SHARPS SAFETY

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MEDICAL ABBREVIATIONS & ACRONYMS

ACS – American College of Surgeons
AAOS – American Academy of Orthopaedic Surgeons
AST – Association of Surgical Technologists
CDC – Centers for Disease Control and Prevention
HBV – Hepatitis B virus
HCV – Hepatitis C virus
HFT – Hands-free technique
HIV – Human immunodeficiency virus
OR – Operating room
OSHA – Occupational Safety and Health Administration
PPE – Personal protective equipment
RCT – Randomized controlled trial
SED – Safety-engineered device

GUIDELINE FOR SHARPS SAFETY

The Guideline for Sharps Safety was approved by the AORN Guidelines Advisory Board and became effective as of November 1, 2019. The recommendations in the guideline are intended to be achievable and represent what is believed to be an optimal level of practice. Policies and procedures will reflect variations in practice settings and/or clinical situations that determine the degree to which the guideline can be implemented. AORN recognizes the many diverse settings in which perioperative nurses practice; therefore, this guideline is adaptable to all areas where operative or other invasive procedures may be performed.

Purpose

This document provides guidance to the perioperative team for identifying potential **sharps** hazards and developing and implementing best practices to prevent sharps injuries and reduce bloodborne pathogen exposure for perioperative patients and personnel.

Health care workers are at risk for percutaneous injury, exposure to **bloodborne pathogens**, and occupational transmission of disease.[1] It is estimated that more than 2 million health care workers worldwide sustain a percutaneous injury with a contaminated sharp object each year and that 25% to 90% of these injuries go unreported.[2] An estimated 385,000 percutaneous injuries occur among hospital health care workers in the United States annually.[3] Physicians are most frequently injured in operating and surgical settings (70.5%) when using sutures (47%) and scalpels (8.3%).[4] A surgeon will sustain a sharps injury during approximately one in 10 surgical procedures, as determined in a meta-analysis and meta-regression of 45 studies published between 2000 and 2017 on the incidence of sharps injuries in surgical units.[5]

Percutaneous injuries are associated with epidemiologic, economic, and emotional burdens. The epidemiologic burden is the occupational transmission of bloodborne pathogens (eg, hepatitis B virus [HBV], hepatitis C virus [HCV], human immunodeficiency virus [HIV]). In the United States, an estimated 2.4 million people are living with HCV.[6] Approximately 25% of the estimated 1.2 million people living with HIV in the United States are coinfected with HCV, and 10% are coinfected with HBV.[7] An occupational exposure carries the potential for seroconversion to multiple pathogens.

The odds of a health care worker contracting an HCV infection are 1.6 times greater than for the general public.[8] Health care professionals who are at high risk for blood contact have 2.7 times greater odds of contracting an HCV infection than the general public.[8] The number of HBV infections in health care workers has declined significantly with the widespread adoption of HBV immunizations and **standard precautions**.[9] Between 1985 and 2013, 58 documented and 150 possible cases of occupationally acquired HIV infection among health care workers were reported to the Centers for Disease Control and Prevention (CDC).[10] Published case reports describe occupational transmission of additional pathogens, including viruses (eg, hepatitis G,[11] cytomegalovirus,[12] herpes simplex type 1[13]), bacteria (eg, *Mycobacterium tuberculosis,*[14-16] *Corynebacterium striatum*[17]), protozoa (eg, *Plasmodium falciparum*[18,19]), parasites, and yeasts.[20]

The epidemiologic burden also extends to surgical patients. If a perioperative team member infected with a bloodborne pathogen experiences a percutaneous injury and glove perforation, the health care worker's blood could contact the patient's blood and place that patient at risk for transmission of the bloodborne disease.[21] Published case reports include provider-to-patient transmission of HBV,[22] HCV,[23] and HIV.[24]

The economic burden of a percutaneous injury includes the costs of laboratory testing for the injured health care worker and the source patient if known, postexposure prophylaxis, short- and long-term treatment of chronic bloodborne pathogen infections, lost productivity, staff replacement, counseling for the injured employee, and potential legal consequences and compensation claims.[25-27] In a systematic review of 12 studies, Lee et al[25] determined that the cost of a single needlestick injury ranged from $51 to $3,766 (2002 US dollars). The costs varied by the institutional protocol for management of an occupational exposure. In the least expensive situations, the source patient was negative for HIV, HBV, and HCV, and no postexposure prophylaxis was required. In the most expensive situations, the source patient tested positive for HIV and the injured worker required postexposure prophylaxis.

Mannocci et al[28] reviewed 14 studies on needlestick injury costs from Europe, America, Asia, and Australia. The median of the means for aggregate (direct and indirect) costs was **Int$**747 with a range of Int$199 to Int$1,691 (2016 dollars). Leigh et al[29] analyzed the estimated combined cost of $188.5 million for 644,963 needlestick injuries, which included $107.3 million for medical costs and $81.3 million (2007 dollars) for lost productivity. The combined costs make up approximately 0.1% of all occupational injury and illness costs for all types of jobs in the economy.

The emotional burden of experiencing a percutaneous injury and the possibility of an occupationally acquired