

TITLE: IPC PRINCIPLES FOR ENVIRONMENTAL CLEANING AND DISINFECTION	
NUMBER: 2 ND EDITION	DATE: OCTOBER 2013 JUNE 26 2017

Note: Terms in bold are defined in the Definitions section.

If you have any questions or comments regarding the information in this Best Practices Guideline, please contact Infection Prevention & Control at infectionpreventioncontrol@albertahealthservices.ca.

PURPOSE

- To describe Infection Prevention and Control (IPC) principles applicable to **cleaning** the environment and **non-critical medical devices/equipment** where care is provided [i.e. cleaning tasks performed by Environmental Services and others (e.g. nursing, allied health) at the point-of-care].
- To support existing Alberta Health Services (AHS) protocols, procedures and standards related to environmental cleaning.

Note: This document does not address **semi-critical** or **critical medical devices**.

APPLICATION

This guideline should be followed by all AHS staff, medical staff, volunteers, students and other persons acting on behalf of AHS.

IPC PRACTICES

1. Routine Practices

- 1.1 Routine practices are implemented by all healthcare providers to prevent the spread of infections.
 - a. [Routine Practices](#) include (but are not limited to):
 - [hand hygiene](#)
 - [point-of-care risk assessment](#)
 - [personal protective equipment](#)
 - handling of patient care items and equipment
 - [waste and sharps handling](#)
 - environmental cleaning
- 1.2 Hand hygiene is the most important factor in preventing transmission of microorganisms.
 - a. Perform hand hygiene as per AHS Hand Hygiene [Policy](#) and [Procedure](#).
- 1.3 Perform a point-of-care risk assessment before cleaning the patient's room or space to evaluate the likelihood of exposure to blood and body fluids. Choose the appropriate **personal protective equipment** (PPE) to minimize the risk of exposure.
 - a. Wear gloves before contact with blood, body fluids, excretions or secretions, and to handle **dirty** or potentially contaminated items.
 - Wear disposable gloves for routine cleaning activities.
 - If reusable gloves are required (intended for use when a more physically protective glove is required e.g. recommended in manufacturer's instructions for use, cleaning rough surfaces):
 - o Dedicate to a specific staff member

- o Clean according to the manufacturer's instructions
 - o Ensure gloves are dry inside and out before reuse.
 - o Inspect for damage after each use and discard if showing signs of deterioration, peeling, discoloration, tears, holes or puncture
 - b. Wear additional PPE such as gowns, eye protection, and mask if required to protect skin and clothing from splashes or sprays (e.g. cleaning large spills).
 - c. Follow posted signs in rooms with **Additional Precautions** (Refer to [Resource Manuals](#) for setting-specific recommendations: Acute Care, Community-Based Services, and Continuing Care).
 - d. Select PPE for handling chemicals based on the manufacturer's instructions and **Material Safety Data Sheets/Safety Data Sheets**.
 - e. Change PPE (e.g. gloves) if visibly soiled, damaged, or if moving from a **dirty task** to a **clean task**, to prevent cross contamination.
- 1.4 Handling of patient care items and equipment:
- a. Handle soiled or used linens with minimal agitation and place directly in linen bag without sorting. Do not overfill bags. Double bag only if linen bag is leaking.
 - b. After patients are discharged or transferred, discard single-use supplies that remain and launder unused linens. (Refer to [Management of Patient Supplies on Discharge or Transfer](#)).
 - c. Used meal trays and dishes do not require special handling. Place on the dietary cart or in an area designated for used dishes.
 - d. Handle waste materials (general, biomedical, sharps) safely during disposal (sorting, discarding, storing).
 - Dispose of contaminated single-use sharps including needles, knives, scalpels, blades, scissors, and other items that can cut or puncture the skin into a sharps container at point-of-care.
 - e. Regular and ongoing cleaning reduces contamination and the risk of germ transmission.
 - Clean and disinfect reusable non-critical devices before use on another patient, when visibly soiled, and on a regular basis e.g. once daily or weekly. Bring minimal cleaning supplies (e.g. enough for immediate use) into patient rooms, tub rooms, and treatment rooms. (Refer to [Management of Patient Supplies on Discharge or Transfer](#)).

