Methods of Sterilization and Disinfection: Smooth Hard Surfaces

LOW-LEVEL DISINFECTION

- **Low-Level (noncritical items), will come in contact with intact skin, for example, blood pressure cuffs, exam tables and computers**
  - Procedure (exposure time > 1 min)
    - Ethyl or isopropyl alcohol (70-90%)
    - Sodium hypochlorite (5.25-6.15% household bleach diluted 1:500 provides >100 ppm available chlorine)

- **Phenolic germicidal detergent solution** (follow product label for use-disinfection)
  - Procedure (exposure time > 1 min)
    - Phenolic germicidal detergent solution (follow product label for use-disinfection)

- **Quaternary ammonium germicidal detergent solution** (follow product label for use-disinfection)
  - Procedure (exposure time > 1 min)

INTERMEDIATE-LEVEL DISINFECTION

- **Intermediate-Level (some semicritical items) and noncritical items, for example, stethoscopes, X-ray machines and bed side rails**
  - Procedure (exposure time > 1 min)
    - Ethyl or isopropyl alcohol (70-90%)
    - Sodium hypochlorite (5.25-6.15% household bleach diluted 1:500 provides >100 ppm available chlorine)

- **Phenolic germicidal detergent solution** (follow product label for use-disinfection)
  - Procedure (exposure time > 1 min)
    - Phenolic germicidal detergent solution (follow product label for use-disinfection)

- **Iodophor germicidal detergent solution** (follow product label for use-disinfection)
  - Procedure (exposure time > 1 min)

HIGH-LEVEL DISINFECTION

- **High-Level (semicritical items, except dental) will come in contact with mucous membrane or nonintact skin, for example, respiratory therapy and anesthesia equipment, endoscopes, laryngoscope blades 24, esophageal manometry probes, cystoscopes 25, anorectal manometry catheters, and diaphragm fitting rings**
  - Procedure (exposure time 12-30 min at ≥20°C)
    - Glutaraldehyde-based formulations
      - >2% glutaraldehyde (caution should be exercised with all glutaraldehyde formulations when further in-use dilution is anticipated); glutaraldehyde (1.12%) and 1.93% phenol/phenate. One glutaraldehyde-based product has a high-level disinfection claim of 5 minutes at 35°C.
      - Ortho-phthalaldehyde (OPA) 0.55%
    - Hydrogen peroxide 7.5% (will corrode copper, zinc and brass)
    - Hydrogen peroxide 7.35% and 0.23% peracetic acid; hydrogen peroxide 1% and peracetic acid 0.08% (will corrode metal instruments)
    - Wet pasteurization
      - (at 70°C for 30 minutes with detergent cleaning); Hypochlorite, single use chlorine generated on-site by electrolyzing saline containing >650-675 active free chlorine (will corrode metal instruments)
      - See Infection Prevention section, pages #

CRITICAL ITEMS STERILIZATION

- **Critical Items** (will enter tissue or vascular system or blood will flow through them; for example, surgical instruments, cardiac and urinary catheters, and implants)
  - Procedure (exposure time varies)
    - Sterilization
      - Heat sterilization, including steam or hot air (see manufacturer’s recommendations; steam sterilization processing time from 3-30 minutes)
      - Ethylene oxide gas (see manufacturer’s recommendations; generally 1-6 hours processing time plus aeration time of 8-12 hours at 50-60°C)
      - Hydrogen peroxide gas plasma (see manufacturer’s recommendations for internal diameter and length restrictions; processing time between 45-72 minutes)
    - Glutaraldehyde-based formulations
      - >2% glutaraldehyde (caution should be exercised with all glutaraldehyde formulations when further in-use dilution is anticipated); glutaraldehyde (1.12%) and 1.93% phenol/phenate. One glutaraldehyde-based product has a high-level disinfection claim of 5 minutes at 35°C.
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      - Hydrogen peroxide 7.5% (will corrode copper, zinc and brass)
      - Peracetic acid (concentration variable but 0.2% or greater is sporicidal. Peracetic acid immersion system operates at 50-56°C)
    - Hydrogen peroxide 7.35% and 0.23% peracetic acid; hydrogen peroxide 1% and peracetic acid 0.08% (will corrode metal instruments)
      - See Sterilization section, pages #