Disinfectants

The choice of specific cleaning or disinfecting agents is largely a matter of judgment, guided by product label claims and instructions and government regulations. A single product might not satisfy all disinfection requirements in a given dental facility. Use of disinfectant products depends on consideration of multiple factors, including the degree of microbial killing required; the nature and composition of the surface, item, or device to be treated; and the cost, safety, and ease of use of the available agents. Low- and intermediate-level disinfectants are used to disinfect environmental surfaces. High-level disinfectants are used to disinfect heat-sensitive semicritical items and should never be used on environmental surfaces.

**High-level disinfection**: a disinfection process that inactivates vegetative bacteria, mycobacteria, fungi, and viruses but not necessarily high numbers of bacterial spores. According to the Joint Commission High Level Disinfectant Sterilization Booster Pak, High-level disinfection (HLD) is, “the process of complete elimination of all microorganisms in or on a device, except for small numbers of bacterial spores” (pg.3). Examples include Glutaraldehyde, Hydrogen Peroxide and Ortho-phthaldehyde (OPA).

**Hospital disinfectant**: a liquid chemical germicide that is registered by the EPA for use on inanimate objects in hospitals, clinics, dental offices, or any other medical-related facility. Efficacy has been demonstrated against Salmonella enterica (formerly Salmonella choleraesuis), Staphylococcus aureus, and Pseudomonas aeruginosa.

**Intermediate-level disinfectant**: a liquid chemical germicide that is registered by the EPA as a hospital disinfectant and with a label claim of potency as a tuberculocidal. Destroys vegetative bacteria, most fungi, and most viruses; does not inactivate Mycobacterium tuberculosis var. bovis. Not necessarily capable of killing bacterial spores.

**Low-level disinfectant**: a liquid chemical germicide that is registered by the EPA as a hospital disinfectant. Destroys most vegetative bacteria, some fungi, and some viruses. Does not inactivate Mycobacterium tuberculosis.

**In USAF dental clinics, environmental surface disinfectants must be**
- Registered with the Environmental Protection Agency (EPA),
- Hospital-grade (i.e., kills three specific organisms: Staphylococcus aureus, Salmonella enterica (formerly Salmonella choleraesuis), Pseudomonas aeruginosa), and
- Intermediate-level* (i.e., have tuberculocidal activity).

**It’s also important to review**
- Manufacturer/distributor contact information
- Active ingredients
- Instructions for use (IFU) including:
  - dilution instructions, if required (pre-mixed or “ready-to-use” products are more convenient).
  - contact time (use the longest contact time on the label).
  - whether the product is also a cleaner (or if a separate cleaning agent is necessary before disinfecting, choose a product that has cleaning and disinfecting capabilities).
  - any special handling, storage, or disposal issues.

*Although the scientific evidence supports the use of low-level disinfectants if certain conditions are met (i.e., the product has both HIV- and HBV-label claims, the surface is not visibly contaminated with blood), for reasons of convenience USAF dental clinics will continue to use products with a higher degree of potency (i.e., intermediate-level disinfectant products) on environmental surfaces to cover all situations.

Abbreviations: EPA=Environmental Protection Agency; FDA=Food and Drug Administration