Guideline Summary: Cleaning and Care of Surgical Instruments

PURPOSE

To provide guidance for cleaning surgical instruments, including point-of-use cleaning, selecting cleaning chemicals, and determining water quality. Guidance is also provided for decontaminating, transporting, inspecting, and care of surgical instruments. Processing of ophthalmic instruments and laryngoscope blades and handles, special precautions to minimize the risk of transmitting prion diseases from contaminated instruments, and the use of personal protective equipment (PPE) that must be worn during cleaning and care of instruments also are addressed.

Guideline Summary: Cleaning and Care of Surgical Instruments[1]

#	Recommendation	Key points
I	All instruments and devices used in surgery should be cleared by the US Food and Drug Administration (FDA) for use in surgery and have written, manufacturer-validated cleaning and decontamination instructions for use (IFU).	• A multidisciplinary team consisting of sterile processing personnel, perioperative RNs, physicians, infection preventionists, and other stakeholders should develop a mechanism for evaluating and selecting the products that require cleaning and decontamination and the associated cleaning products that will be used at the health care facility. • Before the purchase of surgical instruments and other devices used for surgical or other procedures performed in the facility, a designated person responsible for processing surgical instruments should obtain and evaluate the applicable manufacturer's written IFU, including o instructions for precleaning at the point of use, o transport of the soiled device, o cleaning, o decontamination, o inspection, o functionality testing, o packaging, o high-level disinfection, and o sterilization, to determine whether the facility has the capability to comply with the manufacturer's instructions. • The manufacturer's written IFU should be reviewed for requirements related to o utilities (eg, water, compressed air); o cleaning equipment; o device disassembly required for cleaning; o accessories (eg, adaptors for creating a correct connection between the device and equipment, utilities, and cleaning equipment); o accessories for cleaning lumens, ports, and internal parts; o cleaning agents; o lubricants; and o procedures for handling, cleaning, disinfecting, testing, packaging, and sterilizing.

(continued)

http://dx.doi.org/10.1016/j.aorn.2015.01.001

(continued) Guideline Summary: Cleaning and Care of Surgical Instruments[1]

#	Recommendation	Key points
II	Before use, all new, repaired, refurbished, and loaned instruments and devices should be cleaned and decontaminated, inspected, and sterilized or high-level disinfected according to the instrument or device manufacturer's written IFU.	• The manufacturer's written IFU should be readily available to the personnel responsible for processing instruments and devices used for surgical or other procedures performed in the facility. • Accessories specified by the device manufacturer for cleaning and processing should be obtained at the time of the device purchase and used in accordance with the IFU. • Instruments should be inspected for defects and correct function upon receipt. Instrument inspection should include verifying o tip integrity and alignment, o security of screws, o ability of ratchets to hold, o sharpness of cutting edges, o integrity of box locks, o freedom of moveable parts, and o insulation integrity (for instruments used for electrosurgery). • Loaned instruments should be cleaned, decontaminated, inspected, and sterilized by the receiving health care organization before use. • Before processing and preferably before receipt of loaned instruments, a designated person responsible for processing surgical instruments should obtain and review the manufacturer's written IFU for cleaning. • Loaned instruments, regardless of whether they were processed in another health care facility, should be considered contaminated and should be delivered directly to a sterile processing area and decontaminated as soon as possible after delivery. • Loaned instruments should be disassembled, cleaned, decontaminated, and inspected before they are returned to the vendor or lending facility.
III	Instruments should be cleaned and decontaminated as soon as possible after use.	• Preparation for decontamination of instruments should begin at the point of use. • Instruments should be kept free of gross soil during the procedure. • All instruments opened onto the sterile field in the operating or procedure room should be cleaned and decontaminated whether or not they have been used. • Instruments should be kept moist until they are cleaned. A towel moistened with water placed over the instruments may be used. Saline should not be used.
IV	Contaminated instruments must be contained during transport to a decontamination area.	• Contaminated instruments should be transported to the decontamination area as soon as possible after completion of the procedure. • Soiled instruments must be transported to the decontamination area in a closed container or enclosed transport cart.
V	Instruments should be cleaned and decontaminated in an area separate from locations where clean items are handled.	• Instruments should not be cleaned or decontaminated in scrub or hand sinks. • A multidisciplinary team should develop and implement a systematic process for monitoring heating, ventilating, and air conditioning (HVAC) performance parameters in the decontamination area and a mechanism for resolving variances. • The HVAC parameters recommended by the American Society of Heating, Refrigeration and Air-Conditioning Engineers and the Facilities Guidelines Institute for decontamination areas are o 2 outdoor air changes per hour, o 6 total air changes per hour, o negative air pressure, and o temperature between 72° F and 78° F (22° C and 26° C).
VI	Personnel working in the decontamination area and handling contaminated instruments must wear PPE.	• PPE consistent with exposure risks in the decontamination area must be worn, including o a fluid-resistant gown with sleeves, o gloves (ie, general purpose utility gloves with a cuff that extends beyond the cuff of the gown), o a mask and eye protection or a full face shield, and

