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Policy Area Infection Prevention
Applicability UNC Medical Center

Environmental Services

I. Description

Describes the cleaning and disinfection of the hospital environment to reduce the risk of infection for patients, visitors, and personnel

II. Rationale

The hospital environment can become contaminated with pathogenic microorganisms during the course of providing patient care. Appropriate cleaning and disinfection reduces the risk of infection from the inanimate environment.

III. Policy

A. Personnel

1. Personnel shall adhere to the guidelines found in:
 - a. Infection Prevention policy - [Infection Control and Screening Program: Occupational Health Services \(OHS\)](#)
 - b. Infection Prevention policy - [Exposure Control Plan for Bloodborne Pathogens](#)
 - c. Infection Prevention policy - [Hand Hygiene and Use of Antiseptics for Skin Preparation](#)
 - d. Infection Prevention policy - [Tuberculosis Control Plan](#)
 - e. Infection Prevention policy - [Infection Control Guidelines for Adult and Pediatric Inpatient Care](#)
 - f. Infection Prevention policy - [Isolation Precautions](#)

2. Infection prevention and control education, which includes OSHA-required Bloodborne Pathogens and Tuberculosis training, is provided initially upon employment and completed annually via the Learning Made Simple System (LMS).

B. Routine Cleaning

1. Cleaning of the hospital environment is outlined in the service agreement between Environmental Services (ES) and UNCMC. The elements of the service level agreements for patient rooms, clinics, outpatient, and patient-related areas are included in [Attachment 1 - Environmental Services Department Service Level Agreements](#).
2. Use of an EPA-registered disinfectant will be as follows:
 - a. Soil and dust will be removed from surfaces with a clean cloth and approved EPA-registered disinfectant per manufacturer's instructions for use (MIFU).
 - b. The dilution for the EPA-registered disinfectants must be prepared according to the manufacturer's instructions for use.
 - c. For quality control purposes to ensure minimal effective concentration, any cleaning solution mixed on site should be tested daily per manufacturer's recommendations with the appropriate test strip and the results documented.
 - d. When using cloths containing EPA-registered disinfectants (e.g., Oxivir TB, Sani-Cloths), cloths should be changed whenever visibly soiled or when no longer sufficiently wetting surfaces.
 - e. Use separate cleaning cloths in each patient's restroom.

3. Daily Cleaning of **Inpatient Rooms**

- a. Rooms of individual patients will be cleaned daily as described below using the 7-step method (see [Attachment 2 - The Seven Step Cleaning Method](#)).
 - i. Prior to cleaning each patient room, hand hygiene should be performed and new gloves used.
 - ii. Cleaning should proceed from the cleanest to the dirtiest areas (e.g., the bathroom will be cleaned last followed by the floor).
 - iii. If patient's personal items are stored on surfaces to be cleaned (e.g. on the window sill or over bed table), clean as much of the surface as possible without touching the personal items. Whenever possible, ask the patient or the patient's family to move the items so cleaning may be accomplished.
 - iv. Damp wipe with an EPA-registered disinfectant all touchable/hand contact surfaces below shoulder level, including furniture such as over bed and bedside tables, bed rails, telephone (especially ear and mouthpiece), chairs, the room's doorknob or door handle, and the sill and frame of window. Use glass cleaner to clean interior glass.

- v. Clean bed rails daily. In some settings (e.g., ICUs) it may be necessary to obtain nursing approval and/or supervision prior to cleaning an occupied bed.
- vi. Restroom
 - Surfaces to be cleaned include handwashing facilities, railings next to the toilet, and all parts of the toilet, including the flush handle. The brush used by Environmental Services (ES) to clean toilets should be changed periodically (e.g., monthly), when heavily soiled, when no longer intact, or after use in an Enteric Precautions room.
 - Clean tub/shower facilities if used during the previous 24 hours or if visibly soiled.
 - Refill towel, toilet tissue, and soap dispensers.
 - Check vinyl shower curtains daily, clean when visibly soiled, and replace as needed.
- vii. The walls and closet exterior will be checked daily and spot cleaned as necessary.
- viii. Mold growth or discoloration on walls and ceiling tiles should be reported to the ES supervisor who should contact Plant Engineering and the unit nurse manager.
- ix. The floor (with special attention to the corners) will be damp mopped daily with a microfiber mop. This includes mopping under and behind furniture and doors and in the restroom. The restroom should be mopped last. The microfiber mop head is changed between each patient room.
- x. The sharps container will be checked daily, replaced when $\frac{3}{4}$ full, locked, and the used container discarded in the regulated medical waste container (red bag). This is a shared responsibility with nursing staff.
- xi. The trash receptacles will be cleaned daily and when visibly soiled with an EPA-registered disinfectant. After pulling trash, gloves must be removed and hand hygiene performed between each patient room.
- xii. Check privacy curtains, remove if visibly soiled and replace with clean privacy curtains.

