



# 2003 CDC Guidelines Offer More Choices for Managing Operatory Surfaces

ORGANIZATION FOR SAFETY AND ASEPSIS PROCEDURES

## ABSTRACT

The objective of this article to help dental professionals understand the changes in surface asepsis recommendations, to be able to classify environmental surfaces in the practice setting and successfully prevent or manage their contamination, as well as become familiar with the terminology used in discussing environmental surfaces and related infection control efforts.

While much of the content in the recently published Centers for Disease Control and Prevention (CDC) document “*Guidelines for Infection Control in Dental Health-Care Settings — 2003*” simply expands on the agency’s 1993 recommendations, there were some surprises. One major change in the 2003 guideline is evident in the recommendations for managing environmental surfaces.

In the dental operatory, environmental surfaces — that is, surfaces or pieces of equipment that do not directly contact the patient — can become contaminated during the delivery of care. Although they have not been associated directly with disease transmission to either dental workers or patients, when touched with contaminated hands, these surfaces can transfer potential disease agents to instruments, other environmental surfaces, or to patients and dental team members.

Environmental surfaces in dental settings are either clinical contact surfaces or housekeeping surfaces. Clinical contact surfaces are those that are touched by contaminated hands, instruments, devices, or other items while providing health care or per-

forming activities that support the delivery of health care.

Housekeeping surfaces, such as floors and walls, are not involved in the direct delivery of dental care. Because housekeeping surfaces have limited risk of disease transmission, they can be managed using less rigorous methods than those used on clinical contact surfaces.

The 2003 CDC document expands dental health care personnel options for managing clinical contact surfaces in two key areas: by offering the option of using surface barriers, and by expanding choices for chemical disinfectants when managing some environmental surfaces.

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## Barriers or Chemicals: You Decide

While 1993 recommendations addressed the use of surface covers, the 2003 guidelines strongly encourages their use. Protecting surfaces with clear plastic wrap, bags, sheets, tubing, and plastic-backed paper or other materials impervious to moisture can prevent contamination of clinical contact surfaces, thereby eliminating the need for between-patient disinfection. Barriers are particularly effective for managing difficult to clean surfaces.

Contaminated barriers are simply removed and replaced between patients, saving the work and the wait time required for cleaning and disinfection.

### Placing Barriers

Use gloved hands to remove contaminated surface barriers. Because there is no risk of sharps injury or chemical exposure in removing a surface cover, the exam gloves worn during patient treatment provide an acceptable level of protection.

After disposing of the contaminated barrier, remove gloves, perform hand hygiene, and place a clean barrier on the surface. Unless a barrier has been torn or punctured, or the “dirty” side of the barrier contacted the underlying surface when the cover was removed, there is no need for between-patient cleaning and disinfection; general cleaning and disinfection at the end of the clinic day is sufficient.

### Expanded Chemical Choices

While CDC’s 1993 recommendations called for the use of EPA-registered<sup>a</sup> hospital disinfectants with tuberculocidal activity on clinical contact surfaces, the 2003 guidelines offer clinicians more options.

If barriers are not used, surfaces that are free of visible contamination may now be cleaned and disinfected between patients by using an EPA-regis-

**Chart 1**

### Categories of Environmental Surfaces

Category	Defined as ...	Examples
Clinical contact surfaces	Surfaces that are directly contacted by contaminated instruments, devices, hands, or gloves	Light handles, switches, dental X-ray equipment, reusable containers of dental materials, drawer handles, countertops, pencils, telephone handles, doorknobs
Housekeeping surfaces	Surfaces that require regular cleaning to remove soil and dust	Floors, walls, sinks

tered nontuberculocidal hospital disinfectant as long as the germicide has an HIV and hepatitis B virus (HBV) kill claim. Regardless of this new option, tuberculocidal hospital disinfectants appear to remain the more versatile choice for dental practice settings, which often have limited space for maintaining inventory. After cleaning surfaces according to label instructions, these intermediate-level disinfectants are suitable for disinfecting surfaces with or without visible contamination.

Regardless of which category of disinfectants a dental practice chooses to manage its environmental surfaces, strict adherence to label instructions is an absolute must. Always follow the manufacturer’s directions for pre-disinfection cleaning, appropriate personal protective equipment, and proper storage and disposal.

### Not Recommended

Another change between 1993 and 2003 recommendations is the use of household bleach as a surface disinfectant. While the earlier document considers a diluted household bleach solution prepared in-office to be an acceptable disinfectant, the more recent guideline clearly states that only commercially available EPA-registered agents should be used on clinical contact surfaces in

dental health care facilities.

