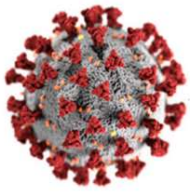

Evaluation of Ambulance Decontamination Using Gaseous Chlorine Dioxide

Objective. We evaluated gaseous chlorine dioxide (ClO_2) decontamination of an ambulance using a variety of bacterial biological agents. **Methods.** Spores of attenuated *Bacillus anthracis* and *Bacillus atrophaeus* as well as vegetative cells of *Acinetobacter baumannii, Mycobacterium smegmatis*, and *Staphylococcus aureus* were exposed to ClO_2 gas inside an ambulance. Log reduction in viability was assessed following decontamination using organism plate counts. **Results.** Ambulance decontamination with ClO_2 gas concentrations of 362 to 695 ppm maintained to exposures of 756 ppm-hours with 65% relative humidity (RH) achieved inactivation of all the bacterial agents tested. Decreasing exposure (ppm-hours) and RH (<65%) or restricting air flow reduced inactivation but still achieved greater than 6-log reductions in organism viability. **Conclusion.** Up to 10-log reductions were achieved in an ambulance interior following exposure to ClO_2, indicating that gas concentrations needed to mitigate biological agent contamination can be achieved and maintained safely in an ambulance. Future studies are ongoing to evaluate gaseous ClO_2 in other environments contaminated with biological agents of health care concern.