



WINNING THE INFECTION PREVENTION BATTLE:

STRATEGIES FOR CHOOSING THE RIGHT PARTNER IN UV DISINFECTION

EVERY HOSPITAL
WANTS TO PROVIDE
THE HIGHEST
QUALITY CARE WHILE
MANAGING COSTS.



ABSTRACT

Hospital acquired infections (HAIs) are a serious threat that not only directly impact patients, but also affect hospital systems because of the significant amount of time and resources involved in treating them. HAIs can be prevented, and the resources involved in an infection prevention solution demand the purchasing decision be made with scrutiny. Careful consideration of the **four “E”s** – effectiveness, efficiency, elements and excellence in service – can help facilities identify the right partner to suit their UV disinfection needs.

INTRODUCTION

Too many patients contract infections while in the hospital - from microorganisms like *Clostridium difficile* (*C. diff*) to MRSA, these infections cause unnecessary suffering, sometimes even death. In addition to the heavy emotional toll placed on the infected person, the ensuing treatment and readmission costs for hospitals are enormous. A large and costly problem, HAIs also garner attention from the federal government.

As superbugs thrive in healthcare facilities and Centers for Medicaid & Medicare Services (CMS) threatens reimbursements, hospital administrations are wise to ramp up disinfection efforts with the goal of reducing HAI rates. Every hospital wants to provide the highest quality care while managing costs. When evaluating infection control solutions, a return on investment is important, but not at the expense of patient safety.

Numerous studies have demonstrated that UV disinfection offers a practical solution for effective infection control, but the market is flooded with misinformation. Understanding the differences between UV technologies and choosing the right partner can be challenging. Hospital systems are smart to seek a partner that has a history of helping facilities achieve infection rate reductions and engages with them for long-term success. When evaluating potential UV disinfection partners and systems, health care practitioners must focus on the **four “E”s** – effectiveness, efficiency, elements and excellence – **because not all UV is the same.**

01

EFFECTIVENESS

PEER REVIEWED PUBLISHED CLINICAL OUTCOMES ARE KEY

INFECTION CONTROL
THOUGHT LEADERS
RECOGNIZE
THE VALUE OF
PEER REVIEWED
LITERATURE.

When selecting a UV provider, it's important to invest in a technology that gets results. Demonstrated clinical outcomes (reduced infection rates) in a published peer reviewed study is a requirement. Choose a partner that has customers who have lowered their infection rates after implementing a UV disinfection solution. UV providers must show results via studies, and not just any study. Demand peer reviewed studies.

Published, peer reviewed studies conducted in a clinical environment are the gold standard in scientific research. Studies where technologies are analyzed in a laboratory environment serve an important role in providing preliminary research but findings must be further examined in a real world environment that tests the device under typical use and conditions. Published studies that have been vetted by peer experts inspire confidence. Infection control thought leaders recognize the value of peer reviewed literature. In a recent APIC presentation, researcher William Rutala, MD, stressed the importance of “documented clinical outcomes” supporting a device’s claims in regards to reducing infection rates in hospitals.

The Xenex Lightstrike Germ-Zapping Robot™ uses pulsed xenon (not mercury bulbs) to create germicidal UV light and has been studied consistently by influential researchers since 2011. To date, 19 peer reviewed clinical outcome and environmental studies validate the efficacy of the robot,

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PEER REVIEWED
PUBLISHED CLINICAL
OUTCOME STUDIES.

and that number is constantly growing. Of these studies, eight illustrate reduced infection rates in a hospital, including:

- 46% reduction in Class I SSIs which resulted in nearly \$500,000 saved*
- 100% reduction in total joint SSIs and \$290,990 saved in 12 months*
- 87% reduction in ICU VRE infection rates and nearly \$730,000 saved*
- 57% reduction in MRSA infection rates*

Always ask vendors for peer reviewed published clinical outcome studies. If hospitals want to make an informed decision on purchasing UV technology to enhance the safety of their patients and employees, then they need to examine peer reviewed literature on actual infection rate reductions in the real-world hospital environment.

02

EFFICIENCY

MORE ROOMS DISINFECTED, FEWER INFECTIONS

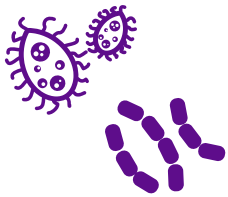
It makes sense that the more rooms and areas a hospital is able to disinfect, the greater their infection rate reduction will be. Studies suggest there is direct correlation between the number of rooms disinfected per day and the resulting infection rate reduction.