b. Weekly Cleaning

- i. For long term patients (those staying >7 days) and patients who infrequently get out of bed, Environmental Services and Nursing Service will coordinate activities so more extensive cleaning may be completed on a weekly basis. This coordination is necessary because high dusting should not be done when people are present

in the room and cleaning occupied beds in some areas (e.g., ICUs) should be done with nursing approval and/or supervision as the patient's condition allows.

- ii. The following items will be damp wiped with disinfectant at least weekly:
 - Everything above shoulder level, including vents, lights, blinds, picture frames, and television. This cleaning includes the patient's restroom. Ceilings and walls are spot cleaned as needed.
 - Bed frame and other areas of the bed that have not been accessible for daily cleaning.
- iii. For surfaces that have not been cleaned daily because the patient's personal items are in the way: coordinate with the patient's nurse or the unit nurse manager to have these items moved or taken home by the patient's family if possible so cleaning may be accomplished.

c. Discharge Cleaning

- i. Includes everything listed above in daily and weekly cleaning. Those items inaccessible previously will be cleaned at discharge.
- ii. Items to be thoroughly cleaned at discharge include previously inaccessible parts of the bed, the mattress, pillow (if reusable), the interior of the cabinets, closet and dresser, tops of monitors, EKG cables, TV, wall mounted blood pressure cuffs, mobile blood pressure machines that remain in the patient room upon discharge, thermometers, and computer keyboard, mouse, and touch screen (if applicable) with an EPA-registered disinfectant. Computer touch screens should be cleaned according to manufacturer recommendations.
- iii. The mattress should be inspected for tears and if any are found, the charge nurse must be informed.
- iv. Spot clean walls and ceilings as necessary with an EPA-registered disinfectant.
- v. Mold growth or discoloration on walls and ceiling tiles should be reported to the ES supervisor who should contact Plant Engineering and the unit nurse manager.
- vi. Privacy curtains are changed every 3 months, when visibly soiled, and after a patient with carbapenem-resistant Enterobacteriaceae (CRE) is transferred or discharged from an inpatient setting. During terminal cleaning, frequently touched surfaces of the curtains should be sprayed with an approved germicide (e.g. accelerated hydrogen peroxide).
- vii. Vinyl shower curtains are cleaned when visibly soiled or replaced

as needed.

- viii. Inspect vents for dust accumulation and clean exterior as indicated. If dust is noted above the exterior vent surface, notify ES supervisor to place a work order to have the vent interior cleaned by Plant Engineering.

d. Cleaning of Isolation Precautions Patient Rooms

- i. Daily, weekly and terminal cleaning procedures are the same as for non-isolation rooms, except for the following additional guidelines for Enteric Precautions listed below.
- ii. Dust Mopping is not done in isolation rooms. Damp mopping is performed daily.
- iii. For Contact Precautions rooms:

- All cleaning items which are anticipated to be used in the room should be assembled prior to entry, otherwise, personnel needing to leave the room or return to the cart outside the room must remove gloves and gown, wash hands, re-glove, and re-gown upon reentering the room.
- When rooms are being terminally cleaned, leave clean trash receptacle liners on the housekeeping cart until the room is completely cleaned and personal protective equipment (gown and gloves) have been removed and hands washed. Then place clean liners in trash receptacles in the room and perform hand hygiene.
- Privacy curtains are changed after a patient with carbapenem-resistant Enterobacteriaceae (CRE) is transferred or discharged from an inpatient settings.

iv. When cleaning has been completed:

- Using EPA-registered disinfectant, wipe down anything that went into the isolation room before placing back on cleaning cart.
- Remove isolation gown and gloves and perform hand hygiene inside the patient room.
- Remove trash and go directly to deposit area.

v. For Enteric Precautions rooms:

- Surface disinfection of the patient room and restroom will be done once per day and during terminal cleaning, using a bleach-containing EPA-registered disinfectant. The brush used by ES to clean toilets should be discarded after each restroom cleaning.
- Terminal cleans on inpatient rooms should include ultraviolet disinfection per the Environmental Services

policy: [Ultraviolet Device Usage](#). For semi-private rooms, surface disinfect the room and restroom per above guidelines and disinfect with ultraviolet device when safe.

