



Research featuring Franke's Medi-flo sink April 2018



That sinking feeling: eradicating *Pseudomonas* and *Candida auris* from a sink drain system using ozonated water

Scott Livingston, BA^{1,2}; Jennifer L. Cadnum, BS¹; Annette L. Jencson BSMT, CIC¹; Scott Gestrich, MD¹; & Curtis J. Donskey, MD^{1,2}

¹ Research Service, Cleveland VA Medical Center, Cleveland, Ohio

² Case Western Reserve University School of Medicine, Cleveland, Ohio



Follow The CLE-En Team
@CLE_Cleans

Poster# 236

Contact: sh154@case.edu



Introduction

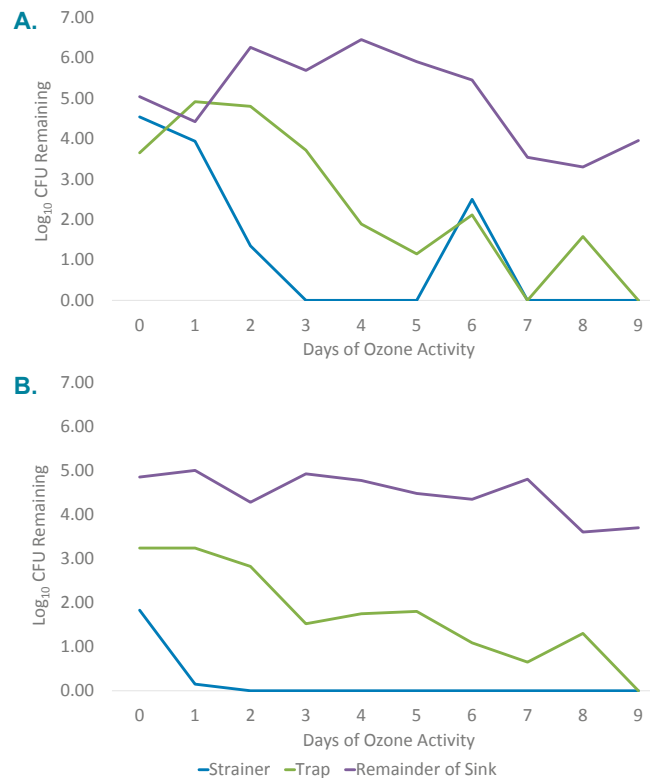
- Contaminated sinks and drains are rapidly emerging as a cause of healthcare-associated infections, particularly in intensive care units (ICUs)
- Drain contamination is particularly difficult to eradicate due to the propensity for biofilm formation in piping
- We tested the benefit of introducing ozone into the water supply for decolonization of sinks and sink plumbing

Methods

- We evaluated the efficacy of ozonated water for reduction of methicillin-resistant *Staphylococcus aureus* (MRSA), *Pseudomonas* sp, and *Candida auris* on steel disks
- On steel disks, organisms were exposed to ozonated water with concentration ≥ 0.9 ppm for 10 minutes
- We also evaluated activity of ozonated water in a sink model deliberately colonized with *Pseudomonas* sp and *C. auris*
- Ozonated water was added to the system via the faucet



Figure 1. A) Elimination of *Pseudomonas* sp. from the ozone sink B) Elimination of *C. auris*



Results

- On steel discs, MRSA, *Pseudomonas*, and *C. auris* were reduced by ≥ 3 log₁₀ colony-forming units (CFUs) with 10 minutes of exposure to ozonated water
- In the sink model, we demonstrated total elimination of *C. auris* and *Pseudomonas* sp at the strainer within 2 days of ozone activity (figure 1, 2)
- We also demonstrated total elimination of both organisms at the trap within 9 days of ozone activity (figure 1, 2)
- Beyond the trap there was no significant decolonization (figure 1, 2)

Conclusions and Acknowledgements

- Our data suggest that ozonated water can effectively kill MRSA, *C. auris*, and *Pseudomonas* spp.
- An ozone generating sink can self-clean, reducing the burden of *C. auris* and *Pseudomonas*
- This device has the potential to reduce the number of sink-associated infections in hospitals, and merits further investigation
- Class 1 Inc. & FRANKE provided the testing apparatus and had no role in the design