



Guidelines for Routine Environmental Cleaning of the Operating Room

EVIDENCE INFORMED PRACTICE TOOLS

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PURPOSE AND INTENT

1. To provide evidence based guidelines for thorough and consistent cleaning practices of routine preliminary, intraoperative, end of procedure, terminal, daily, weekly and monthly cleaning of the operating room theatre.
2. To foster an environment of teamwork and collaboration within the operating room.
3. To provide a clean environment to patients and minimize exposure risk to Operating Room (OR) personnel and patients.

1. Practice Outcomes

1. Operating Room (OR) theatres will be cleaned safely in a consistent way across all WRHA facilities using regionally approved product(s).
2. A multidisciplinary team at each WRHA site will develop specific processes for OR environmental cleaning based on recommendations within this EIPT.
3. Ensure safe, effective and timely changeovers.
4. Staff responsible for Environmental Cleaning of the OR will receive initial education at all sites on the content of this document.

2. Background

- Current recommendations from ORNAC, PIDAC, CDC and AORN were reviewed by a working group which included representation from the Operating Room, Infection Prevention and Control, Environmental Services and Clinical Engineering.
- Current practices within the WRHA were reviewed by the group as well as current products used within the OR setting. Current products available within the WRHA and used at the sites were reviewed.
- Accreditation Canada 2016 Guidelines for Perioperative Accreditation with high priority criteria include:
“The cleaning schedule should address preliminary cleaning, end-of-procedure cleaning, terminal cleaning, weekly cleaning, and monthly cleaning.”
- Infection Prevention and Control Accreditation Guidelines have related high priority criteria:
“The organization categorizes the areas in the physical environment based on the risk of infection to determine the necessary frequency of cleaning, the level of disinfection, and the number of environmental services staff required.”
“The organization has policies and procedures for cleaning and disinfecting the physical environment and documenting this information.”

3. Definitions

Cleaning: The physical removal of foreign material, e.g. dust, soil, and organic material such as: blood, secretions, excretions and microorganisms. Cleaning physically removes rather than kills microorganisms. It is accomplished with water, detergents and mechanical action.

Contact Time: The defined time for which surfaces are exposed to a chemical or thermal disinfection process to achieve the appropriate level of disinfection.

Disinfectant: Product used on inanimate objects to reduce the quantity of microorganisms to an acceptable level. Hospital-grade disinfectants require a drug identification number (DIN) for sale in Canada.

Disinfection: The inactivation of disease-producing microorganism with the exception of bacterial spores. Hospital-grade disinfectants are used on inanimate objects and require a drug identification number (DIN) for sale in Canada. Medical equipment must be cleaned properly before effective disinfection can take place. See also, *Disinfectant*.

Operating Room (OR): The unrestricted, semi-restricted and restricted areas within the department in which surgical or invasive procedures are performed.

Operating Room (OR) Theatre: A restricted area in which surgical and invasive procedures are performed, including but not limited to the scrub area.

4. Cleaning Practice Recommendations:

General Principles:

- The perioperative team share the responsibility and accountability for ensuring a clean environment for each patient.
- Don appropriate Personal Protective Equipment (PPE) according to Routine Practices; refer to product Safety Data Sheet if necessary.
 - Gloves: some products may require the use of nitrile gloves.
 - Masks and eye protection: to protect the mucous membranes of the eyes, nose, and mouth from inadvertent exposure to blood and body fluids as well as to cleaning products (corrective lenses are not considered adequate eye protection).
 - Gowns protect the uniform from contact with blood and body fluids and splashing.
- When disinfectant products are chosen the following characteristics should be given consideration:
 - Targeted microorganisms.

- Product must remain wet for duration of contact time to ensure effectiveness.
- Ease of use.
- Manufacturer’s instructions for use.
- Compatibility with surfaces, cleaning materials, and equipment.
- Patient population (i.e. Neonates).
- Safety.
- Ensure Safety Data Sheets are available and accessible.
- Reusable or single use low-lint cleaning materials should be used.
- Mop heads are to be changed after each use and not reintroduced into the bucket.
- Equipment stored in the OR Theatre should be kept to a minimum.
- OR doors shall remain closed at all times including during cleaning.
- Perioperative RN should visually inspect the OR for cleanliness before the case carts, supplies, and equipment are brought into the room.
- Consult with Infection Prevention and Control department when considering new equipment for evaluation according to Level 1 WRHA Policy 90.00.100 [Pre- Purchase Assessment of Multi-use Medical Devices \(Instruments and Equipment\)](#).

