# UV Surface Disinfection Plays Better on a Team

Every year, 1.7 million Americans suffer from a hospital-acquired infection (HAI), according to the US Centers for Disease Control and Prevention. These infections come from many sources, including contaminated hands and unclean hospital surfaces. Studies show that HAIs can be reduced by dedicated cleaning efforts, and in a concerted effort to reduce these infections, healthcare facilities have turned to several disinfection technologies.

Ultraviolet light is one very effective way to rid an operating room, patient suite or other healthcare setting of pathogens, simply by setting up an emitter in the room. With no staff (or their hands) present, the risk of human-introduced microbes is reduced even more. No wonder that this technique is taking healthcare facilities by storm.

But UV can't work effectively alone. Not only do current healthcare regulations and guidelines require validation of cleaning by some other method, UV doesn't reach into every nook and cranny. Therefore, UV, like  any other cleaning technique, works best as part of a bundle of methods that includes ATP-based monitoring of cleanliness, based on the measurement of adenosine triphosphate molecule, an energy-producing molecule that is found in all cells.

John Scherberger, president of the Healthcare Laundry Accreditation Council recently asked of UV, "Can a robot clean a hospital room as well as a human?" The answer is: both are quite capable, but different UV systems work in very different ways.

> Current regulatory and healthcare standards that require verification and documentation of cleaning efforts extend the question: "What if a robot or a human cleans a hospital room and nobody records it?" The answer is: Today's standards not only ask if a surface or room is disinfected—they also want to be sure its cleanliness is verified.

Studies have shown that UV treatment is very effective at reducing levels of bacteria—one study cited a 70 percent reduction in bacteria after UV application. UV light can kill cells by bouncing off surfaces, ricocheting light rays into hard-to-reach areas, where the light waves disrupt DNA in cells, ultimately killing them. Other studies highlight the effectiveness of UV:

A recent study by University of Wisconsin researchers found that UV light reduced bacteria counts in a nursing home from 33 percent of all surfaces to 7.1 percent for disinfectant cleaning, and to 4.4 percent for UV treatment. Hospitalizations for pneumonia and other infections also decreased after UV disinfection.

Researchers studying UV disinfection at a community hospital in Culver City, California, found that UV sterilization dramatically reduced organic material in several locations in the facility. Rates of hospital-acquired infections (HAIs) dropped more than 34 percent after UV-C treatment, and continued use of UV as part of a service program resulted in significantly lower HAI rates.

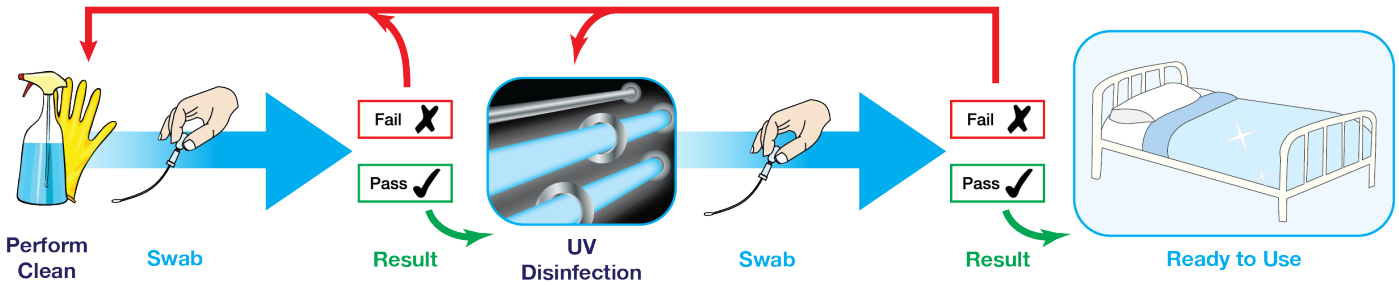
Dirt and debris often do need removal, and new laws and practice standards (as well as audits by accrediting agencies and regulators) are demanding verification and monitoring documentation. Other studies in hospitals have found that only

**25% to 45%**

of touchpoints near a patient are clean, even after UV treatment. UV by itself is not a disinfectant--researchers and UV manufacturers have long advised that surfaces be properly and thoroughly cleaned before UV treatment, Lisa Sturm, director of infection prevention and epidemiology at the University of Michigan Health System, told Cleaning and Maintenance Management recently.

In addition, not all UV systems are the same, and facilities should look for a number of essential features when choosing a system. Effective UV systems must be able to kill pathogens quickly enough to allow rapid room turnover, and be able to cover the entire room, not just portions of the facility in the direct path of the UV beam. Moreover, manufacturers should have a long history in the technology, hold quality management certifications like ISO 9001, and be backed by third-party laboratory testing, and clinical studies.

Monitoring and verification can be achieved by systems that detect ATP. Monitoring with the Hygiena™ SystemSURE Plus ATP Cleaning Verification System measures swab samples and provides results in 15 seconds. The systems provide reports that allow hygiene specialists to determine cleaning efficacy, determine problem areas for further cleaning, and track and trace cleaning processes over time using SureTrend Data Analysis Software. ATP measurement has been a staple of food safety for decades, and today's portable devices have made precise feedback in healthcare settings much easier to achieve.




Keeping rooms clean is also a multi-player process, with nursing, medical treatment specialists, room cleaning and disinfection as important steps on the path. And methods like ATP monitoring can be used to determine whether UV was fully effective, if used correctly. Because ATP levels can spike immediately after UV treatment, manufacturers recommend a waiting period before testing for ATP. In fact, the two studies cited in this paper (Wisconsin and California) also utilize ATP monitoring to verify UV treatment results. In addition, the same studies that showed 25 to 45 percent cleanliness also showed that when activities were measured and interventions deployed, the "clean" rate jumped to 75 percent.


Ultraviolet treatment is a valuable technology, using a "hands-off" approach to cleaning healthcare facilities. But they can't operate in a vacuum—they should be matched with hand-cleaning processes and methods that can verify—and track and record—your important cleaning programs.