

## BACKGROUND

In 2016, we started influencing Directors of EVS (Environmental Services) and EVS companies, such as Aramark, Sodexo, Crothall and HHS. While some have shown interest, the needle hasn't moved much, perhaps due to financial *incentives* and/or *volume credits* to EVS companies from their chemical, UV and other suppliers.

Over here, **Aquaox ICS** (Infection Control System) is conducting whole room disinfection at a fraction of the time, with totally safe **HOCL & NaOH solutions** for people and materials ... and requires little training.

It is a fact that natural, biodegradable cleaners/disinfectants reduce worker compensation claims. That is why it is troubling that low-cost claims of chemicals are unfounded using fully-costed calculation of productivity, equipment & architectural material damage, liability insurance, inability to kill bacteria in biofilm, and inability to provide quicker access to patient rooms – ALL VERY COSTLY to the entire organization.

Wiping down HITES (high touch environmental surfaces) with **HOCL & NaOH solutions** takes the same time, but better prepares the room for highly productive electrostatic spraying (3-5 minutes) of Aquaox disinfectant ... compared to taking 3-10X longer for final room disinfection when using UV-C or hydrogen peroxide fogging.

Not criticizing other disinfecting methods ... we merely say that the wipe & clean, then wipe & disinfect protocol with chemical disinfectants just doesn't allow EVS staff to prepare all patient rooms.

In 2016, we employed Infection Preventionists (IPs) to approach other IPs. As an outsider, it is revealing, if not shocking, to find that IPs have very little know-how about hospital cleaning protocols.

Yet, IPs want EVS to use a chemical that, *based on claims and paperwork*, kills in seconds all bacteria, viruses, algae and spores, while IPs ignore that strong chemicals destroy furniture, mattresses and equipment. The outcome is that they are unaware how costly their decision is before listing the more serious people issues.

While some strong disinfectants may kill, they are likely not good cleaners, allowing biofilm build-up on surfaces.

More recently, we've observed C-level executives asking hard questions of their IPs. But they choose

not to get involved because cleaning/disinfecting is 'hands-off' below their pay-grade and a cost item.

Nevertheless, we're getting traction with C-level executives because IP and EVS actions are now being reviewed in one integral process. In spite of cleaning not being revenue, but a necessary cost-center that is either automated or outsourced, the betterment of hospitals is forcing IPs to untangle conflicts that they and EVS have with third-party suppliers.

With most HAI numbers flat or growing, IPs are forced to look elsewhere than powerful killing disinfectants, UV or other systems, especially when C-levels are demanding that EVS directors and IPs achieve better whole-room disinfection.

The irony is that anyone making the conversion to **HOCL & NaOH solutions** will be overly pleased because the combination of **Aquaox** solutions, applicators and protocol (a.k.a. **Aquaox Infection Control System**) enables quick turnaround of discharge rooms to move (diseased) patients out of the halls to generate more (room) income.

**Aquaox ICS** is beneficially advantageous to any hospital. Without advocating replacement of chemicals, whenever UV or other disinfection system is not scheduled, we simply advocate an **adjunct disinfecting step** – electrostatically spraying all patient-rooms.

The **adjunct disinfecting step** compensates for EVS-staff not having time to apply UV or other whole room disinfecting methods to treat patient rooms. Doing Nothing is not an option. A 3-5 minute electrostatic spraying of Hypochlorous Acid is what should be done to cover (and disinfect) ALL patient room surfaces.

---

Aquaox' years of onsite experience validates that disinfectants do not effectively remove debris. Keeping surfaces clean requires effective, periodical cleaning using a detergent. Then, spray disinfectant and let air-dry.

For more information, contact Michel van Schaik at 800.790.7520. [info@aquaox.net](mailto:info@aquaox.net)/[info@greenspeed.biz](mailto:info@greenspeed.biz)

## SHINING A LIGHT ON DISINFECTION

Posted by [Don Sadler](#) | Jul 9, 2017

Despite progress in recent years in the area of infection prevention, hospital-acquired infections (HAIs) still claim the lives of thousands of patients each year. An estimated one in every 25 hospitalized patients has at least one HAI on any given day, according to the Centers for Disease Control and Prevention

Thorough terminal cleaning and cleaning of ORs between cases remains the most effective ways to reduce HAIs. The good news is that a number of new disinfection techniques and technologies have been developed to help combat HAIs.

