UVC Disinfection
Isn’t the Future—
It’s Now

Tru-D Smart UVC
In January 2017, the first and only randomized clinical trial on UVC disinfection was published in *The Lancet*. Results demonstrated that continuous UVC disinfection could reduce the relative risk of colonization and infection of four major superbugs among patients who entered the same room by a cumulative 30 percent in hospital settings when 93% compliance of standard disinfection protocols occurred. Individual hospital results may vary. Adoption of continuous UVC disinfection as an enhanced strategy has significantly increased over the past decade, and the *Benefits of Enhanced Terminal Room Disinfection* (BETR-D) study\(^1\) shows the critical role that UVC disinfection now plays in health care settings.

**What Will You Learn?**

- The Evolution of Continuous UVC Disinfection
- Business Case for Continuous UVC Technology
- The Smart UVC Disinfection Choice
HAIs: A Leading, Preventable Cause of Death

According to the CDC, there are more than 700,000 hospital-acquired infections (HAIs) every year in the U.S., and more than 75,000 of those patients die as a result.\(^3\) With HAI rates increasing, more superbugs discovered each year and increased financial accountability for infection rates, it’s critical for hospitals to provide the cleanest environments possible to protect patients and staff from infections.

The Role of the Environment

Over the past decade, researchers have concluded that manual disinfection is inadequate for terminal room disinfection. According to studies, more than 50% of health care surfaces are not properly disinfected, leaving behind pathogens that increase the risk of infection by 39 – 353% for the next patient who enters the room.\(^4\)

Why Use Continuous UVC to Disinfect?

UVC’s wavelength is germicidal—meaning it is capable of inactivating microorganisms, such as bacteria, viruses and fungi. This quality makes UVC an effective, environmentally-friendly and chemical-free way to eradicate dangerous microorganisms in any environment, but especially in hospitals that contain drug-resistant superbugs including *C. diff*, MRSA and VRE.

“...This technology, no-touch systems, should be used. They should be used for terminal room disinfection. If you don’t have these systems, you should have the capital budget for them.”\(^2\)

William A. Rutala, PhD, MPH, CIC
Researcher, BETR-D Study, UNC
The Evolution of Continuous UVC Disinfection

The first UVC disinfection robot was placed in a health care facility in 2007. Almost immediately, early adopters began to see significant decreases in HAI rates. However, there was often push back on the need for and effectiveness of enhanced terminal room disinfection. Since that time, UVC disinfection has been widely debated and studied. The recent BETR-D study shows the efficacy of continuous UVC disinfection and the need for health care facilities to invest in these technologies.

Scientific Validation Phases—Continuous UVC Disinfection

**Phase 1:** Purposefully inoculated plates disinfected in hospital rooms

**Phase 2:** Purposefully inoculated actual room surfaces disinfected in hospital rooms

**Phase 3:** Actual room surface disinfection after ES cleaning

**Phase 4:** Actual room surface disinfection with no ES cleaning

**Phase 5:** A large-scale, well-controlled, CDC-funded randomized clinical trial on risk reduction of HAIs

In the case of UVC disinfection, the most valid and credible information stems from third-party, independent studies and validations without conflicts of interest. Hospital staff, infection preventionists and other personnel should ensure a product’s efficacy is proven by outside research and studies, without any internal influence from the manufacturer or retailer.

“What we saw in the study was a minimum impact of an enhanced strategy that you will see in your own hospitals...I think hospitals should pursue using these to improve their terminal room disinfection.”

*Deverick Anderson, MD, MPH  
Lead Investigator, BETR-D Study, Duke Health*
Cost Savings to Hospitals

The direct medical cost of HAIs to healthcare facilities exceeds $30 billion annually.¹ UVC technologies lower the risk of patients developing unnecessary and preventable infections transmitted by the environment during their treatment.

Reducing the incidences of HAIs by eradicating the pathogens that lie hidden in the healthcare environments can lead to an immediate cost avoidance.

Implementing Continuous UVC

Key leaders in the organization should use a top-down approach for the adoption of UVC to show measurable outcomes and measurable returns to the organization. Managing an enhanced UVC disinfection program requires a strategic approach to communication—the most important equation of a successful implementation.

Development of a program standard that defines and prioritizes a focus on pathogens and a strategic approach to patient care units with high incidences of infection rates is paramount. Measuring utilization of the UVC device, prioritizing opportunities and recognizing the correlation to infection reduction are key to successful outcomes.