4. Ice Machines

- The exterior surfaces of ice dispenser machines should be cleaned on a weekly basis with an EPA-registered disinfectant or bleach and water to prevent mold and scale accumulation. Weekly cleaning is to include the exterior surface of the water dispenser, the tray beneath the water and ice dispenser, and the internal and external surfaces of the ice and water chutes.

5. Waste Removal

- a. White plastic bag liners are utilized for collection of solid waste in patient rooms. Close and securely tie bags upon removal.
- b. Solid waste from patient rooms will be picked up daily and as needed.
- c. After pulling trash, gloves must be removed, and hand hygiene performed between each patient room
- d. The trash receptacle will be cleaned daily and when visibly soiled with an EPA-registered disinfectant. A clean plastic liner bag will be placed in the trash receptacle daily.
- e. Regulated medical waste must be collected and stored in a secure area. Large waste containers with visible BIOHAZARD labels are located in the soiled utility rooms for disposal of regulated medical waste. These containers are lined with a red biohazard plastic bag. When full, the containers are removed and replaced with new containers. .

6. Linen Removal

- a. All soiled linen is handled as little as possible and is treated as potentially infectious.
- b. All soiled linen will be bagged in fluid resistant linen bags and placed in soiled laundry cart or laundry chute by nursing or environmental services staff.

7. **Other Patient Care Related Areas** (e.g., nursing stations, medication rooms, examination rooms, procedure rooms, rest rooms, specialized units such as Hemodialysis, Radiology, laboratories, Cardiac Cath, Ambulatory Procedures Center, utility rooms, clinics, Occupational Health, Radiology, EKG, EEG, Peripheral Vascular Lab, corridors, and other areas not specifically identified).

a. Daily Cleaning

- i. Damp wipe with approved EPA-registered disinfectant all touchable/hand contact surfaces below shoulder level, including countertops, furniture, telephones, exterior surfaces of Pyxis machines, wall mounted work stations located in corridors, etc. If

items on countertops interfere with daily cleaning, coordinate with the unit's manager to have the items moved so cleaning may be accomplished.

- ii. Clean sinks and fixtures with EPA-registered disinfectant.
- iii. Clean restrooms. Surfaces to be cleaned include fixtures, handwashing facilities, all parts of the toilet, and tub/shower facilities. The brush used to clean toilets should be changed periodically (e.g., monthly), when heavily soiled or when no longer intact.
- iv. Check and refill towel, toilet tissue and soap dispensers.
- v. Spot clean fronts of cabinets, doors, walls and glass.
- vi. Empty trash receptacle daily and as needed. The trash receptacle will be cleaned daily and when visibly soiled with an EPA-registered disinfectant.
- vii. Change privacy curtains every 3 months and/or when visibly soiled.
- viii. Damp mop the floor daily with a microfiber mop and EPA-registered disinfectant. Change the microfiber mop head between each room and after use in restrooms.
- ix. Check vinyl shower curtains and clean or change when visibly soiled.

b. Weekly Cleaning

- i. Clean and damp wipe everything above shoulder level, including ceiling, vents, lights, and blinds. Spot clean walls and ceilings.
- ii. Damp wipe exam tables, windowsills, shelves, countertops and other items not cleaned during routine daily cleaning.
- iii. Clean laundry chute intake openings.
- iv. Clean computer keyboard, mouse, touch screens (if applicable), including WOWs (Workstation on Wheels). This is a shared responsibility with Nursing.
- v. Wipe down all accessible areas of the code carts. This is a shared responsibility with Nursing.
- vi. Frequently touched surfaces of the privacy curtains should be sprayed with the approved germicide (e.g. accelerated hydrogen peroxide).