### Common Causes of HAIs

“There are many types of HAIs, but among the most common are those associated with indwelling devices used in medical procedures,” says Laurie Rabens, senior product manager, Clorox Healthcare. “These include central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), and ventilator-associated pneumonia (VAP).”

Rabens points to a 2014 multistate point-prevalence survey of HAIs, as reported to the National Healthcare Safety Network (NHSN), that found that *Clostridium difficile* (C.diff) was the most common cause of HAIs, followed closely by *Staphylococcus aureus* (MRSA).

“Many surfaces in the OR are contaminated with organisms that cause infections,” says Sam Trapani, the president and CEO of Steriliz, a supplier of ultraviolet-C light disinfection technology. “Sometimes, these surfaces are not sufficiently cleaned, either between cases or terminally at the end of the day. When someone makes contact with the surfaces, they become a vector and transmit the pathogen to the patient.”



*“EMERGING TECHNOLOGY FOR ROOM DECONTAMINATION SHOULD ONLY BE USED AS AN ADJUNCT TO MANUAL ENVIRONMENTAL CLEANING PROCEDURES.” –AMBER WOOD*

According to Rabens, establishing and maintaining thorough daily cleaning (both between cases and terminally) and disinfecting procedures is a cornerstone of any effective infection control program for surgical settings. ECRI Institute’s 2017 Top 10 Hospital C-Suite Watch List report notes that some hospitals have adopted environmental disinfection systems that use ultraviolet-C (UV-C) light or hydrogen peroxide vapor (HPV) to complement existing infection control protocols.

“UV light has been increasingly used as an effective method to kill microorganisms,” says the ECRI Institute report.

**According to Trapani, studies have shown that manual cleaning using bleach or other liquid disinfectants**

**achieves only a 30 to 50 percent disinfection of contaminated surfaces.**

“This is why it’s necessary to implement advanced disinfection technologies that measure the delivered UV-C dose to kill pathogens,” he says.

“We stand by terminal cleaning and cleaning between cases – these are normal protocol in any OR,” says Kerry Riek, a senior associate in ECRI Institute’s Applied Solutions Group. “This includes manual cleaning with bleach and other liquid disinfectants. Devices using UV light, like disinfection robots, and visible LED ceiling fixtures can be used as supplements to manual cleaning.”

Amber Wood, MSN, RN, CNOR, CIC, FAPIC, senior perioperative practice specialist, the Association of periOperative Registered Nurses (AORN), concurs.

“Room decontamination technologies as an adjunct to manual cleaning may be useful tools to help prevent infection by enhancing environmental cleanliness,” says Wood.

“There is no replacement for manual cleaning and disinfection of surfaces,” adds Wood. “If contaminants are not removed from a surface, the surface cannot be disinfected. Therefore, emerging technology for room decontamination should only be used as an adjunct to manual environmental cleaning procedures.”

### How UV Disinfection Technology Works

Dr. Mark Povroznik, vice president, quality/CQO at United Hospital Center in Bridgeport, West Virginia, has spoken frequently about the use of UV light in hospital disinfection. He explains that there are three basic forms of UV light: UV-A, UV-B and UV-C.

“UV-C has proven effective as a no-touch germicidal,” says Povroznik. “It can be recreated via the use of two light sources: mercury and xenon. At United Hospital Center, we’ve utilized both types of UV devices.”

In simple terms, pulsed xenon UV destroys pathogens in a different way than mercury UV, says Povroznik. “And it does so much faster,” he adds.

In 2010, United Hospital Center opened a new state-of-the-art hospital that deployed mercury UV devices as part of its strategy to control environmental bio-burden. Then in February of this year, it modified from mercury-based UV to pulsed xenon UV.

**“We have 11 ORs that are disinfected nightly,” says Povroznik. “Because of the size of the ORs, we run the LightStrike xenon UV robot for 10 minutes in two different positions after the room has been terminally cleaned.”**

Povroznik stresses that it’s important to run the UV disinfection device in multiple positions to ensure that all surfaces are properly disinfected.