“Our study is the first randomized trial to demonstrate that enhanced disinfection in the hospital can improve patient safety.”

Deverick Anderson, MD, MPH
Lead Investigator, BETR-D Study, Duke Health
The Business Case for Continuous UVC Disinfection

The BETR-D study has concluded that enhanced disinfection protocols that include UVC in your bundling package of current infection prevention modalities (i.e. hand washing and manual disinfection) will reduce HAIs and increase patient safety.

Cost Avoidance Model

Cost avoidance associated with HAIs support your efforts to measure quality and cost effectiveness to achieve improved outcomes.

Researchers have begun to examine the economic impact to hospitals, and, in a recent study, they created a reduction model detailing cost avoidance using UVC disinfection. As readmissions are decreased and risks reduced, revenue opportunities increase.

Business Case for one UVC device using a 20% reduction model

<table>
<thead>
<tr>
<th>Variable</th>
<th>CDI costs:</th>
<th>CDI savings:</th>
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<tbody>
<tr>
<td>CDI cases per year</td>
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<td>CDI case reduction</td>
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<tr>
<td>Cost per case</td>
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<td>Annual cost for CDI</td>
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<td>$1,400,000</td>
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<tr>
<td>UVC-C cost (typical 3u placement)</td>
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<td></td>
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</tbody>
</table>

“We need to say to our CFOs that we need these technologies, and we need to look at the data. The data shows a reduction in infections and we need to invest.”

William A. Rutala, PhD, MPH, CIC
Researcher, BETR-D Study, Duke Health
The Smart UVC Choice: Tru-D SmartUVC

Tru-D SmartUVC is a portable continuous UVC disinfection system that delivers an automated, measured dose of UVC light to consistently disinfect an entire room during a single cycle.

Once an Environmental Services (ES) team member cleans a room with traditional methods, Tru-D is rolled in to complete the disinfection process. Operating from a single position in the room, Tru-D ensures significant pathogen reduction in direct and shadowed areas and eliminates the threat of human error in the disinfection process.

The UV Robot with a Brain

Only Tru-D uses patented Sensor360® technology that compensates for room variables such as size, shape and contents to deliver the precise, lethal dose of UVC energy needed for terminal room disinfection. As the pioneer of UV disinfection, Tru-D’s measured dosing capability has been scientifically validated to significantly improve disinfection when added to standard cleaning protocols.

“Infections from one of these bugs are tough and expensive to treat and can be truly debilitating for a patient. For hospitals, these infections also cause a burden of costs that often aren’t reimbursable.”

Deverick Anderson, MD, MPH
Lead Investigator, BETR-D Study, Duke Health
Choosing a UVC Disinfection System

When evaluating whether to use these technologies in your hospital, facility leaders must consider key factors such as the cycle time, the distance the ultraviolet light travels and the impact of managing labor productivity required to perform the processes. In addition, hospital leadership should look to independent, third-party studies to validate a device’s efficacy.

Tru-D ideally fits within this evaluation process, providing extremely high levels of organism destruction in a very short period of time, with minimal disruption to staff productivity.

Also, Tru-D SmartUVC holds multiple Group Purchasing Organization contracts that offer competitive pricing structures for member facilities. Contracts include HealthTrust, GSA, Premier and Vizient.

“"If you move to a more macro level, when you look at all patients who come into the hospital, we actually did see the C. diff rate decrease by 11%, which is statistically significant.""*6

Deverick Anderson, MD, MPH
Lead Investigator, BETR-D Study, Duke Health

2. Rutala, William A. Disinfection and Sterilization: The Good, the Bad, and the Ugly. Presentation at the Association for Professionals in Infection Control and Epidemiology Conference. 2016 June 11-13; Charlotte, NC.
5. Anderson, Deverick, Research Presentation at the Annual DICON Symposium, 2015 November; Greensboro, NC.

*9 Deverick Anderson, MD, MPH, Lead Investigator, BETR-D Study, Duke Health
Tru-D SmartUVC takes pride in the science and research behind our product. With more than twenty independent studies on Tru-D including the only randomized clinical trial on UVC disinfection, Tru-D is backed by science as well as the industry’s top research facilities. Deployed in more hospitals than any of its lookalike offerings, Tru-D is the pioneer and an industry leader in the UVC disinfection space.

To learn more about Tru-D, visit Tru-D.com. To have a member of Tru-D’s sales team contact you, e-mail: info@tru-d.com.

Stay up-to-date with the latest news on UVC disinfection. Visit UVC360.com.