In the CDC-funded BETR-D study introduced at ID Week 2015, researchers disinfected an average of two rooms per day with cycle times ranging from 31-52 minutes per room using continuous mercury UV devices. Most mercury UV devices require an additional warm-up and cool down cycle time of 5-10 minutes per room.

Xenex is the only UV disinfection provider that uses pulsed xenon (not mercury bulbs) to create germicidal UV light. Xenex Lightstrike™ features a cycle time of 4 minutes, without a warm-up or cool down period. Shorter cycle times mean the robot can disinfect more rooms and areas per day.

The BETR-D study was also reported to have concluded a reduction in MDROs of 30%. But the detailed results are important to know:

- MRSA was not significantly impacted
- VRE rates were reduced by use of bleach and Tru-D UV, but only marginally more than by use of bleach alone
- *C. diff* rates were unchanged



WESTCHESTER MEDICAL CENTER confirmed the effectiveness of dose response in two peer reviewed studies documenting HAI rate reductions through use of the Xenex pulsed xenon UV device.

STUDY I: 20% rate drop in *C.diff* and MDRO infections when using Xenex to disinfect 22% of their facility-wide discharges.*

STUDY II: Dramatic 70% drop in ICU *C.diff* rates when disinfecting a higher portion of their ICU discharges.*

Xenex customers have reported disinfecting up to 60 rooms per day with a single device. Infection control and EVS team members know that disinfecting more rooms means killing more pathogens that cause HAIs, resulting in a safer and healthier environment for patients and employees.

03

ELEMENTS

TOXIC MERCURY & MATERIALS DAMAGE

UV has been used for disinfection for years. According to the GAO there are 50+ companies that manufacture UV devices using mercury bulbs, which contain toxic mercury and may require special care for disposal. Both the EPA and World Health Organization seek to phase out the use of mercury in hospitals. The EPA recommends special precautions when handling mercury bulbs of all types.

Some hospitals are reporting materials damage to equipment in patient rooms and ORs as a result of exposure to continuous UV light. An article published in 2008 in the International Ultraviolet Association (IUVA) magazine describes how a violin maker uses continuous UV mercury lamps to age the wood on his violins, serving as an illustration of the damaging effects that mercury UVC can have on materials. The Xenex device uses a pulsing technology (not continuous mercury UV) to create UV light and has been in use in U.S. hospital for over five years with no reports of materials.

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*Xenex.com/studies

04

EXCELLENCE IN SERVICE

THE PLAN MAXIMIZES
ENVIRONMENTAL
SERVICES USER
EXPERIENCES AND
ENCOURAGES
UTILIZATION...

FULLY ENGAGED POST-SALE RELATIONSHIP

The operational requirements of implementing disinfection technology can be daunting, especially when transforming a written operating protocol into a consistent, correct utilization within employee ranks. A successful launch of a disinfection program benefits from facility-wide buy-in, including training and education at multiple levels within the organization. Xenex provides not only full-service implementation and training programs but also consultations, business reviews and live detailed reporting so protocols can be reviewed and adjusted for infection prevention success.

Healthcare facilities should review a Return On Investment (ROI) model to assess and validate their purchase. Live reporting is a must for administrators and infection preventionists. Best practices favor a product with access to a portal so customers can review robot usage in real time, measure HAI benchmarks and collect information to analyze utilization and results for future success.

Xenex's consultative approach begins with the sale and continues through the assessment period. A dedicated client service expert is assigned at onboarding to evaluate a facility's current environmental services (EVS) procedures and streamline operational plans. Benchmarking reviews of discharge and HAI rate data are conducted and an operating plan is developed with specific measurable objectives.

The Xenex dedicated client service representative works with the facility to develop a customized project plan in collaboration with all stakeholders at the facility. The plan maximizes environmental services user experiences and



encourages utilization to meet the standard operating plan goals. Next a training team is dispatched to provide educational seminars, demos, and even employee contests that raise awareness of the program and encourage participation.

Finally, the system's robust reporting capabilities come into play in a validation period, where feedback is generated and operational plans are tweaked. The Xenex portal dispenses instant insight to all metrics of success, including HAI rate tracking. Sue Moeslein, RN, MSA, CIC, ACM and Infection Preventionist worked with Xenex and said of her experience, "There's a push-and-pull dynamic of consensus and staff buy-in to a new technology. The importance of timely, appropriate communication and feedback to key stakeholders can't be overstated."