“In addition, our robots are deployed in special procedure areas and sterile mixing in the pharmacy,” he says.

Hospital-wide infection rates have remained low at UHC and the targeted units have seen a modest reduction in a relatively short period of time, says Povroznik.

“For matched time periods, HAIs have been further reduced by 27 percent,” he says.

### No Silver Bullet

Rabens stresses that UV disinfecting technologies are not a silver bullet that can be used alone to decontaminate hospital rooms.

“It’s important to remember that these technologies are designed to supplement, not replace, manual surface cleaning and disinfection with EPA-registered disinfectants,” she says.

“Manual disinfection is still essential for removing soils and killing pathogens on environmental surface,” Rabens adds.

Rabens recommends using UV devices after manual disinfection to reach areas of the OR that may otherwise be missed or insufficiently addressed due to **human error**.

**“Also, the presence of organic matter, such as dried blood, can shield pathogens from the UV light and reduce the treatment’s effectiveness,”** she adds.

When selecting a surface disinfecting product, Rabens says it’s important to consider a few key factors such as relevant pathogen kill claims, wet-contact times (or how long the product needs to stay wet on the surface in order to kill the pathogens), ease-of-use and safety.

**“Sodium hypochlorite, the active ingredient in bleach, is one of the few actives that is effective at killing C. difficile spores on environmental surfaces,”** says Rabens. “It is cited by more clinical studies to kill C. difficile than any other active ingredient.”

Rabens adds that Clorox Healthcare bleach germicidal disinfectants are designed to be fast-acting and kill a broad range of pathogens. These include C. difficile spores as well as emerging and reemerging pathogens like MERS-CoV, SARS-CoV, Enterovirus D68 and the Measles virus. Clorox offers a UV-C device in its Optimu-UV Enlight System.

*“THE PRESENCE OF ORGANIC MATTER, SUCH AS DRIED BLOOD, CAN SHIELD PATHOGENS FROM THE UV LIGHT AND REDUCE THE TREATMENT’S EFFECTIVENESS.” –LAURIE RABENS,*



### Battling Misconceptions

Povroznik says there are some **common misconceptions** when it comes to the use of UV disinfecting technologies in hospitals. One of them is how much additional time using these technologies will take.

**“While UV disinfection does add time, this can be managed by sequencing the cleaning and deployment of the robots based on room design,”** he says.

**Another misconception involves single room placement of UV disinfecting devices versus multiple sites in the room.**

**“Studies have proven that while UV light can reflect off of surfaces, it does not do so in high enough intensity**

**to be equally germicidal over distances,”** says Povroznik.

The optimal way to use UV-C light in an operating room is to disinfect with multiple positions in the room and to account for equipment and overall room size, Povroznik adds.

### Evaluating the Technology

Wood believes that further research is needed to determine the applicability of UV disinfecting technologies in the perioperative setting.

“In the operating room, these technologies should be evaluated for their efficacy, safety for personnel, compatibility with equipment, impact on environmental controls, time per cycle and cost,” says Wood. “Some systems may be practical for use between procedures while others may be better suited for use at terminal cleaning.”

### How To Clean and Disinfect Schools To Help Slow the Spread of Flu ...

<https://www.cdc.gov/flu/school/cleaning.htm>

May 15, 2018 – **How To Clean and Disinfect Schools To Help Slow the Spread of Flu**

Cleaning and disinfecting are part of a broad approach to preventing infectious diseases in schools. To help slow the spread of influenza (flu), the first line of defense is getting vaccinated. Other measures include staying home when sick, covering coughs and sneezes, and washing hands often. Below are tips on how to slow the spread of flu specifically through cleaning and disinfecting.

1. Know the difference between cleaning, disinfecting, and sanitizing

**Cleaning removes germs, dirt, and impurities from surfaces or objects.** Cleaning works by using soap (or detergent) and water to **physically remove** germs from surfaces. This process does not necessarily kill germs, but by removing them, it lowers their numbers and the risk of spreading infection.

