Research indicates that injuries from sharp devices or instruments occur in 7% to 15% of all surgical procedures. Procedures identified as posing the highest risk of injury are thoracic, trauma, burn, emergency orthopedic, major vascular, intra-abdominal, and gynecologic surgeries.[5] Risk of a sharps injury increases during more invasive, longer procedures that result in higher blood loss.[6] Fatigue resulting from working extended hours in combination with the fast pace of the perioperative environment also may contribute to increased risk of percutaneous injuries.[7-9]

Nurses comprise the largest segment of health care workers and are reported to sustain the highest number of percutaneous injuries overall.[2] Observational studies have demonstrated that perioperative personnel experience the highest percutaneous injury rates, but 70% to 96% of exposures were underreported.[5] Surgeons and first assistants have the highest risk of injury and sustain more than half (ie, 59%) of percutaneous injuries in the perioperative setting.[6] Scrub personnel experienced the second highest frequency of percutaneous injury, followed by anesthesia care providers and circulating nurses.[6]

Injuries from hollow bore needles constitute the majority of injuries and pose the highest risk of exposure to bloodborne pathogens.[10] Although the risk of injury from hollow bore needles is prevalent in the perioperative setting, the epidemiology of sharps injuries in the OR is different from that of other locations in health care. Suture needles have been identified as the most frequent mechanism of percutaneous injury in the OR; they are involved in as many as 77% of such injuries.[4,6] Scalpels are the second most frequent mechanism of injury, followed by retractors, skin or bone hooks, and sharp electrosurgical tips.[11,12]

Percutaneous injuries often are self-inflicted. Studies indicate that 6% to 16% of these injuries occur during hand-to-hand passing of sharp instruments, suture needles, and other sharp devices. The most common body part injured is the nondominant hand. Injuries from suture needles occur most often

- when loading the needle holder or repositioning the needle;
- during hand-to-hand passing of sharp devices between scrub personnel and the surgeon;
- during suturing, particularly muscle and fascia (eg, wound closure) when the needle is being manipulated and guided with fingers;
- when retracting or stretching tissue with hands;
- when the surgeon sews toward his or her own or an assistant's hand;
- when tying suture with the needle attached;
- after the suture has just been used and remains unattended on the operative field—even if suture is unattended on the field for only a short time, the needle holder can fall off the field onto a health care worker's foot, or scrubbed personnel may reach for it in an attempt to prevent it from sliding off the field; and
- when placing the used needle in an over-filled sharps container.[3]

Injuries from scalpels most often occur

- when loading or removing a disposable scalpel blade on a reusable knife handle;
- during hand-to-hand passing of the scalpel;
- during dissection when the tissue is being retracted or spread with hands;
- when cutting toward the surgeon's or an assistant's fingers;
- immediately before or after use when the scalpel is left on the operative field unattended—even if this is for only a short time, the scalpel can fall off the field onto a health care worker's foot, or scrubbed personnel may reach for it in an attempt to prevent it from sliding off the field; and
- when the scalpel is placed in an over-filled or poorly located sharps container.[3]