GUIDELINES

2. Policies and Procedures

- 2.1 Linen and Environmental Services standards and guidelines, available on AHS Insite, establish best practice and provide detailed procedures and protocols for specific cleaning activities. These resource documents may be used by other AHS owned and managed facilities (e.g. AHS departments, contracted service providers, and partner sites) for developing their own standards and protocols.
- 2.2 Develop department or unit specific standards and protocols that:
- a. Define roles and responsibilities (e.g. the assignment of cleaning tasks/specific equipment) for each unit or area.
 - b. Ensure non-environmental services cleaning staff have necessary supplies (e.g. ready-to-use **disinfectant** wipes, pre-mixed disinfectant solution, buckets, and cloths) to perform urgent cleaning tasks after hours. For more information, refer to Key Points for Ready-to-Use Disinfectant Wipes.
 - c. Define regular cleaning and **disinfection** tasks and those performed on an as-needed basis.
 - d. Include a method to differentiate **clean** items from soiled items.
 - e. Designate separate areas for handling/storing clean and soiled items.
 - f. Include IPC requirements for selection and purchase to ensure equipment and surfaces (including donated furnishings and other items) can be effectively cleaned and disinfected:
 - Choose cleanable materials and finishes that are smooth, non-porous, water resistant, durable, and compatible with AHS cleaning and disinfection products.
 - g. Include a process for identifying and reporting damaged (e.g. scratched, chipped, or torn) surfaces that impair effective cleaning and removing them from service.
 - h. Align with IPC resources available on the IPC External Website including Best Practice Recommendations (e.g. [Management of Patient Supplies on Discharge or Transfer](#), [Cleaning & Disinfection of Information Technology & Telephone Equipment & Devices](#), [Patient Care Tubs](#), and [Selection of Furniture and Other Non-Medical Devices for Patient Care Areas](#)).

3. Education and Training

- 3.1 All staff performing cleaning and disinfecting tasks should be knowledgeable about Routine Practices, Additional Precautions, environmental cleaning principles, cleaning and disinfection products, recommended cleaning frequencies, and cleaning methods so that cleaning is safe and effective.

- a. AHS Linen and Environmental Services provides training (online and in-person) for Environmental Services staff related to current standards, cleaning protocols, and practice support documents and maintains records of training provided.
- b. Online training videos are available on My Learning Link (i.e. Occupied Patient Room Cleaning for Environmental Services Workers; Discharge/Transfer Patient Room Cleaning for Environmental Service Workers; Infection, Prevention and Control for Environmental Services; Isolation Cleaning for Environmental Service Workers; and Washroom Care for Environmental Services).
- c. Education and training resources are provided on the AHS Linen and Environmental Services Insite page and the IPC [External Website](#).
- d. Select training resources are available, for learners and non-employees of AHS without access to My Learning Link or Insite, on an [AHS external website for Health Professionals](#). Annual Continuing Education (ACE) courses such as the [IPC module](#) and [Linen and Environmental Services Learning](#) videos can be accessed.

4. Minimum Cleaning Frequency (Refer to AHS [Environmental Services Cleaning Frequency Expectations](#))

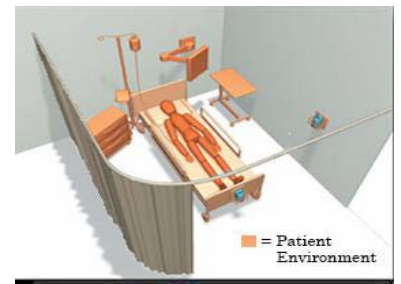
4.1 Cleaning is done on a regular, consistent basis.