Proper utilization of technology boosts success and a strong partnership with the UV provider can help maximize device utilization, potentially leading to dramatic HAI rate drops of 50-100 percent and a quick return on investment. UV disinfection providers like Xenex report stellar client satisfaction rates AND declining infection rates, indicating that the partner/consultative approach fuels long term success.

CONCLUSION

HAIs, a dire problem in the healthcare arena, affect millions of people. Many of these infections can be avoided through the use of the right UV disinfection technology. The Xenex system is the **only UV light disinfection technology** shown in multiple peer reviewed published studies to help hospitals reduce infection rates. The mercury UV vendors may tell hospital decision-makers that all UV is the same. And it's not true. **There are scientific differences between the UV light produced by pulsed xenon and the UV light produced by and mercury bulbs. This difference comes down to intensity of photons.** This is perhaps best illustrated using a water analogy. Picture the way in which a power washer and garden hose output water. Both emit water but the power washer does a faster and better job cleaning driveways because of its intensity, just as the intensity of xenon light makes a difference in enhanced environmental cleaning.

Because hospital infection control is an expansive and important undertaking involving many stakeholders, careful assessment prior to identifying a partner and launching initiatives is a must. Hospital decision makers are wise to take into account the four Es when evaluating UV disinfection providers - effectiveness, efficiency, elements and excellence in services. Savvy administrators review peer reviewed studies and literature and pursue a full service partner with an effective, efficient solution proven to reduce HAIs. Understanding there are scientific differences between the way pulsed xenon UV and mercury UV emit germicidal UV light, the four E strategy reveals why a proven, efficient, non-mercury, full service partner like Xenex is a viable solution to relieve the suffering and skyrocketing costs of HAIs.

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HOW TO CHOOSE A UV DISINFECTION PROVIDER

EFFICACY: Has the technology been proven to reduce infection rates? Has that data been validated through peer review? Carefully evaluate the technology's clinical outcome studies – peer reviewed studies that show how a hospital has experienced a decrease in infection rates after using a UV disinfection system.

IMPLEMENTATION & TRAINING: Ask vendors about the implementation and training they provide to ensure infection reduction success. Xenex sends an implementation team to work with the hospital's EVS and IP staff to customize protocols that will maximize robot usage. Xenex thoroughly trains employees who run the robots. Hospital administrators access a portal where they review robot usage in real-time, and measure their HAI reduction progress.

DOES THE DEVICE CONTAIN MERCURY? Many hospitals are eliminating mercury in their facilities as part of making the hospital safer for patients and employees. Some UV devices rely on multiple bulbs that contain toxic mercury vapor and may require special handling and precautions in the event of bulb breakage. These bulbs require warm-up and cool down times, as the bulbs may reach 220 degrees and should not be moved until the bulbs cool to a safe temperature.

MATERIALS DAMAGE: Is your facility willing to have equipment and materials degraded in as little as 90 days? Hospitals using mercury UV devices have reported materials damage caused by the continuous mercury UV device. Hospitals have used Xenex robots for over 5 years, and no customer has reported any materials damages associated with the Xenex robot.

REFERENCES: Ask to speak to hospitals using the technology and learn from their experiences.

DEMONSTRATION: Watch the robot in action in a hospital setting. Is it easy to set up and use? Is it portable?

TO DISCUSS HOW WE CAN HELP
SIGNIFICANTLY REDUCE THE OCCURRENCE
OF HOSPITAL ACQUIRED INFECTIONS IN
YOUR FACILITY, CONTACT US TODAY.

XENEX.COM
800-553-0069

ABOUT XENEX

Xenex was founded by epidemiologists Dr. Mark Stibich and Dr. Julie Stachowiak, both holding doctoral degrees from Johns Hopkins University. Their core mission through Xenex is to kill the pathogens that cause the infections that have such a terrible impact on the health and lives of millions of patients and their families. Xenex's Pulsed Xenon Disinfection Solution reduces the bacterial load that is often associated with an increased risk for Hospital Acquired Infections (HAIs). Since their commercial launch in June 2010, Xenex devices are now a part of infection control protocols in hundreds of hospitals throughout the U.S.