Preliminary Cleaning:

- Damp dust horizontal surfaces prior to first case.
 - Use a clean, lint-free cloth moistened with low-level disinfectant.
 - Start at higher surfaces and work down in a clockwise manner.
 - Damp dust equipment before it is brought into or out of the OR theatre.
- Inspect OR Theatre lights for cleanliness before the first case of the day.

Intraoperative Cleaning:

- The responsibility for verifying disinfection of a contaminated surface rests with the perioperative team member who is first aware of the contamination.
- All contaminated (by blood, body fluids, or other potentially infectious material) items or surfaces occurring intra-operatively are to be promptly cleaned/disinfected as required using facility approved disinfectant.
- Equipment leaving the OR Theatre is cleaned and disinfected with hospital approved disinfectant.
- Chemical spills occurring intra-operatively are to be managed as per site/regional policy/procedure and according to the SDS.

Between Procedure:

- Each OR theatre must be cleaned and disinfected immediately after each case.
- Prior to cleaning, remove all trash, linen, and recycling from the room including soiled anesthesia equipment and supplies.
- All surfaces that have been in direct or indirect contact with the patient or body fluids are considered to be contaminated and therefore are to be cleaned/disinfected with a hospital approved disinfectant.

- It is the responsibility of the perioperative nurse to ensure OR Theatres are cleaned/disinfected as required after each patient.
- Environmental cleaning of the OR Theatre will begin after the patient has left the area.
- Wipe touched objects and areas after each procedure (i.e., control panel, switches, knobs, work area, handles, computer keyboards and components) with a hospital approved disinfectant.
- Cleaning and disinfectant should progress from least contaminated to most contaminated and top to bottom areas.
- Clean floors within 1.5 meters of the operative area, extend area if visibly soiled, including floor area under the OR bed.
- Clean and disinfect walls if soiled or potentially soiled.
- Items used for patient care and during a surgical or invasive procedure should be cleaned and disinfected, including but not limited to:
 - OR beds and reusable straps
 - OR bed attachments (i.e., arm boards, stirrups, head rests)
 - positioning devices (i.e., gel rolls, vacuum pack positioning devices)
 - patient transfer devices
 - overhead procedure lights
 - tables and Mayo stands
 - mobile and fixed equipment (i.e., suction regulators, medical gas regulators, imaging viewers, viewing monitors, radiology equipment, electrosurgical units, microscopes, robots, lasers).

Note: Items used for anesthesia during patient care should be cleaned and disinfected after each patient use, including:

- Anesthesia carts
- Equipment (i.e., IV poles, IV pumps)
- Anesthesia machines
- Patient monitors
- Non-critical equipment such as blood pressure cuffs.

Terminal Cleaning:

- Staff performing cleaning may be required to wear additional PPE during terminal cleaning after procedures with Additional Precautions.
- OR Theaters are to be terminally cleaned at minimum once every 24 hours during a regular work week regardless of whether the theatre has been used.
- All floors should be cleaned using a wet vacuum or single-use mop and a disinfectant (follow dwell time indicated on manufacturer's instructions).
- Floor cleaning should progress from cleanest area to dirtiest, from perimeter of the room to the centre.
- Cleaning and disinfecting of all exposed surfaces including but not limited to :
 - Anesthesia carts and equipment
 - Anesthesia machines

- Patient monitors
- OR beds
- Reusable straps
- Bed attachments
- Positioning devices
- Transfer devices
- Overhead lights
- Tables and Mayo stands
- Mobile and fixed equipment
- Storage cabinets, supply carts, and furniture (including wheels/casters)
- Light switches
- Door handles and push plates
- Telephones and mobile communication devices
- Computer accessories
- Chairs, stools, and step stools
- Trash and linen receptacles
- OR theater walls
- Scrub sinks and surrounding walls.