8. Non-carpeted Floors

- a. In direct patient care areas (e.g., patient rooms, ICUs, corridors), damp mop daily with an approved EPA-registered disinfectant solution using a microfiber mop.
 - i. Excess solution should be expressed from the microfiber mop

prior to use

- ii. After a microfiber mop is removed from the mop bucket containing the cleaning solution and is used, it should not be placed back into the solution.
 - iii. The microfiber mop head is changed between each patient room.
 - iv. Regular inpatient room floors may be burnished/bonneted, either while the patient is in the room with their permission or while the patient is out of the room. For ICUs, Burn Center, BMTU, 5CH, and Isolation/Protective Precautions rooms, burnishing/bonneting cannot be done while the patient is in the room. Burnishing/bonneting in these areas can be done when there is no patient and the door is closed. No burnishing/bonneting is allowed in an open bay unless the bay is empty or in corridors unless patient room doors remain closed. Fans may be used for floor drying after floor finishing in clinical areas if patient room doors are shut and not in units with open bays unless the bay is empty.
- b. Doors of patients on Protective Precautions should be closed when vacuuming, floor finishing, burnishing, or bonneting corridor floors to minimize exposure to airborne dust.
 - c. For non-patient care areas (e.g., office areas), microfiber mops are used.
 - d. Spills will be cleaned with a damp mop as soon as possible after they occur.

9. Carpeted Areas

- a. Carpeted floors (e.g., nurse's stations, lounges, waiting rooms) will be vacuumed daily or as needed with a commercial vacuum. Refer to service level agreements in [Attachment 1 - Environmental Services Department Service Level Agreements](#).
- b. When vacuuming corridors adjacent to areas where immunosuppressed patients are housed, a commercial vacuum with HEPA filtration will be used.
- c. Carpeting will be extracted/shampooed with a commercial shampoo at the frequency listed in the service level agreement (Attachment 1 - Environmental Services Department Service Level Agreements) or as needed. This removes any residue of dust, lint and/or debris, improves the appearance, and assists in the control of microbial contamination. Carpet contaminated with blood/OPIM should first be disinfected with an EPA-registered disinfectant.
- d. All spills will be handled as soon as possible after they occur; a towel may be used to clean up the bulk of the substance spilled.
- e. Spot cleaning, shampooing and/or repairing of carpet will be done as needed.
- f. Thoroughly dry wet carpeting to prevent the growth of fungi; replace carpeting that remains wet after 72 hours.

10. If bedbugs are detected in the inpatient or outpatient setting notify the ES supervisor. The Environmental Health and Safety (EHS) protocol for management of bed bugs should be followed.
 - Refer to the Environmental Health and Safety policy: [Pesticide/Pest Management](#) - Appendix A - Bed Bug Response Process.

C. Spills of Blood, Other Potentially Infectious Materials (OPIM) and Broken Glass

1. Gloves and other PPE if indicated will be worn while cleaning up spills of blood and other potentially infectious materials. After completing the cleaning process, remove PPE and wash hands thoroughly.
2. Cleaning of spills of blood, other potentially infectious materials (e.g., emesis, urine, stool, etc.) and broken glass will be performed as soon as possible after they occur.
3. An EPA-registered disinfectant (e.g., A-456 II-N), or 1:10 dilution of bleach and water should be used to clean-up blood spills on non-carpeted floors. An EPA-registered disinfectant should be used on carpeted floors.
 - a. For small spills (e.g., <10mL), staff working in the area will clean the spill and properly disinfect contaminated surfaces if Environmental Services personnel are not immediately available. Small spills are cleaned by wiping up the spill then cleaning the area with an EPA-registered disinfectant.
 - b. For larger spills (e.g., >10mL), staff working in the area will clean the spill and Environmental Services should be contacted to perform disinfection unless staff working in the area are able to perform the necessary disinfection.
 - c. Large spills should first be cleaned of visible matter using disposable absorbent material, the remaining spill wiped or mopped up, then the area cleaned with an EPA-registered disinfectant. A 1:10 dilution of bleach and water may be used. The bottle must be properly labeled with contents and expiration date.
4. Broken glass is always removed by using a mechanical device. Never pick up broken glass with gloved hands. Tongs or forceps may be used or a brush and dust pan. Dispose of broken glass in a sharps container. If the broken glass is contaminated with blood or other potentially infectious materials, the equipment used must be cleaned with a bleach solution or an EPA-registered disinfectant.

D. Care, Cleaning, and Storage of Equipment

1. Carts and cleaning implements stored on carts (e.g., toilet brush handles) should be cleaned with an EPA-registered disinfectant daily after use.
2. Carts should be stored in the ES closet. In absence of an ES closet, carts should be stored in a clean area such as a storage closet or in an ES Cart Room. ES carts should not be stored in an area that contains clean patient supplies. The cart should only be

stored after it has been cleaned, the soiled mop head removed, and mopping water emptied.