(continued) Guideline Summary: Cleaning and Care of Surgical Instruments[1]

#	Recommendation	Key points
		○ shoe covers or boots designed for use as PPE. • Hand hygiene must be performed after PPE is removed.
VII	The type of water used for cleaning should be consistent with the manufacturer's written IFU and the intended use of the equipment and cleaning product.	• The final rinse should be performed with treated (eg, distilled, reverse osmosis, filtered) water of a quality that will not stain or cause damage to instruments or contribute to recontamination of the instrument.
VIII	Surgical instrument, cleaning product, and cleaning equipment manufacturers' validated and written IFU should be reviewed for compatibility during selection and followed during use of cleaning products and equipment for cleaning and decontaminating surgical instruments.	• Cleaning products should ○ be nonabrasive, ○ be low foaming, ○ be easy to remove during rinsing, ○ be biodegradable, ○ provide for soil dispersion, ○ be nontoxic in the specific-use dilution, ○ be effective on clinically relevant soils under specified conditions, ○ have a long shelf life, ○ be cost-effective, and ○ be able to be tested for effective concentration. • Cleaning products must be handled according to the safety data sheets (SDSs) and the manufacturer's' written IFU. The SDSs must be readily accessible to employees within the workplace. • Abrasive devices and products should not be used to clean instruments unless their use is specified in the device manufacturer's written IFU. • Brushes used to clean lumens should ○ meet the requirement for cleaning as specified in the instrument or device manufacturer's written IFU, ○ be long enough to clean the entire length of the lumen and exit at the distal end, ○ contact the inner surface of the lumen without collapsing, ○ have bristles soft enough to prevent damage to the internal lumen surface, and ○ be either designed for single use and discarded after each use or be reusable and decontaminated at least daily or more frequently as needed.
IX	Surgical instruments and equipment should be cleaned and decontaminated according to the manufacturer's validated, written IFU.	• Instruments should be rinsed in cool water before washing. • Cleaning solutions should be changed before they become heavily soiled, when the temperature of the solution does not meet the temperature specified in the manufacturer's written IFU, and as needed. • Instruments that require lubrication should be lubricated with a type of lubricant that is recommended by the instrument manufacturer and is compatible with the subsequent sterilization method. • Mechanical methods (eg, ultrasonic cleaner, washer disinfector/decontaminator) should be used for cleaning surgical instruments unless otherwise specified by the instrument manufacturer. • The instrument manufacturer's written IFU should be followed during use of automated washing equipment, including placement of the instrument within mechanical washers, cycle parameters, and any other specific cleaning requirements.
X	Surgical instruments should be inspected and evaluated for cleanliness and correct working order after decontamination	• Items should be inspected and evaluated for ○ cleanliness; ○ correct alignment; ○ corrosion, pitting, burrs, nicks, cracks;

(continued)

(continued) Guideline Summary: Cleaning and Care of Surgical Instruments[1]

