



Health & Safety

A Tool to Keep You Healthy

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Hydroxyl generators kill germs & snuff odors

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An Odorox® "Slimline" model portable hydroxyl generator sanitizes this ambulance. *Photo Thom Dick*

FEATURED IN HEALTH AND SAFETY

We've talked about cooties before, Life-Saver. Nothing is scarier than some of the stuff you can't even see.

Fortunately, our bodies came equipped with an incredible array of weapons to protect us from sick people's diseases.

I can't find any studies that say so, but I don't think EMS providers get sick as often as most other people. If that's true, I suspect it's because we're exposed to so much disease on a regular basis that we're somewhat immune to it. I've always been impressed by that (and have always been grateful for it.) But I still think we'd be a lot safer if somebody could devise a surefire way to sanitize an ambulance without taking it apart.

In the March 2005 installment of this column, I discussed numerous ways EMS providers could minimize their exposure to disease. I suggested everything from leaving their boots at work to routinely cleaning door handles, stretchers, ceiling hardware and radio mics with contact cleaner. I've also talked about such practices as hand-washing, ditching exam gloves before driving, removing the floor hardware to address substances that accumulate there and not eating in ambulances.

I do brag some about my agency's crews. I hope you understand I love 'em to death. If you ever come and ride with us, you'll see why in about a second. Not only are they fine caregivers, but they also have hearts the size of toasters. If we were to lose just one of them, all of EMS would be damaged. Their families expect us to keep them safe, and we try hard to do that.

One of our first responders is an EMT named Chris Forbes. Chris is a lieutenant with our fire department here in Brighton, Colo., and he's a part-time distributor of gizmos called hydroxyl generators. Hydroxyl ions are unstable, negatively charged molecules that oxidize single-celled organisms, and thereby, destroy them. Chris showed us a device the size of a briefcase that's designed to produce and circulate hydroxyls throughout a closed environment about the size of a small house (2,000 square feet). We bought it (for about \$2,800). When we take an ambulance out of service for maintenance, and before we give it back to a crew, we plug the device into the unit's 110VAC shoreline circuit and run it in the patient compartment for 24 hours with all the doors and windows closed.

We're pretty small-time, and we serve a poor district, so we don't have a lot of money for science. We've found no reference to anybody using hydroxyl generators in ambulances. But the independent lab reports we've read say that in structures, this device destroys more than 99.9% of airborne, surface and contained anthrax, *Clostridium difficile*, *Escherichia coli*, influenza A, *Pseudomonas aeruginosa*, *Listeria monocytogenes*, MRSA, *Staph aureus*, molds and their spores, and tuberculosis bacilli on stainless steel and cotton fabric surfaces during a single 12-hour exposure.(1-3)

We also know from experience that it eliminates biologic and non-biologic odors—including emesis, blood, smoke and ethanol—and produces no odors of its own.

They're commonly installed in the heating, ventilating and air conditioning systems of public buildings, especially in humid areas, and they're routinely used to purify structures after flooding. Fire departments use them to sanitize turnout gear.

How do these things work? Ours contains a fan that draws "dirty" air through a multiple-wavelength ultraviolet chamber, then exhausts it as clean air—along with hydroxyl ions—back into the environment. Hydroxyls occur naturally in sunlight. Although they're deadly to one-celled organisms, they're harmless to people and animals. Likewise, tests prove they break down airborne aldehydes, ozone, carbon monoxide and volatile organic compounds.(4)

According to Chris, you can actually get these things in much smaller sizes, designed for permanent mounting in an ambulance, for about \$500. That would spread the cost of one over the span of a lease, or the life of a vehicle. JEMS - Journal of Emergency Medical Services

References

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