The 2003 guideline also speaks out against the use of liquid chemical sterilants/high-level disinfectants for disinfecting environmental surfaces. Formulated for “cold sterilizing” heat-sensitive instruments, glutaraldehydes and other high-level disinfectants should never be used outside a closed container. They can irritate skin, mucous membranes, and respiratory tissues and have been implicated in cases of occupational allergies and asthma among health care workers.

### Compliance

The CDC’s “Guidelines for Infection Control in Dental Health-Care Settings — 2003” clearly outline the recommendations, regulations, and responsibilities of various governmental agencies that have an interest in surface disinfectants.

CDC “Follow the manufacturers’ instructions for correct use of cleaning and EPA-registered hospital disinfecting products. Use [personal protective equipment], as appropriate, when cleaning and disinfecting environmental surfaces ... Use surface barriers to protect clinical contact surfaces, particularly those that are difficult to clean ... and change surface barriers between patients. Clean and disinfect clinical contact surfaces that are not

barrier-protected, by using an EPA-registered hospital disinfectant with a low- (i.e., HIV and HBV label claims) to intermediate-level (i.e., tuberculocidal claim) activity after each patient. Use an intermediate-level disinfectant if visibly contaminated with blood. Clean house-keeping surfaces (e.g., floors, walls, and sinks) with a detergent and water or an EPA-registered hospital disinfectant/detergent on a routine basis ...”

EPA “To obtain [EPA] registration, a manufacturer must submit ... data regarding the safety and the effectiveness of each product. ...[M]anufacturers [must] test formulations by using accepted methods for microbiocidal activity, stability, and toxicity ... If EPA concludes a product may be used without causing unreasonable adverse effects, the product and its labeling are given an EPA registration number ...”

OSHA “OSHA has interpreted that, to decontaminate contaminated work surfaces, either an EPA-registered hospital tuberculocidal disinfectant or an EPA-registered hospital disinfectant labeled as effective against human immunodeficiency virus (HIV) and

hepatitis B virus (HBV) is appropriate. Hospital disinfectants with such HIV and HBV claims can be used, provided surfaces are not contaminated with agents or concentration of agents for which higher level (i.e., intermediate-level) disinfection is recommended. In addition, as with all disinfectants, effectiveness is governed by strict adherence to the label instructions for intended use of the product.”

### Putting It All Together

Manage contamination of clinical contact surfaces either by covering them with surface barriers — highly recommended for difficult to clean surfaces — or by cleaning and disinfecting them between patients. Either method is effective.

### Using Surface Barriers

Apply an appropriate surface barrier to clinical contact surfaces before they have a chance to become contaminated.

### If a surface is contaminated:

■ Clean and disinfect them before placing new covers.

**At the beginning of the clinic day, surfaces will have been cleaned at the end of the previous work day.**

■ Apply an appropriate surface barrier to clinical contact surfaces before seating the first patient. Place each cover so that it protects the entire surface and will not be dislodged when touched.

### Between patient visits:

1. Wear gloves when removing surface covers after patient treatment.

■ For simply removing contaminated barriers, the exam gloves worn during treatment are sufficient. Utility gloves also are acceptable.

2. Use care not to contaminate the surface underneath the barrier.

■ If the surface is touched when removing the cover (for example, with a contaminated glove or with the unclean side of the surface barrier), clean and disinfect the surface (see following page for instructions).

■ If the surface has not been touched with contaminated gloves or by the contaminated side of the cover, cleaning/disinfection is unnecessary.

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## Glossary

**Surface barrier:** An item that blocks penetration of microorganisms, particles, and fluids to reduce potential contamination of the underlying surface.

**Cleaning:** The act of removing visible contamination.

**Clinical contact surface:** Surface that is touched by contaminated hands, instruments, devices, or other items while providing health care or performing activities that support the delivery of health care.

**Disinfectant:** Chemical agent used on nonliving objects to destroy virtually all recognized pathogens but not necessarily bacterial endospores.

**Disinfection:** Destruction of pathogenic

and other kinds of microorganisms; less lethal than sterilization, it destroys most recognized pathogens but does not necessarily kill bacterial spores.

**Environmental surface:** Surface within a health care treatment area that is not directly involved in patient care but that may be contaminated during the course of treatment (e.g., countertops, drawer handles, floors, walls, and instrument control panels).

**Hospital disinfectant:** A germicide registered by the EPA to be effective against the test microorganisms *Salmonella choleraesuis*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa* for use on

nonliving objects in health care settings.

**Housekeeping surface:** Environmental surface that is not involved in the direct delivery of dental care (e.g., floors, walls).

**Intermediate-level disinfectant:** A liquid chemical germicide registered with the EPA as a hospital disinfectant with tuberculocidal activity.