#	Recommendation	Key points
	and if soiled or defective, should be removed from service until they are cleaned or repaired.	o sharpness of cutting edges; o wear and chipping of inserts and plated surfaces; o missing parts; o integrity of insulation on insulated devices; o integrity of cords and cables; o clarity of lenses; o integrity of seals and gaskets; o presence of moisture; o correct functioning; and o other defects. • Powered equipment should be checked before use to verify that power ceases when the device is turned off and that the device is functioning as intended. Instruments that require power to operate should be attached to the power source for testing as specified in the manufacturer's written IFU. • Instruments that require assembly or that work with an accessory instrument should be assembled to confirm correct fit and that locking mechanisms work as intended. After inspection, these instruments should be disassembled before packaging for sterilization. • Lighted magnification should be used to inspect hard-to-clean areas of devices for cleanliness. • The internal channels of reusable arthroscopic shavers should be inspected using an endoscopic camera or borescope. • Insulated devices should be visually examined and tested using equipment designed to detect insulation failure.
XI	Special precautions should be taken during processing of intraocular ophthalmic instruments.	• Immediately after use during the procedure, ophthalmic instruments should be wiped clean with sterile water and a lint-free sponge and flushed or immersed in sterile water according to the manufacturer's written IFU. • Intraocular instruments should be cleaned in a designated cleaning area. Intraocular instruments should be cleaned separately from general surgical instruments. • Cleaning products used to clean intraocular instruments should be selected and used in accordance with the instrument manufacturer's written IFU. • After cleaning, ophthalmic instruments should be rinsed with a copious amount of water. • A final rinse should be performed with sterile distilled or sterile deionized water. • After manual cleaning, unless contraindicated in the manufacturer's written IFU, instruments should be disinfected by wiping and by rinsing lumens with 70% to 90% alcohol and should be dried before they are packaged for sterilization. • After cleaning and decontamination, instruments that have been in contact with ophthalmic viscoelastic material should be inspected for residual ophthalmic viscoelastic material under magnification.
XII	Laryngoscope blades and their handles should be cleaned, decontaminated, dried, and stored in a manner that reduces the risk of exposing patients and personnel to potentially pathogenic microorganisms.	• After each use, laryngoscope blades should be cleaned and high-level disinfected or sterilized according to the manufacturer's written IFU. • Laryngoscope handles should be cleaned and low-level disinfected after each use and may be high-level disinfected or sterilized according to the manufacturer's written IFU. • Cleaned and disinfected laryngoscope blades and handles should be packaged and stored in a manner that prevents contamination. o Laryngoscope blades should be stored in individual packages.
XIII	Special precautions should be taken to minimize the risk of transmission of prion diseases from contaminated instruments.	• A multidisciplinary team that includes infection preventionists, perioperative RNs, sterile processing personnel, surgeons, representatives from the clinical pathology laboratory, and other stakeholders should establish, document, and implement evidence-based policies and procedures to minimize the risk of prion disease transmission.

(continued) Guideline Summary: Cleaning and Care of Surgical Instruments[1]		
#	Recommendation	Key points
		• Single-use surgical drapes, gowns, and supplies should be used whenever possible and discarded after use. • Instruments used on high-risk tissue of patients at high risk for prion disease should be designed for single use. If single-use instruments are not available, reusable instruments should be limited to those that are easy to clean. The number of instruments used should be kept to a minimum. • Instruments that cannot be cleaned or that require sterilization using low-temperature technologies should not be used or should be discarded. • Instruments should be decontaminated in a mechanical washer as soon as possible after use. • Cleaning chemicals that have evidence of prionicidal activity and that are compatible with the instruments to be cleaned should be used. • After decontamination, one of the following three methods recommended by the Society for Healthcare Epidemiology of America should be used to steam sterilize instruments exposed to high-risk tissue: o prevacuum sterilization at 273° F (134° C) for 18 minutes, o gravity displacement sterilization at 270° F (132° C) for 60 minutes, or o immersion in 1 N NaOH (ie, 40 g NaOH in 1 L water) for 60 minutes, then removal, rinsing with water, and sterilization using one of the cycles noted above. • An instrument-tracking process should be used that provides for tracking of surgical instruments used on high-risk tissue (eg, spinal and brain surgery). • Noncritical environmental surfaces contaminated with high-risk tissue from a patient known or suspected to have a prion disease should be cleaned and then spot decontaminated with a 1:5 or 1:10 dilution of hypochlorite for a contact time of 15 minutes or with 1 N NaOH.
XIV	Documentation of instrument cleaning and disinfection processes should be maintained.	• Cleaning and decontamination documentation should include the o date, o time, o identification of instruments, o method and verification of cleaning and results of cleaning audits, o number or identifier of the mechanical instrument washer and results of washer efficacy testing, o name of the person performing the cleaning and decontamination, o lot numbers of cleaning agents, o testing results for insulated instruments, o disposition of defective equipment, and o maintenance of cleaning equipment.

1. Guideline for cleaning and care of surgical instruments. In: *Guidelines for Perioperative Practice*. Denver, CO: AORN, Inc; 2015:615-650.

AORN has developed this Guideline Summary as a service to AORN members. The summary is intended to be an adjunct to the complete guideline document upon which it is based and is not intended to be a replacement for that document. Individuals who are developing and updating organizational policies and procedures should review and reference the full guideline.