See Appendix B for suggested daily, weekly, and monthly cleaning schedules and Appendix C for a suggested Zone cleaning map.

5. Specialty Equipment Cleaning Recommendations

Refer to equipment manufacturer's instructions for cleaning to verify the suggested cleaning methods below. This is not an all-inclusive list of equipment found in the OR; please refer to manufacturer's instructions or site specific procedures for cleaning of equipment not listed in this EIPT.

Endoscopic Towers:

- Wipe display screens including pressure and temperature displays with alcohol (70% recommended unless otherwise specified).
- Wipe visibly soiled areas with detergent before disinfection.
- Wipe foot switches with hospital approved disinfectant.
- Refer to cleaning instructions for site specific practice when cleaning monitors.

Computer and Accessories:

- Wipe after each use with hospital approved disinfectant.
- Wipe keyboards daily at minimum with hospital approved disinfectant if the keyboard was not used throughout the day's slate.

- Disinfect keyboards weekly by immersing in hospital approved disinfectant or as per manufacturer instructions.

Microscopes:

- Use dust covers when not in use.
- Use dry lint free cloth to remove dust if needed.
- Wipe Objectives and Eye Pieces with pure (100%) alcohol after use or according to manufactures instructions.
- Wipe entire machine (excluding Objectives and Eye Pieces) according to equipment cleaning instructions.
- Wipe Touch Panel with cloth moistened with hospital approved disinfectant.
- Wipe foot switches according to manufacturer's instructions.

Lasers:

- Wipe machine using hospital approved disinfectant.
- Insert cap into micromanipulator and wipe with cloth moistened with hospital approved disinfectant.
- Wipe lens with cotton swap moistened with pure alcohol.
- Do not immerse couplers.

Velcro:

- Remove lint and soak using hospital approved disinfectant, allow to dry completely.

Warming Cupboards:

- Empty and wipe entire cupboard from top to bottom with hospital approved disinfectant.

6. References

- 1) Accreditation Canada Standards: Perioperative Services and Invasive Procedures, 2016.
- 2) *AORN Perioperative Standards and Recommended Practices*, 2014 Edition. Recommended Practices for Environmental Cleaning.
- 3) *The ORNAC Standards for Perioperative Registered Nursing Practice*, 12th Edition-May 2015.
- 4) *Provincial Infectious Diseases Advisory Committee (PIDAC)*. Best Practices for cleaning, Disinfection and Sterilization of Medical Equipment/Devices. Public Health Ontario: 2013.
- 5) Phillips NF. Berry & Kohn's *Operating Room Technique*. 12th ed. Berry EC, editor. St. Louis, Mo.: St. Louis, Mo.: Elsevier; 2013.
- 6) William A. Rutala and David J. Weber (2014). Selection of the Ideal Disinfectant. *Infection Control & Hospital Epidemiology*, 35, pp 855-865.

7. Authorship

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8. Appendix A: Facility Approved Disinfectants