**Disinfecting kills germs on surfaces or objects. Disinfecting works by using chemicals to kill germs on surfaces or objects. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection.**

**Sanitizing lowers the number of germs on surfaces or objects to a safe level, as judged by public health standards or requirements. This process works by either cleaning or disinfecting surfaces or objects to lower the risk of spreading infection.**

2. Clean and disinfect surfaces and objects that are touched often

Follow your school’s standard procedures for routine cleaning and disinfecting. Typically, this means daily

sanitizing surfaces and objects that are touched often, such as desks, countertops, doorknobs, computer keyboards, hands-on learning items, faucet handles, phones, and toys. Some schools may also require daily disinfecting these items. Standard procedures often call for disinfecting specific areas of the school, like bathrooms. Immediately clean surfaces and objects that are visibly soiled. If surfaces or objects are soiled with body fluids or blood, use gloves and other standard precautions to avoid coming into contact with the fluid. Remove the spill, and then clean and disinfect the surface.

### 3. Simply do routine cleaning and disinfecting

It is important to match your cleaning and disinfecting activities to the types of germs you want to remove or kill. Most studies have shown that the flu virus can live and potentially infect a person for up to 48 hours after being deposited on a surface. However, it is not necessary to close schools to clean or disinfect every surface in the building to slow the spread of flu. Also, if students and staff are dismissed because the school cannot function normally (e.g., high absenteeism during a flu outbreak), it is not necessary to do extra cleaning and disinfecting.

Flu viruses are relatively fragile, so standard cleaning and disinfecting practices are sufficient to remove or kill them. Special cleaning and disinfecting processes, including wiping down walls and ceilings, frequently using room air deodorizers, and fumigating, are not necessary or recommended. These processes can irritate eyes, noses, throats, and skin; aggravate asthma; and cause other serious side effects.

### 4. Clean and disinfect correctly

Always follow label directions on cleaning products and disinfectants. Wash surfaces with a general household cleaner to remove germs. Rinse with water, and follow with an EPA-registered disinfectant to kill germs. Read the label to make sure it states that EPA has approved the product for effectiveness against influenza A virus.

If a surface is not visibly dirty, you can clean it with an EPA-registered product that both cleans (removes germs) and disinfects (kills germs) instead. Be sure to read the label directions carefully, as there may be a separate procedure for using the product as a cleaner or as a disinfectant. Disinfection usually requires the product to remain on the surface for a certain period of time (e.g., letting it stand for 3 to 5 minutes).

Use disinfecting wipes on electronic items that are touched often, such as phones and computers. Pay close attention to the directions for using disinfecting wipes. It may be necessary to use more than one wipe to keep the surface wet for the stated length of contact time. Make sure that the electronics can withstand the use of liquids for cleaning and disinfecting.

### 5. Use products safely

Pay close attention to hazard warnings and directions on product labels. Cleaning products and disinfectants often

call for the use of gloves or eye protection. For example, gloves should always be worn to protect your hands when working with bleach solutions.

Do not mix cleaners and disinfectants unless the labels indicate it is safe to do so. Combining certain products (such as chlorine bleach and ammonia cleaners) can result in serious injury or death.

Ensure that custodial staff, teachers, and others who use cleaners and disinfectants read and understand all instruction labels and understand safe and appropriate use. This might require that instructional materials and training be provided in other languages.

### 6. Handle waste properly

Follow your school's standard procedures for handling waste, which may include wearing gloves. Place no-touch waste baskets where they are easy to use. Throw disposable items used to clean surfaces and items in the trash immediately after use. Avoid touching used tissues and other waste when emptying waste baskets. Wash your hands with soap and water after emptying waste baskets and touching used tissues and similar waste.

=====

### **[Hypochlorous Acid for Definitive Terminal Cleaning of the Hospital ...](https://www.infectioncontroltoday.com/.../hypochlorous-acid-definitive-terminal-clea...)**

<https://www.infectioncontroltoday.com/.../hypochlorous-acid-definitive-terminal-clea...>

**HOCL is non-toxic, does not leave residue on environmental surfaces, and is not corrosive to hospital equipment, as traditional bleach and phenolics have long demonstrated.**