Technical Bulletin

PIDAC - Best Practices for Environmental Cleaning for Prevention and Control of Infections (December 2009)

This document was developed by the Provincial Infectious Diseases Advisory Committee (PIDAC). PIDAC is a multidisciplinary scientific advisory body who provide to the Chief Medical Officer of Health in Ontario evidence-based advice regarding multiple aspects of infectious disease identification, prevention and control. PIDAC's work is guided by the best available evidence and updated as required. Best Practice documents and tools produced by PIDAC reflect consensus positions on what the committee deems prudent practice and are made available as a resource to the public health and health care providers.

These best practices address the cleaning of the physical environment in health care as it relates to the prevention and control of infections and only includes the cleaning of medical equipment that comes into contact with intact skin (i.e., non-critical equipment). It does not include recommendations pertaining to the disinfection and sterilization of invasive medical equipment.

Designed for administrators, supervisors of Environmental Services departments, infection prevention and control professionals, supervisors of construction/maintenance projects and public health investigators, this document is targeted to those who have a role in the management of cleaning/housekeeping services for the health care setting and it therefore provides infection prevention and control practices for:

a) understanding the principles of cleaning and disinfecting environmental surfaces;
b) infection transmission risk assessment to guide level of cleaning;
c) cleaning practices for different types of care areas, including specialized cleaning for antibiotic-resistant microorganisms;
d) frequency of cleaning;
e) cleaning strategies for spills of blood and body substances;
f) cleaning practices for non-critical equipment and furnishings;
g) handling of laundry and bedding;
h) management of contaminated waste; and
i) cleaning practices during and following completion of construction projects

Summary of Key General Recommendations with respect to Cleaning and Disinfection:

1. Surfaces, furnishings, equipment and finishes in health care settings should be cleanable with hospital grade cleaners and disinfectants.
2. Antimicrobial treated surfaces are NOT recommended. Little data exists to show how these antimicrobial coatings will endure after exposure to hospital grade cleaners and disinfectants or whether they will prevent disease. (pg. 63)
3. Cleaning and disinfectant products must:
    a. Be approved by Environmental Services (EVS), Infection Prevention and Control (IPAC) and Occupational Health and Safety (OHS)
    b. Have a Drug Identification Number (DIN) from Health Canada
    c. Be compatible with surfaces and items to be cleaned and disinfected – there is no single disinfectant chemistry that is compatible with ALL surfaces; most are widely compatible

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and therefore the chosen chemistry should be compatible with the most prevalent materials

d. Be used according to manufacturer's recommendations

4. Disinfectants chosen for use in health care should:
    a. Be active against the usual microorganisms encountered in the health care setting
    b. Ideally require little or no diluting
    c. Be active at room temperature with a short contact time
    d. Have low irritancy and allergenic characteristics
    e. Be safe for the environment
5. Automated dispensing systems are preferred over manual dilution and mixing. These systems should be regularly monitored for accurate calibration (pg. 33)
6. EVS, IPAC and OHS must be consulted before making any changes to cleaning and disinfection procedures and technologies in the health care setting
7. Cleaning schedules should be developed, with frequency of cleaning reflecting the factors that will impact overall risk (Risk Stratification Matrix, pg. 115-116):
    a. Probability of contamination (high, medium or low contamination level)
    b. Vulnerability of population to Infection (more or less susceptible)
    c. Potential for exposure (high touch or low touch surfaces)
8. There should be a process in place to audit and measure the quality of cleaning in the health care setting which should include visual assessment and at least one of the following audit tools: residual bio-burden or environmental marking
9. Results of audits should be analyzed with feedback to staff and an action plan developed to identify and correct deficiencies
10. Aerosol or trigger sprayers for cleaning and disinfecting chemicals should NOT be used. Eye injuries or compound respiratory problems or illness could be induced with their use (pg. 70)
11. Under normal circumstances the use of a disinfectant is not required on floors (pg. 78)

Summary of Key Recommendations with respect to Cleaning and Disinfection of Unique or Specialized Areas and those under Additional Precautions:

1. Emergency room/urgent care centre bathrooms are located in high traffic areas and may frequently become contaminated, particularly with *C. difficile* and enteric viruses such as norovirus. At a minimum, emergency room bathrooms should:
    a. Be cleaned and disinfected at least every 4 hours
    b. Preferably be disinfected with a **sporicidal agent**
    c. Be frequently inspected and re-cleaned if necessary
2. Routine cleaning and disinfection may not be adequate to remove VRE from contaminated surfaces. There has been reported success in ending an outbreak of **VRE** using intensive environmental disinfection with **twice-daily cleaning**.
3. Specialized cleaning and disinfection practices are required for *C. difficile:*
    a. **Twice daily** cleaning and disinfection of patient/resident room with a hospital grade disinfectant should be conducted at a minimum
    b. For more significant removal of *C. difficile,* the use of a **sporicidal agent for disinfection** after the room has been cleaned **should be considered** (omit second step if cleaning product is also a sporicidal disinfectant – pg. 95)

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   c. **Twice daily** disinfection of patient/resident bathroom with a sporicidal agent (most highly contaminated area = the highest degree of care)
4. Products used for disinfection of Norovirus must have an appropriate virucidal claim. Most QUATs do not have significant activity against noroviruses (pg. 95). Validated efficacy against Norovirus test surrogates (Feline Calicivirus or Murine Norovirus) or Health Canada's General Virucide claim is an indication of effectiveness. Be wary of the contact time required.

Note for Clarification within the Best Practice Document:

1. Box 15 which outlines the sample procedures for routine daily cleaning of patient/resident rooms (without Additional Precautions) makes no direct mention of disinfection. It refers only to the cleaning of various surfaces. Cleaning and disinfection are distinct actions that achieve unique results:
   - Cleaning, as defined in the document glossary, is the physical removal of foreign material. Cleaning removes rather than kills microorganisms.
   - Disinfection, on the other hand, is the actual inactivation of disease producing microorganisms.

   Although it is designated that these routine procedures should receive "Hospital Clean" which includes cleaning AND disinfection, the lack of direct mention of disinfection within this procedure leaves the potential for this step to be altogether missed during routine cleaning, therefore creating a potential infection prevention concern. Disinfection is specifically addressed in other sample procedures for Additional Precautions, and the assumption is that it would be done so here also.

The guideline can be downloaded at:
http://www.health.gov.on.ca/english/providers/program/infectious/diseases/best_prac/bp_enviro_clean.pdf

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