- a. Clean the **patient environment** and toilet rooms at least daily, on patient discharge or transfer, and when visibly soiled. Before a new patient is admitted, the room and patient environment must be clean (for more information refer to the Environmental Services [Occupied Patient Room Cleaning for Environmental Services](#) and [Discharge-Transfer Patient Room Cleaning](#)).
- b. Clean and disinfect non-critical equipment before use on another patient.

Note: the patient environment can be visualized as a personal bubble or space, extending about 2 metres around the patient, wherein microorganisms are predominantly from the patient.

4.2 Factors that impact recommended cleaning frequencies are:

- a. Frequency of touch
- b. Likelihood of contamination based on usual or expected activities
- c. Patient population. For more information, refer to [Linen and Environmental Services Cleaning Frequencies](#)
 - Areas are classified as very high, high, moderate, and low risk depending on patient population, activities being performed and microbial load.
- d. Level of communicable disease activity (e.g. [outbreak](#)):



Adapted from the World Health Organization's "My 5 Moments for Hand Hygiene".

- Clean and disinfect **high touch** surfaces frequently during an outbreak (e.g. if surfaces are being cleaned once daily this should be increased to more than once a day and as needed).
- Clean and disinfect the room and equipment when a patient is taken off Additional Precautions (unless Additional Precautions removed because patient tested negative and has no positive history).
- Clean and disinfect all affected areas at the end of the outbreak.

4.3 Cleaning and Disinfection Methods:

- a. Cleaning is the physical removal of soil and debris through the mechanical action of wiping with a clean wet cloth or mop. Surfaces must be cleaned of visible soil before they can be disinfected as dust, dirt, and organic matter interferes with the effectiveness of the disinfectant.
- b. Disinfection is the inactivation of disease producing microorganisms through wetting of a surface with a ready-to-use disinfectant wipe or cloth saturated with a disinfectant solution prepared according to the manufacturer's instructions for use. To achieve disinfection the surface must stay wet for the manufacturer's recommended **contact time**.
- c. Where a disinfectant claims to have both cleaning and disinfecting properties, the product may be used for both steps (following manufacturer's instructions).
- d. Before cleaning:
 - Gather necessary cleaning materials.
 - Remove unnecessary items from surfaces to be cleaned.
 - Clean reusable equipment before removing from the patient space.
 - Collect and handle waste bags from the top.
 - Check sharps containers and replace when they are $\frac{3}{4}$ full or reach the fill line. Do not overfill.
- e. Prepare cleaning and disinfectant solutions:
 - Dispense cleaning and disinfectant products into clean, dry, appropriately sized containers that are clearly labelled and dated. Discard solution after expiry date.
 - Follow manufacturer's instructions for intended use
 - Dilute according to manufacturer's instructions. Automated methods of dilution improve dilution accuracy
 - Check solution concentration as per facility policy and manufacturer's instructions using manufacturer's recommended test strips at least daily or more frequently as per site requirements.
 - Use a ready-to-use wipe or clean cloth/mop saturated with disinfectant. For more information, refer to [Key Points for Ready-to-Use Disinfectant Wipes](#)
- f. During the cleaning and disinfection process:

- Follow manufacturer's instructions for disinfection contact time.
- Only use a clean cloth to enter the cleaning or disinfectant solution. Do not dip a used cloth into the cleaning or disinfectant solution (**double dipping**).
- Proceed from:
 - Clean areas to dirty areas. Toilet rooms should be cleaned last.
 - Low frequency touch to high frequency touch surfaces.
 - Higher surfaces to lower surfaces.
- Change cloths/mop heads when:
 - Visibly soiled.
 - No longer wet enough to moisten surfaces.
 - Moving from a dirty area to a clean area.
 - Exiting a patient room under Additional Precautions.
- If required, wipe any cleaning product residue with a clean, damp cloth.
- Rinse, if required by the manufacturer's instructions for use.
- Minimize shaking of items such as cleaning cloths, mops, and linen to prevent scattering or spreading of dust.