3. ES closets should be cleaned on a routine basis (e.g., monthly) in order to maintain them in a sanitary manner. The drainage area for soiled solutions such as mop water should be cleaned routinely to prevent residue build-up. Tissue and paper towels should be stored in a manner to prevent contamination. No paper products should be stored under any sinks.
4. Containers of cleaning agents must be appropriately labeled as to contents.
5. Secondary containers such as spray bottles must be managed in a manner to prevent microbial contamination. When refilling, the container must be completely emptied and not "topped off". Rinse the container thoroughly with tap water prior to refilling.
6. Pails and mop buckets should be thoroughly rinsed and wiped with an EPA-registered disinfectant, inverted and allowed to dry until the next use.
7. Mop heads and microfiber mops should be removed and returned to the collection area to be sent to the laundry daily.
8. Exterior surfaces of vacuums should be cleaned with an EPA-registered disinfectant daily, and interior surfaces should be cleaned when collection bags are removed and discarded.
9. Pads from the burnishing equipment should be removed and disposed of daily. The equipment should be wiped with an EPA-registered disinfectant solution, including casters and cord.
10. Prior to reuse, utility gloves must be disinfected with an EPA-registered disinfectant and visually inspected for cracks or tears.
11. Carts used to transport bagged waste are wiped down with an EPA-registered disinfectant on a weekly basis. Carts transporting waste must be covered.
12. The removable accessories on high pressure steam cleaner will be cleaned in the following manner:
 - a. At the end of the day, remove accessories that have been used.
 - b. Brush away any visible contamination, if accessible.
 - c. Soak accessories in EPA-registered disinfectant per manufacturer's instructions. Rinse accessories in water.
 - d. Dry in a clean area.
 - e. Store after drying is complete.
13. Equipment found to be in disrepair (e.g., paper towel dispenser not functioning or broken hand soap dispenser) should be reported to the supervisor of the area on the day it is noted.

E. Selection and Use of Supplies

1. EPA-registered disinfectants and any other cleaning supplies should be reviewed and approved by the Infection Prevention Department using peer-reviewed literature when

- a change is being considered.
2. Dilution and dilution testing of cleaning products should be performed according to the manufacturer's specifications as indicated on the label. Failure to follow these instructions could result in an ineffective product.
 3. Unless otherwise instructed, cleaning products will not be used for any other purpose than that for which the specific product was designed.
 4. Mixing of several varieties of products should not be performed.

F. Assessing Effectiveness of Surface Disinfection

- To assess the effectiveness of surface disinfection of cleaning, ES will conduct periodic sampling using an invisible fluorescence marker and black light technique. Results of sampling will be presented to the Hospital Infection Control Committee on a regular basis.

G. Policy Implementation

The Director of Environmental Services will be responsible for monitoring and implementing the Infection Prevention policy for Environmental Services.

IV. References

Rutala, W. A., Gergen, M.F., Sickbert-Bennett, E. E., Williams, D.A., Weber, D.J. (2014). Effectiveness of improved hydrogen peroxide in decontaminating privacy curtains contaminated with multidrug-resistant pathogens. *American Journal of Infection Control*, 42, 426-428.

Rutala, W.A. & Weber, D.J. (2014). Selection of the ideal disinfectant. *Infection Control and Hospital Epidemiology*, 35(7), 855-865

Guidelines for Environmental Infection Control in Health Care Facilities. MMWR 2003;52.RR-10.

V. Related Policies

[Environmental Health and Safety Policy: Pesticide/Pest Management](#)

[Environmental Services Policy: Ultraviolet Device Usage](#)

[Infection Prevention Policy: Exposure Control Plan for Bloodborne Pathogens](#)

[Infection Prevention Policy: Hand Hygiene and Use of Antiseptics for Skin Preparation](#)

[Infection Prevention Policy: Infection Control and Screening Program: Occupational Health Service](#)

[Infection Prevention Policy: Infection Prevention Guidelines for Adult and Pediatric Inpatient Care](#)

[Infection Prevention Policy: Isolation Precautions](#)

[Infection Prevention Policy: Tuberculosis Control Plan](#)

Attachments

[1: Environmental Services Department Service Level Agreement](#)

[2: The 7 - Step Cleaning Method](#)

Approval Signatures

Step Description	Approver	Date
Policy Stat Administrator	Kimberly Novak-Jones: Nurse Educator	05/2022
	Thomas Ivester: CMO/VP Medical Affairs	05/2022
	Emily Vavalle: Dir Epidemiology	03/2022
	Sherie Goldbach: Project Coordinator	03/2022

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