

WATER DISINFECTION METHODS AND LEGIONELLA MITIGATION

ISSUE: Preferred system designs for water disinfection methods for the mitigation of *Legionella* in potable water systems.

DISCUSSION: The Plumbing Design Manual for Community Living Centers and Domiciliary (March 2011) and the Plumbing Design Manual for New Hospitals, Replacement Hospitals, Ambulatory Care, Clinical Additions, Energy Centers, Outpatient Clinics, Animal Research Facilities and Laboratory Buildings (April 2011) state that copper/silver ionization is the preferred water disinfection method for *Legionella* mitigation. However, CDC guidelines¹ state, “No recommendation can be made about the treatment of water with chlorine dioxide, heavy-metal ions, ozone, or ultraviolet light ” and that “hospitals have reported successful decontamination [of *Legionella* in hospital water] using each of these methods.” In addition to raising the water-heater temperature and periodic [hyper-]chlorination, OSHA² lists copper or silver ionization, ozonization, and ultraviolet (UV) radiation as alternate means to control *Legionella* growth in domestic hot-water systems. Veterans Health Administration (VHA) policies directed at *Legionella* prevention are VHA Directive 2008-010³ (Prevention of *Legionella* Disease) and VHA Directive 2009-009⁴ (Domestic Hot Water Temperature Limits for *Legionella* Prevention and Scald Control). These policies emphasize that maintenance of appropriate water temperatures is the primary mechanism for inhibiting *Legionella* growth and list various mitigation methods without indication of preference.

REQUIREMENTS: In addition to maintaining appropriate water temperature, when considering the use of supplemental water disinfection methods for the mitigation of *Legionella*, designers (in collaboration with other facility stakeholders such as infectious diseases and infection prevention and control) should review the merits of various mitigation methods such as copper/silver ionization, thermal eradication, chlorine dioxide, monochloramine, ozone, ultraviolet light, and hyperchlorination prior to final selection of method. The VA discloses no preference to any of these methods since each has advantages and disadvantages to consider.

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- VA Office of Construction and Facilities Management (CFM)
- VHA National Infectious Diseases Service (10P4E) in Patient Care Services (10P4)
- VHA Office of Capital Asset Management Engineering and Support (10NA5)

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REFERENCES:

1. Centers for Disease Control and Prevention. Guidelines for Preventing Healthcare-associated Pneumonia. Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee. MMWR 53(RR03):1-36; 2003.
2. OSHA Technical Manual (OTM) Section III: Chapter 7, Legionaries' Disease, Effective Date: 1/20/1999
3. VHA Directive 2008-010, Prevention of *Legionella* Disease; February 11, 2008
4. VHA Directive 2009-009, Domestic Hot Water Temperature Limits for *Legionella* Prevention and Scald Control; February 25, 2009