4.4 Cleaning and Disinfection Products and Equipment:

- a. Coordinate purchase, trialling or testing of any new products or equipment with Linen and Environmental Services, IPC, Workplace Health and Safety, and Contracting, Procurement and Supply Management (CPSM). For more information, refer to [New Products and Technology information sheet](#).
- a. Use only **hospital grade**, facility provided, cleaning and disinfection products and equipment as they have been evaluated and meet criteria such as:
 - Intended for use in disinfecting hard surfaces in hospitals and public buildings.
 - Effective performance (e.g. broad spectrum, fast acting, remains wet for required contact time, easy to use, acceptable odor, economical, stable, good cleaning properties, and non-flammable).
 - **Drug Identification Number** or **Natural Product Number** (alcohol disinfectant) from Health Canada.
 - Compatible with other cleaning and disinfection products.
 - Manufacturer's instructions for use and labelling outlines:
 - Intended use and purpose.
 - Type of surface to which the product may be applied (e.g. floors, walls, countertops).
 - Specific instructions for in-use dilution of dilutable products.
 - Contact time.
 - Rinsing instructions for products, if required e.g. used on hard surfaces or objects which patients may put in their mouth, or touch mucous membranes. For more information, refer to the IPAC Canada [Practice Recommendation for Toys](#).

- b. Do not use non-approved products such as **household cleaning products**.
- c. Select the appropriate product for the intended task (e.g. cleaning or disinfecting).
- d. Follow the manufacturer's instructions for use **and Material Safety Data Sheets/Safety Data Sheets** (e.g. wear gloves when handling, if recommended) for both products and equipment.
- e. Barriers (e.g. covers, sheaths) may be used to protect surfaces from soiling but don't replace the cleaning process.
- f. Do not mix different types of cleaning/disinfecting products (unless specified by the manufacturer) as the chemicals may react with each other (e.g. enhanced hydrogen peroxide products and quaternary ammonia products).
- g. Check the expiry date prior to use.
- h. Use ready-to-use disinfectant wipes for point-of-care cleaning and disinfecting of patient equipment such as:
 - Items in the care environment that will not tolerate soaking (multiple wipes are required for disinfection of large pieces of non-critical equipment).
 - Small non-critical equipment disinfected between patients at the point-of-care (e.g. stethoscope).For more information, refer to [Key Points for Ready-to-Use Disinfectant Wipes](#).
- i. Use cleaning equipment designated for the area.
- j. Keep equipment well maintained and in good repair. Observe cleaning equipment and environmental surfaces for cracks, breakdown, wear, and damage and take damaged equipment out of service. Report equipment that needs repair, service, or replacement according to established processes and protocols.
- k. Store equipment in a manner that maintains cleanliness and prevents cross contamination (e.g. store clean and soiled equipment separately).

5. Storage and Handling

- 5.1 Store all cleaners and disinfectants safely and securely in accordance with manufacturer's instructions for use and Material Safety Data Sheets/Safety Data Sheets.
- 5.2 Avoid overstocking patient rooms with supplies.
- 5.3 Do not top-up liquid dispensers e.g. soap or hand rub.

- 5.4 Do not top-up cleaning and disinfectant solutions. Empty existing contents, then clean and dry the container (e.g. buckets and flip-top bottles) before refilling.

6. Area/Space Requirements for Housekeeping Rooms

- 6.1 Consult Environmental Services if housekeeping rooms are being designed, renovated, or refurbished to ensure the space is practical and meets their needs. Refer to relevant design documents (e.g. AHS Healthcare Facility Design Guidelines available on AHS Insite) for specific requirements.

7. Monitoring/Quality Assurance and Improvement

- 7.1 A process should be in place to monitor the quality of cleaning in the healthcare setting. Results of cleaning audits should be analyzed and reported back to staff. An action plan should be developed to identify and correct deficiencies. For further information, refer to AHS Insite, Linen and Environmental Services, Auditing.