**Low-level disinfectant:** A hospital disinfectant that may also have a label claim for effectiveness against hepatitis B virus and HIV.

**Tuberculocidal:** Able to destroy or irreversibly inactivate *Mycobacterium tuberculosis*, which is a test organism for disinfectant effectiveness.



**Chart 2**

**Managing Contamination: Appropriate Disinfectants for Pre-cleaned Surfaces**

Contamination	Clinical contact surfaces	Housekeeping surfaces
No blood	Hospital disinfectant plus (a) HBV and HIV kill claim or (b) tuberculocidal activity	Hospital disinfectant or detergent and water
Blood	Hospital disinfectant plus tuberculocidal activity	Hospital disinfectant with tuberculocidal activity

3. Discard used covers in the regular office trash unless your state or local disposal laws require special handling.

4. Remove and discard contaminated gloves, wash hands, and apply fresh surface covers (as directed above) for the next patient.

**At the end of the clinic day:**

■ Remove barriers and clean and disinfect all clinical contact surfaces in the operatory per instructions for “Surface Cleaning and Disinfection.”

*Surface Cleaning and Disinfection*

After each patient appointment, use the “spray-wipe-spray technique” — or pre-moistened disinfectant towelettes — to clean and disinfect all clinical contact surfaces in the operatory.

1. Put on utility gloves, mask, protective eyewear, and protective clothing.
2. Determine the degree of cleaning/disinfection required and select an EPA-registered hospital disinfectant that is compatible with the surfaces to be cleaned and disinfected.

■ For clinical contact surfaces not

visibly contaminated with blood, select either (a) a hospital disinfectant with HIV and HBV kill claims or (b) a hospital disinfectant with tuberculocidal activity. Follow germicide’s label instructions for use.

■ For surfaces contaminated with blood or visibly bloody fluids, select a hospital disinfectant with tuberculocidal activity.

3. Confirm that cleaning/disinfecting products have been prepared correctly and are fresh.

■ Read and follow label instructions regarding dilution, shelf life, use life, and expiration date.

4. Clean the surface.

- a. Spray the surface with a cleaner.
- b. Vigorously wipe with paper towels.

■ When cleaning large areas, multiple surfaces, or big spills, use several towels to prevent transferring contamination between surfaces.

■ Use a brush on surfaces that do not come visibly clean with wiping.

Alternatively: Clean the clinical

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**Practice Tip**

*Meeting the Challenges of High-Tech Equipment*

Digital radiography sensors pose special infection control challenges. These devices are semi-critical instruments, yet current incarnations are unable to withstand heat-sterilization or immersion in a sterilant/high-level disinfectant.

“These instruments are used in the mouth — they contact mucous membranes,” explains Dr. Linda Basquill, a Columbia, South Carolina-area dentist. “We’d love to be able to sterilize them, but they’re just too delicate for high temperatures or strong chemical baths.”

Fortunately, most of digital X-ray sensors available today can be barrier-protected and then adequately cleaned and disinfected after use. Consistent with 2003

guidelines from the Centers for Disease Control and Prevention, Dr. Basquill recommends barrier protection of these high-tech intraoral devices, followed by post-treatment cleaning and disinfection.

To limit the degree of contamination you’ll have to manage after treatment, cover sensors during patient use. Protective sheaths are commercially available for many intraoral components of high-tech equipment, but Dr. Basquill notes that barriers designed for handpieces and air-water syringes (i.e., those that are closed on one end) also work well on sensors. Digital X-ray sensors with cords can be covered using a longer plastic sleeve that protects both the device and its cord. Adding a finger cot helps hold the barrier in place during use.

After treatment, follow the sensor man-

ufacturer’s instructions for cleaning and disinfection. A disinfectant-soaked gauze pad or a disinfectant wipe is preferred over a spray. Follow the germicide manufacturer’s instructions for cleaning and disinfectant contact time.

“As with any instrument used in health care, always read the user’s manual,” she stated. “Following the manufacturer’s instructions for infection control — including appropriate barriers and disinfection/sterilization — is the best way to keep your patients safe without compromising your equipment.”