Facility Approved Disinfectants

	Product name	Active ingredient	Kill & wet contact time	Suitability	Comments
1.	ArjoHuntleigh	Quaternary Ammonium	Variable	Non-porous hard surfaces	For Specialized use with Arjo tubs: follow product IFU (instructions for use) in tub manual
2.	Cavicide	Quaternary Ammonium	3 minute wet contact time	Non-porous hard surface	For Specialized use
3.	Caviwipes	Quaternary Ammonium	1 minute wet contact time	Non-porous hard surfaces	For Specialized use: e.g. EKG electrodes
4.	Fisher Scientific (60-665-24) Isopropyl Alcohol wipes	70% isopropyl alcohol 6x9 wipe	Variable	Non-porous hard surfaces	For Specialized use Remove soil first. No activity through soil
5.	Oxivir Plus	Accelerated Hydrogen Peroxide	1 minute wet contact time	Non-porous hard surfaces	For Specialized use: Hydrotherapy tubs and non-jetted tubs.
6.	Accel Intervention RTU Liquid	Accelerated Hydrogen Peroxide	1 minute wet contact time	Non-porous hard surfaces	The “on contract” disinfectant for everyday use.
7.	Accel Intervention RTU Wipes	Accelerated Hydrogen Peroxide	1 minute wet contact time	Non-porous hard surfaces	The “on contract” disinfectant for everyday use.
8.	Accel Prevention RTU Liquid	Accelerated Hydrogen Peroxide	3 minute wet contact time	Non-porous hard Surfaces	Intermediate level surface disinfectant
9.	Accel Prevention RTU Wipes	Accelerated Hydrogen Peroxide	3 minute wet contact time	Non-porous hard Surfaces	Intermediate level surface disinfectant
10.	Clorox Healthcare Bleach Germicidal Wipes	Sodium Hypochlorite	3 minute wet contact time	Non-porous hard Surfaces	Use as appropriate
11.	Rescue Sporicidal RTU Liquid	Accelerated Hydrogen Peroxide	10 minute wet contact time	Non-porous hard surfaces	For consideration during Clostridium difficile Associated Disease (CDAD) outbreak management only; consult with IP&C first
12.	Rescue Sporicidal RTU Gel	Accelerated Hydrogen Peroxide	10 minute wet contact time	Non-porous hard surfaces	For consideration during Clostridium difficile Associated Disease (CDAD) outbreak management only; consult with IP&C first
13.	Rescue Sporicidal RTU Wipes	Accelerated Hydrogen Peroxide	10 minute wet contact time	Non-porous hard surfaces	For consideration during Clostridium difficile Associated Disease (CDAD) outbreak management only; consult with IP&C first

Facility Approved Cleaner

	Product name	Active ingredient	Kill & wet contact time	Suitability	Comments
1.	Perdiem	Hydrogen Peroxide	Not applicable for cleaning*	Non-porous hard Surfaces	Commonly used as a cleaner. Limited use as a disinfectant at full strength *with a 10 minute contact time

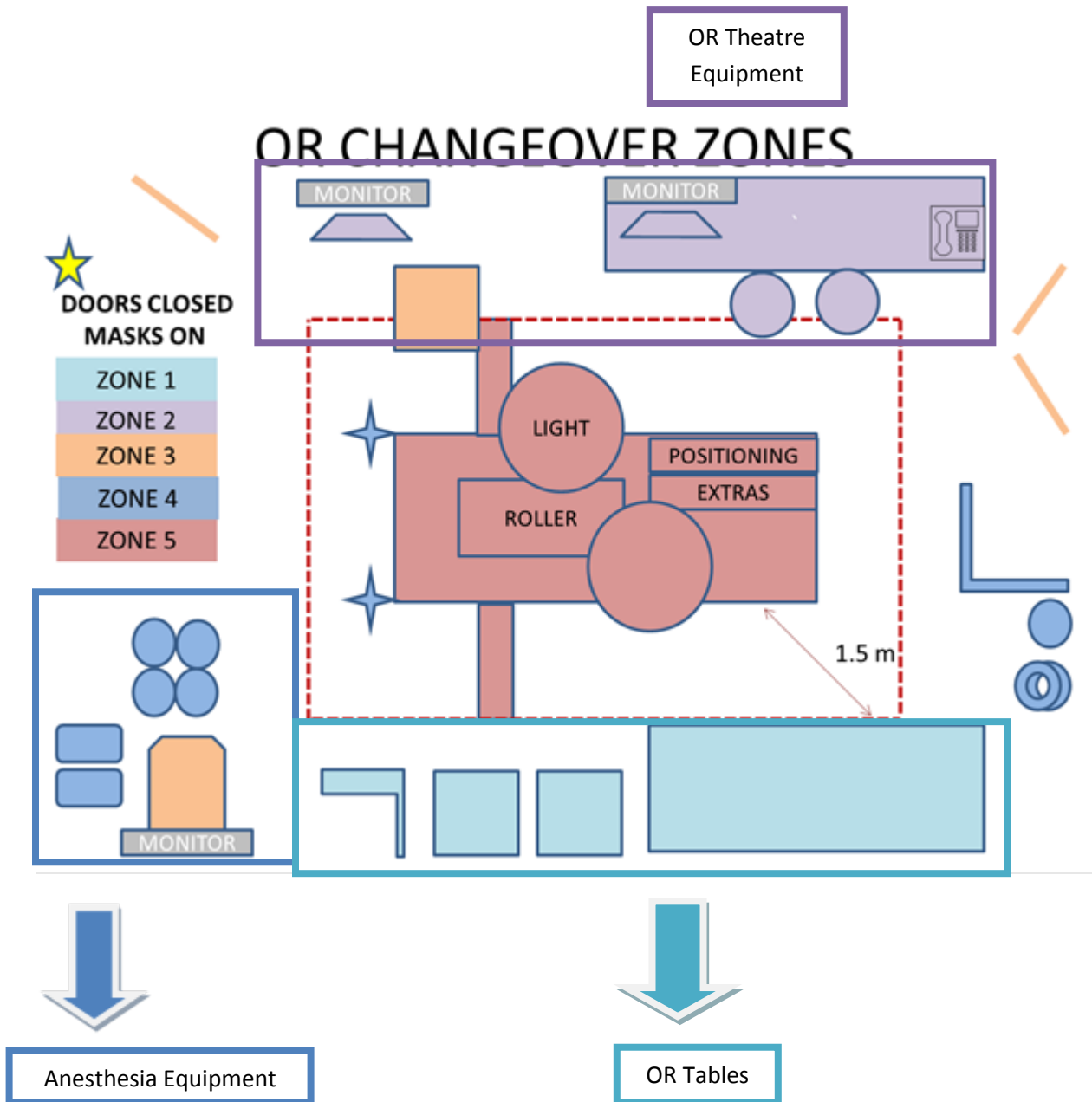
If you are using a product not on this list, please contact your site Infection Control Professional.
Products listed in table were up-to-date at the time of publishing.