DEFINITIONS

Additional Precautions means extra measures put in place when Routine Practices alone may not interrupt transmission of an infectious agent. They are used in addition to Routine Practices (not in place of), and are initiated both on presentation of symptoms and on specific diagnosis.

Clean means the absence of visible dust, soil, debris, blood, or other potentially infectious material.

Cleaning means the physical removal of foreign material (e.g. dust, soil) and organic material (e.g. blood, secretions, excretions, microorganisms). Cleaning physically removes rather than kills microorganisms. It is accomplished with water, detergents, and mechanical action.

Clean task means any activity that involves contact with a clean surface or item (e.g. bed making, restocking clean dispenser).

Contact time means the length of time, specified by the manufacturer (i.e. disinfectant label), a disinfectant must remain wet on a surface to be effective (i.e. achieve disinfection).

Critical medical devices/equipment means medical equipment/devices that enter sterile tissues, including the vascular system (e.g. biopsy forceps, foot care equipment, dental hand pieces, etc.). Critical medical equipment/devices present a high risk of infection if the equipment/device is contaminated with any microorganism, including bacterial spores. Reprocessing critical equipment/devices involves meticulous cleaning followed by sterilization.

Dirty means the state of a surface in the absence of cleaning where contamination with foreign material (e.g. dust, soil) and or organic material (e.g. blood, secretions, excretions, microorganisms) has occurred, or has possibly occurred.

Dirty task means any activity that involves contact with a dirty surface or item (e.g. cleaning blood spills, emptying garbage).

Disinfectant means a product that is used on healthcare surfaces or non-critical medical equipment and results in low level disinfection of the equipment. Disinfectants are applied only to inanimate objects and may combine a cleaner with a disinfectant. The surface must stay wet for the required contact time of a disinfectant to be effective.

Disinfection means the inactivation of disease-producing microorganisms. Disinfection does not destroy bacterial spores.

Double dipping means dipping a soiled cloth or mop into a cleaning/disinfecting solution(s). Double dipping increases the risk of contamination of the disinfectant solution and equipment used for cleaning.

Drug Identification Number (DIN) means the number disinfectant manufacturers obtain from Health Canada prior to marketing. The DIN indicates that labelling and supporting data have been provided and the Therapeutic Products Directorate has confirmed the product is effective and safe for its intended use. In Canada, disinfectants are regulated as drugs under the Food and Drug Act and Regulations.

High touch means those surfaces that have frequent contact with hands e.g. doorknobs, call bells, telephone, bed rails, light switches, wall areas around the toilet, and edges of privacy curtains. Walls used for mobility and stability are also considered high touch areas.

Hospital grade means a disinfectant with a drug identification number (DIN) from Health Canada and approval for use as a low level disinfectant in Canadian hospitals.

Household cleaning products means all-purpose cleaners, polishes, wipes, and dust-removal products intended for home use. The ingredients in household cleaning products are regulated under the Canadian Environmental Protection Act by Environment Canada and Health Canada.

Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) means a technical document provided by the supplier for every chemical product. The MSDS/SDS provides detailed information about the product and how to work safely with it, including the hazards and the personal protective equipment (PPE) needed when using the product.

Natural Product Number means Health Canada has assessed a product, decided it is safe, effective, and of high quality, and issued a product licence along with an eight-digit Natural Product Number (NPN) or Homeopathic Medicine Number (DIN-HM), which must appear on the label.

Non-Critical Medical Device/Equipment means equipment or device that either touches only intact skin (but not mucous membranes) or does not directly touch the patient. Reprocessing of non-critical equipment/devices involves cleaning and may also require low-level disinfection (e.g. blood pressure cuffs, stethoscopes, mechanical patient lifts, and handling aids).

Patient means an adult or child who receives or has requested healthcare or services from AHS and its healthcare providers or individuals authorized to act on behalf of AHS. This term is inclusive of residents, clients, and outpatients.

