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**HEALTH CARE FURNITURE DESIGN -
GUIDELINES FOR CLEANABILITY**

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Suggestions for the improvement of this Guideline are welcome. The suggestions should be sent to email@bifma.org or BIFMA, 678 Front Avenue NW, Suite 150, Grand Rapids, MI 49504. Suggestions will be reviewed by the BIFMA Healthcare Furniture Subcommittee.

Foreword and Acknowledgements

The *HEALTHCARE FURNITURE DESIGN GUIDELINES FOR CLEANABILITY* referred to throughout this document as the “Guideline”, covers the terminology, typical cleaners, and recommendations to evaluate the furniture resistance to degradation when exposed to the typical cleaners.

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Table of Contents	Page
1. SCOPE	4
2. PRODUCT ASSESSMENT	5
3. BACKGROUND	6
4. DEFINITIONS/TERMINOLOGY	7
5. CLEANING AGENTS / DISINFECTANTS TYPICALLY USED FOR HEALTHCARE FURNITURE	12
6. SCREENING OF FINISHES TO LIQUID CLEANER RESISTANCE	15
7. SCREENING OF COATED FABRICS TO LIQUID CLEANER RESISTANCE	17
8. RESISTANCE OF FURNITURE TO STEAM EXPOSURE	19
9. RESISTANCE OF FURNITURE TO UV LIGHTS.....	21
APPENDIX 1. FURNITURE CLEANABILITY DESIGN CONSIDERATIONS	24

Figure

	Page
FIGURE 1 – STEAM EXPOSURE.....	19

1 Scope

The purpose of this Guideline is to provide guidance to furniture manufacturers and healthcare professionals in understanding typical cleaners, disinfectants, cleaning methods, and performance of furniture when exposed to these cleaners and disinfectants. It is the intent of this guideline to bring the recommended manufacturers' standards in line with existing practices and typically used cleaners. This guideline offers standard test methodologies and specific performance recommendations to which manufacturers can test; and to which users may evaluate relative product performance. This guideline also provides product design considerations that support effective cleanability of healthcare furniture products.

This Guideline applies to seating, tables, carts, storage and other furniture products as used in healthcare patient care. This Guideline also applies to furniture intended for use outside of patient care areas in healthcare environments as furniture is often used interchangeably between patient care and non-patient care areas. These guidelines are not necessarily applicable to health care areas such as offices or administrative areas.

This Guideline does not apply to healthcare products considered to be 'equipment' (patient lifts, beds, transfer benches, wheelchairs and other products covered by IEC 60601).

This guideline does not purport to address the effectiveness (i.e., the level of disinfection) of any cleaning agent or cleaning process. Guidance is available in the reference section for specific cleaning and disinfection protocols recommended by the American Hospital Association. Only the effect on the subject material (textile, plastic, finish, etc.) is assessed by the methodologies within this guideline.

It is the intent of this guideline to ensure compatibility of the health care setting's cleaning and disinfecting agents with the items and surfaces to be cleaned. Materials and finishes must be compatible with hospital-grade detergents, cleaners and disinfectants for best results.

Authors of this Guideline consider furniture to be 'Non-critical' per the Spaulding Classification System (See Definitions). Non-critical items such as furniture come in contact with intact skin but not mucous membranes.

The tests for resistance of furniture to cleaners is based upon typical cleaning of one time per day and a furniture life of 7 years. This furniture life is based on input from a variety of health care professionals; furniture is often replaced based on aesthetic/appearance considerations needed to maintain a perception of cleanliness and clinical credibility within a facility. This life is not necessarily based on the structural durability of the products.

2 Product Assessment

Designing products for the healthcare environment has unique challenges as the needs from facility to facility are varied. Therefore, this Guideline is intended to provide direction to manufacturers, specifiers, and users of healthcare furniture, but is not a mandate of conformance. The test guidelines are primarily 'should' rather than 'shall' given the unique needs in the healthcare environment. Manufacturers, specifiers, and users should determine relevant requirements based upon their specific needs.

3 Background

Note: In addition to those stakeholders listed in the Foreword and Acknowledgements, guidance is also taken from:

- “CDC Guidelines for Disinfection and Sterilization in Healthcare Facilities” by Healthcare Infection Control Practices Advisory Committee (HICPAC), Chapel Hill, NC (2008)
- “Guidelines for Environmental Infection Control in Healthcare Facilities” by (HICPAC), Atlanta, GA (2003)
- “Best Practices for Environmental Cleaning for Prevention and Control of Infections - In All Health Care Settings” by the Provincial Infectious Diseases Advisory Committee (PIDAC), Toronto, Canada (2009)
- "Practice Guidance for Healthcare Environmental Cleaning: The Essential Resource for Environmental Cleaning and Disinfection," 2nd ed., Association for the Healthcare Environment of the American Hospital Association, (2012)

Health care settings are complex environments that contain a large diversity of microbial flora, many of which may constitute a risk to the clients/patients/residents, staff and visitors in the environment. The consequences of transmission of microorganisms within a health care setting may be more severe. High-touch environmental surfaces of the health care setting hold a greater risk than do public areas of non-health care organizations, due to the nature of activity performed in the health care setting and the transient (chair-to-chair, for example) behavior of patients with heightened susceptibility, bacterial colonization among clinical staff, employees, patients and visitors within the health care setting, which increases the likelihood of direct and indirect contact with contaminated surfaces. Transmission involves:

- a) presence of an infectious agent (e.g. bacterium, virus, fungus) on equipment, objects and surfaces in the health care environment;
- b) a means for the infectious agent to transfer from patient-to-patient, patient-to-staff, staff-to-patient or staff-to-staff; and
- c) presence of susceptible clients/patients/residents, staff and visitors.