Test disinfectant before using on any transparent surface as “clouding” may result

9. Appendix B: Suggested Daily/ Weekly/ Monthly Cleaning Schedule

Daily	Weekly	Monthly
Empty/replace suction canisters	Refrigerators for Medication	General supply carts
Empty/rinse mop pails	Computer keyboards (soaking)	Portable supply cart
Dirty rags to housekeeping	Workroom/supply room	Isolation cart
Inspect soiled room/dirty cart	Electrosurgery/cautery consoles	Dry dust shelves
Clean tourniquets/O rings intact	Formalin cupboard	Bins and wire cart
Safety straps	Battery chargers	Clean Autoclave
Clean theatres	Scope towers/ storage bins	Air vents/vent ducts
Clean and put away equipment	Empty/rinse/clean/dry disinfectant bottles	Theatre walls
Computer keyboards (basic)		Warming cupboards
Remove garbage and linen		Plaster carts
Scrub Sinks		Sterile Core (walls and floors)
Mop pails		Clean OR storage room
Outside of warming cupboards		Cast cutter
Corridors		

10. Appendix C: Sample OR Changeover Zones



11. Appendix D: Site Implementation Plan

Following the development of the EIPT document it is the responsibility of the individual sites to implement the following steps as necessary.

1. Establish a multi-disciplinary site team of all those involved in the cleaning procedures of the OR to review the EIPT document and determine what gaps exist in current practice compared to the best practices described in the EIPT. Consideration should be given to possible cost increases due to product and/or practice change. Consult Senior Leadership as required.
2. Develop a site specific procedure, protocol, or standard operating practice in alignment with the best practices outlined within this Guideline. An example of a zone cleaning map is included in Appendix C.
3. Develop site specific procedures for any specialty equipment not covered with the parameters of the EIPT ensuring manufactures instructions for use are reviewed and IP&C is consulted.
4. Educate all staff members who are responsible for the cleaning of the OR environment regarding the new procedures. Resources for education are available here <http://www.wrha.mb.ca/extranet/eipt/files/EIPT-053-002.pdf>
5. Implement changes following the education of staff.
6. Monitor and evaluate compliance with cleaning procedures. Audit tools for compliance are available here <http://www.wrha.mb.ca/extranet/eipt/files/EIPT-053-003.pdf> , <http://www.wrha.mb.ca/extranet/eipt/files/EIPT-053-004.pdf>