Patient environment means the patient and the area immediately (within 2 metres) surrounding the patient. It can accompany the patient in the healthcare environment, wherever

the patient goes (e.g. a patient's wheelchair, walker or IV pole; if the patient is in a lounge or dining room). The patient environment includes any surfaces touched by the patient or healthcare provider during care, such as bedrails, over-bed tables, bedside table, infusion pumps and tubing, and nearby surfaces touched by the healthcare provider including monitors, knobs, and high frequency touch surfaces.

Personal protective equipment (PPE) means clothing or equipment worn by the worker for protection against injuries or infection. Gloves, gown, masks and eye protection will vary based on the point-of-care risk assessment and level of precautions. Staff refer to the Material Safety Data Sheet/Safety Data Sheet (SDS) information for appropriate PPE when handling or preparing chemical agents, and refer to Additional Precautions signs for appropriate PPE prior to cleaning.

Routine Practices means a comprehensive set of IPC measures that have been developed for use in the routine care of all patients at all times in all healthcare settings. Routine Practices aim to minimize or prevent healthcare associated infections in all individuals in the healthcare setting, including patients, healthcare providers, other staff, visitors, and contractors.

Semi-critical means medical equipment/device that comes in contact with non-intact skin or mucous membranes but ordinarily does not penetrate them (e.g. respiratory therapy equipment, trans-rectal probes, and specula). Reprocessing semi-critical equipment/devices involves meticulous cleaning followed by, at a minimum, high-level disinfection.

REFERENCES (complete list of references available on request)

1. Alberta Health Services. 2016. Guide to Conduct Hand Hygiene Reviews. Insite.
2. Alberta Health Services. 2016. IPC Community Based Services Resource Manual: Patient Care Items and Equipment. Retrieved from <http://www.albertahealthservices.ca/assets/healthinfo/ipc/hi-ipc-patient-equipment-community.pdf>.
3. Alberta Health Services. 2016. Infection Prevention and Control (IPC) Health Care Facility Design Guidelines. Insite. Infection Prevention and Control.
4. Alberta Health Services, 2016. Linen and Environmental Health Services Environmental Services Cleaning Frequency Standard ES-STD-CLN-002. Insite.
5. Association of Peri-Operative Nurses (AORN). 2017. Environmental Cleaning Toolkit. Definitions related to Perioperative Environmental Cleaning. Retrieved from https://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwirltuc84SAhUM02MKHaL5CxwQFggpMAA&url=https%3A%2F%2Fwww.aorn.org%2F%2Fmedia%2Faorn%2Fguidelines%2Ftool-kits%2Fenvironmental-cleaning%2Fdefinitions-related-to-environmental-cleaning.pdf%3Fla%3Den&usq=AFQjCNH0UMOVx_Zr6rIIFSKTuf7IVfG4w.

6. Health Canada Hard Surface Disinfectants Monograph. 2015. Revised. Retrieved from <http://www.hc-sc.gc.ca/dhp-mps/prodpharma/applic-demande/guide-ld/disinfect-desinfect/hsd-rev-dsd-eng.php>.
7. Infection Prevention and Control (IPAC)-Canada. 2014. IPAC-Canada Practice Recommendations Environmental Cleaning and Disinfection for Emergency Vehicles. Retrieved from http://ipac-canada.org/photos/custom/OldSite/pdf/PHCIG_Position_Statement_2013.pdf.
8. Ontario Agency for Health Protection and Promotion, Provincial Infectious Diseases Advisory Committee. 2012. Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings. 2nd Revision. Toronto, ON: Queen's Printer for Ontario. Retrieved from http://www.publichealthontario.ca/en/eRepository/Best_Practices_Environmental_Cleaning_2012.pdf.
9. Public Health Agency of Canada. 2013. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. Retrieved from http://www.ipac-canada.org/pdf/2013_PHAC_RPAP-EN.pdf.