In the health care setting, the role of environmental cleaning is important because it reduces the number and amount of infectious agents that may be present and may also eliminate routes of transfer of microorganisms from one person/object to another, thereby reducing the risk of infection. There are five parameters, which influence the effectiveness of cleaning and disinfection: contact time, temperature, concentration, mechanical action, and pH. Upholstery cleaning presents different challenges than other surfaces, primarily due to the wide variety of textile fibers, porosity, durability, and stain resistance.

Furniture manufacturers are interested in these factors as they impact the design, geometry, materials, finishes/textiles, and mechanisms used, in the overall cleanability of furniture.

4 Definitions/Terminology

Notes:

- Refer to BIFMA PD-1 Mechanical Test Definitions for related terms not included in this guideline. Otherwise, the common dictionary definition shall be used for terms not defined in this section or in BIFMA PD-1. In case of a conflict between the definitions in this guideline and PD-1, the definitions in this guideline shall apply.
- Some of these definitions were taken from “CDC Guidelines for Disinfection and Sterilization in Healthcare Facilities” by Healthcare Infection Control Practices Advisory Committee (HICPAC), Chapel Hill, NC (2008), and from “Best Practices for Environmental Cleaning for Prevention and Control of Infections - In All Health Care Settings” by the Provincial Infectious Diseases Advisory Committee (PIDAC), Toronto, Canada (2009). Other definitions were provided by the authors of this guideline.
- These terms are provided for reference as they are often used in health care settings. Inclusion within this section does not necessarily mean they are used within the text of this guideline.

Alcohol-based Hand Rub (ABHR): A liquid, gel or foam formulation of alcohol (e.g., ethanol, isopropanol) which is used to reduce the number of microorganisms on hands in clinical situations when the hands are not visibly soiled. ABHRs contain emollients to reduce skin irritation and are less time-consuming to use than washing with soap and water.

Antimicrobial Products: substances or mixtures of substances designed to destroy or suppress the growth of harmful microorganisms, whether bacteria, viruses, or fungi on inanimate objects or surfaces. These products are typically used for two purposes:

- a) Disinfect, sanitize, reduce or mitigate growth of development of microbiological organisms.
- b) Protect inanimate objects (floors, walls and/or furniture), industrial processes or systems, surfaces, water, or other chemical substances from contamination, fouling, or deterioration caused by bacteria, viruses, fungi, protozoa, algae, or slime.

BIFMA: Business and Institutional Furniture Manufacturer’s Association, a not-for-profit trade association of furniture manufacturers and suppliers.

Chemical Sterilant: Kills spores with prolonged exposure times (3 – 12 hours).

Cleanability: The ability to be cleaned; easily and without damage. To be maintained in an unsoiled appearance.

Cleaning: The removal of visible soil (e.g., organic and inorganic material) from objects and surfaces that normally is accomplished manually or mechanically using water with detergents or enzymatic products. Thorough cleaning is essential before high-level disinfection and sterilization because inorganic and organic materials that remain on the

surfaces of instruments interfere with the effectiveness of these processes. See also *Disinfection, Sterilization*. Note: high-level disinfection and sterilization is not covered by this document. Only hospital-grade surface sanitizer use for low- or intermediate-level disinfection is covered.

Cleaning Residue: the material left behind following the cleaning or disinfecting of surfaces. Residue tends to be left or will build up if the cleaning agent is left to air dry (contact time is passed) or used incorrectly.

Coated Fabrics: A textile or similar substrate that is surfaced with one or more layers of a film-forming polymer such as vinyl or polyurethane.

Construction Clean: Cleaning performed at the end of a workday by construction workers that removes gross soil and dirt, construction materials and workplace hazards. Cleaning may include sweeping and vacuuming, but usually does not address horizontal surfaces or areas adjacent to the job site.

Contamination: The presence of an infectious agent on hands or on a surface such as clothes, gowns, gloves, bedding, toys, surgical instruments, patient care equipment, dressings or other inanimate objects.

Detergent: A synthetic cleansing agent that can emulsify oil and suspend soil. A detergent contains surfactants that do not precipitate in hard water and may also contain protease enzymes (see *Enzymatic Cleaner*) and whitening agents.

Discharge Cleaning: See *Terminal Cleaning*

Disinfectant: A product that is used on surfaces or medical equipment/devices which results in disinfection of the equipment/device. Disinfectants are applied only to inanimate objects. Some products combine a cleaner with a disinfectant. See also *Cleaning, Sterilization*.

Disinfection: The inactivation of disease-producing microorganisms. *A process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects.* Medical equipment/devices must be cleaned thoroughly before effective disinfection can take place. See also, *Disinfectant, Cleaning, Sterilization*.

- **Low-Level Disinfectant:** agent that destroys all vegetative bacteria (except tubercle bacilli), lipid viruses, some non-lipid viruses, and some fungi, but not bacterial spores.
- **Intermediate-Level Disinfectant:** agent that destroys all vegetative bacteria, including tubercle bacilli, lipid and some non-lipid viruses, and fungi, but not bacterial spores.

Double Cleaning: Repeating a cleaning regimen immediately after it has been done once. Double cleaning is not the same as cleaning twice per day.

Enzymatic Cleaner: A pre-cleaning agent which contains enzymes that break down