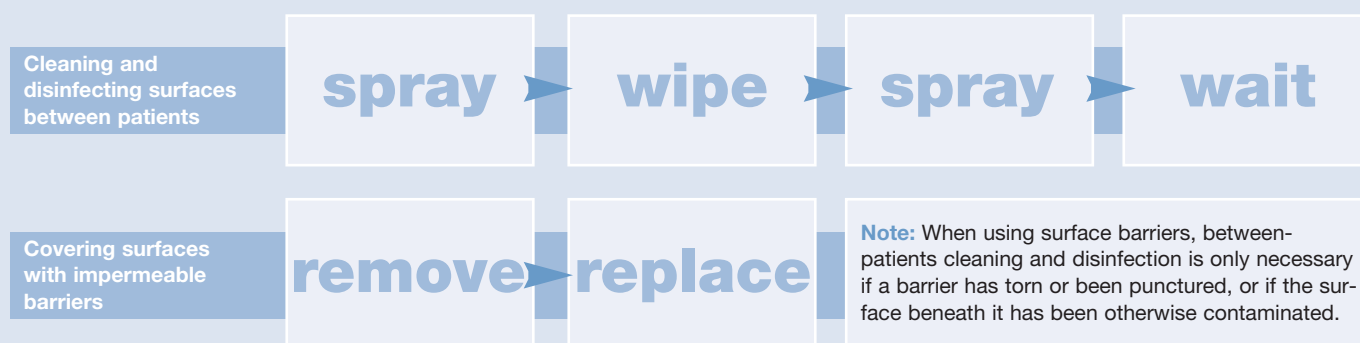
An OSAP member since 2002 and current member of the OSAP Board of Directors, Linda Basquill, DDS, is a private practitioner and the Army Dental Corps’ Infection Control Consultant to the U.S. Surgeon General.

## Operatory Surface Management: Barriers vs. Between-Patient Cleaning and Disinfection

Dental practice settings can choose to manage clinical contact surface contamination by using either surface barriers or between-patient cleaning and disinfection, but barriers clearly offer some advantages. Surface covers save the time and work required for cleaning and disinfection; they also eliminate the wait for disinfectant contact times to elapse. By saving time and eliminating potentially hazardous chemicals, they can enhance staff safety and efficiency.

### Chart 3

#### Cleaning and Disinfecting vs. Using Surface Barriers



### Ask OSAP

**Q** What surface disinfectants are strong enough to be effective yet gentle enough to prevent damage to dental equipment? — *JT, Asheville, N.C.*

**A** Because of the variety of disinfectant formulations and the many different materials used to manufacture dental equipment, always contact the dental equipment manufacturer for its recommendations on compatible disinfectant(s).

Using impervious barriers on surfaces that are likely to be touched during dental procedures can reduce the need for chemical disinfectants and prolong the life of equipment. — *OSAP*

**Q** I read recently that placing disinfectant in a container with 4x4 gauze for use on dental equipment is not recommended. Why not? — *KO, Frankfurt, Ill.*

**A** In general, cotton fibers contained in gauze may shorten the effectiveness of some disinfecting agents when stored in containers together. Germicides, especially iodophors or chlorines, may be inactivated or absorbed by the gauze.

If using gauze to apply disinfectant to surfaces, saturate the gauze with the disinfecting agent at the time of use. Gauze is acceptable for surface disinfection, but disposable paper towels are usually a more economical choice.

Always wear appropriate personal protective equipment when handling chemicals and managing contamination. — *OSAP*

**Q** Can we use plastic cling wrap – the kind you can buy at the grocery store – to protect clinical contact surfaces? — *ZI, Portland, Ore.*

**A** Barriers manufactured and marketed to protect medical and dental surfaces from contamination are regulated devices and require clearance by the U.S. Food and Drug Administration before they can be marketed to health professionals. Products intended for household use have not been tested for clinical use. For the best assurance that infection control products are working as designed, only products intended for use in health care settings should be used in the dental operatory. — *OSAP*

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contact surface using a commercially available disinfectant-impregnated towelette with the required level of germicidal activity (see chart, Page 917).

a. Check the label to be sure that the wipe is a cleaner (some disinfectant wipes may require a separate cleaner).

b. Wipe a pre-moistened cleaner-disinfectant towelette over the surface to be cleaned.

■ Carefully follow label instructions. Some wipes may be effective only on a limited surface area (approximately 3 square feet).

5. After cleaning, disinfect the surface.

a. Spray the disinfectant over the entire surface, using towels to reduce overspray.

b. Let the surface remain moist for the contact time stated on the disinfectant's label.

Alternatively:

a. Saturate the surface using a pre-moistened disinfectant-impregnated towelette.

6. Let the surface remain moist for the contact time stated on the disinfectant's label.

7. Wipe the surface dry if it is still wet when ready for patient care. **CDA**

**Notes /** A. The U.S. Environmental Protection Agency regulates and registers surface disinfectants for health care settings within the United States.

**To request a printed copy of this article, please contact /** Therese Long at Organization for Safety and Asepsis Procedures, P.O. Box 6297, Annapolis, MD 21401.