

Alberta Hospital Post-Construction Water Disinfection

Water distribution systems in hospitals are most vulnerable to contamination following construction or renovation activities when pathogens from surrounding air, soil and water enter the system. Post-construction disinfection is critical to reduce a potential source of hospital-acquired infections. An Alberta hospital recently disinfected their water distribution system with a highly effective, and economical solution.

About the Hospital

This 325-bed medical facility in Alberta serves a population of 117,000 people. The core programs at this facility include surgery, critical care, pediatrics, 24-hour emergency, obstetrics, and neonatal intensive care. During the construction phase, the facility implemented proper preventative measures (Health Canada, CAN/CSA Z317.13, Public Health Agency of Canada, and FGI Guidelines) ensuring a decreased risk of hospital acquired infections (HAI) associated with construction activities.



The Challenge

Traditionally, hospitals have disinfected their water supplies post-construction by adding high concentrations of chlorine (super chlorination) or by heating water (super-heat & flush). Although high levels of chlorine will reduce pathogen levels, there are several drawbacks to this approach:

- Many pathogens are developing resistance to chlorine, rendering this a less effective disinfectant;
- Chlorine is ineffective against protozoans;
- High chlorine concentrations are corrosive, potentially damaging plumbing fixtures and fittings;
- Chlorine reacts with organics to form carcinogenic disinfection by-products;

Another alternative – superheat-and-flush - can expose users to burn hazards, and has limited effectiveness against pathogenic microorganisms.

The Solution - Chlorine Dioxide

Post-construction disinfection of water distribution systems with chlorine dioxide is more advanced and cost-effective solution that has several benefits over traditional methods:

- Requires much lower concentrations than those used in hyper-chlorination;
- At a low concentrations, there is no need to dechlorinate and drain water after treatment;
- Non-corrosive at applied concentrations, so there is no risk of damaging newly installed pipes and fittings;
- More effective at eliminating waterborne pathogens (bacteria, viruses, protozoans and fungi);
- Very effective over a wide range of pH and temperatures, and extremely efficient for treating Legionella.

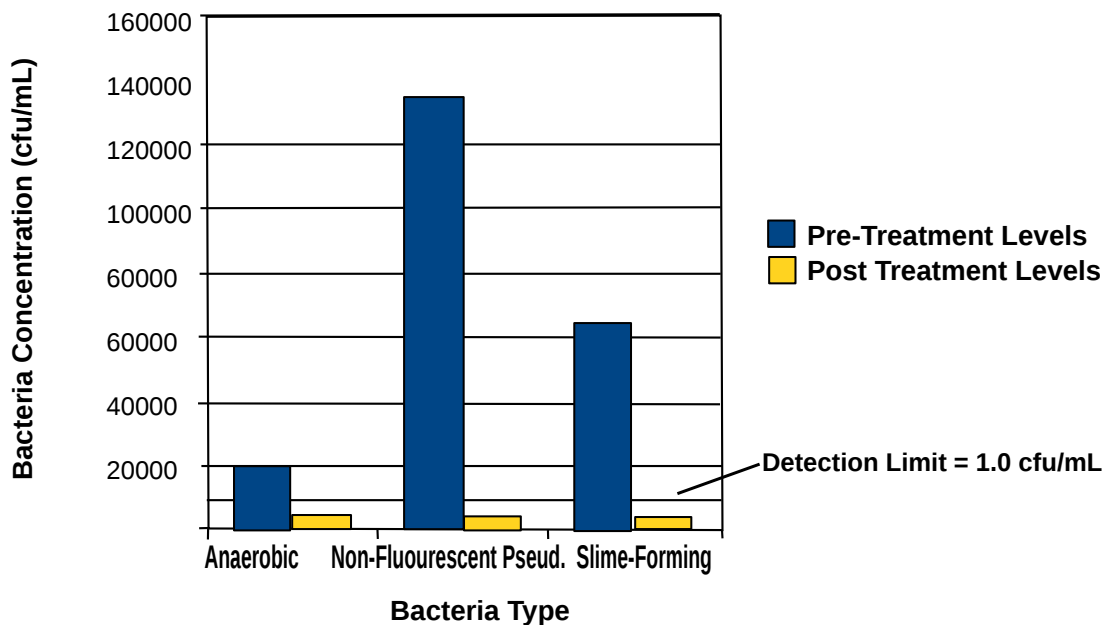
Post-Construction Water Disinfection

Osorno is the only company in Canada that specializes in applying chlorine dioxide to water distribution systems post-construction. Osorno has been disinfecting hospital water systems in Alberta for over a decade.

Project Profile

The latest post-construction disinfection project with chlorine dioxide was completed in 2016. Samples collected at 773 distal sites of the cold and hot water systems demonstrated that proper disinfectant levels were maintained throughout the distribution system. To verify the effectiveness of chlorine dioxide disinfection, on-site bacterial analyses were performed on water samples collected before and after disinfection. Samples were cultured for anaerobic, non-fluorescent *Pseudomonas*, and slime-forming bacteria. Treatment with chlorine dioxide reduced bacteria levels from as high as 135,800 cfu/ml to below detection limits. Results were confirmed by independent analyses by an accredited lab.

Average Bacteria Levels in Water Before and After Treatment with Chlorine Dioxide



Concerned about pathogens in your hospital's water supply? Want to learn more about hospital water disinfection technology?

Contact Osorno today for a free assessment and download our white paper:
Eliminating Pathogens from Hospital Water Supplies

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