UVC Technology: Disinfecting the Root of Contamination

A case study with Moses H. Cone Memorial Hospital

Tru-D SmartUVC

TRU-D.COM
THE STERILE PROCESSING DEPARTMENT (CENTRAL SUPPLY OR STERILE SUPPLY AS IT IS COMMONLY CALLED), COMPRIS
SERVICES WITHIN A HOSPITAL IN WHICH MEDICAL AND/OR SURGICAL SUPPLIES AND EQUIPMENT ARE CLEANED, PREPARED, PROCESSED, STORED AND ISSUED FOR PATIENT CARE.

When it comes to disinfection and cleanliness, patient rooms and operating rooms are often top of mind. However, Sterile Processing Departments contain equipment and materials that also need to be properly disinfected prior to use. Sterile processing is the first link in the infection prevention chain. Improperly or inadequately cleaned, disinfected and sterilized instruments can introduce pathogens into the operating room, increasing the risk of a patient getting a surgical-site infection (SSI).

The room is important, but you can't forget about the source of much contamination in health care environments, such as Sterile Processing, in order to provide an impeccable standard of care.

In this white paper, you will learn about UVC disinfection and Moses H. Cone’s use of Tru-D SmartUVC in its Sterile Processing department in order to maintain the cleanest environment possible.

**Why Are We Here?**

Patients expect to receive exceptional care when going to a hospital or health care facility. However, the Centers for Disease Control and Prevention estimates that there are nearly 700,000 hospital-acquired infections in the U.S. each year, and nearly 75,000 of those patients die as a result. In fact, 1 in 31 patients will contract a hospital-acquired infection.

It is critical for hospitals to take proactive measures to prevent the spread of germs and infections throughout their facilities. UVC disinfection was introduced to the market in 2007 with the launch of Tru-D SmartUVC. Since that time, hundreds of hospitals have invested in the technology to provide an added layer of protection against germs.

More and more, patients have choices for their health care needs and look for hospitals and health care facilities that have a demonstrated commitment to patient safety. Therefore, it is critical for hospitals to provide the cleanest environments possible to protect patients and staff from infections, and UVC disinfection can play a key role in patient safety and satisfaction.

**UVC Disinfection Technology**

Ultraviolet (UV) light is a form of light, invisible to the human eye, that exists on the electromagnetic spectrum between X-rays and visible light.

UVC wavelengths are between 200 and 300 nanometers, making them germicidal – meaning they are capable of inactivating microorganisms, such as bacteria, viruses and protozoa.
This quality makes UVC energy an effective, environmentally-friendly and chemical-free way to prevent microorganisms from replicating in any environment, but especially in hospitals where germs and pathogens are prevalent.

**The UVC Robot with a Brain**

Tru-D’s “smart” technology is unique in that it is able to measure the proper UVC dose needed for each room. Its Sensor360® technology minimizes the chance of human error in the disinfection process by calculating the time needed to react to room variables – such as size, geometry, surface reflectivity and the amount and location of equipment in the room. Tru-D then effectively delivers the precise UVC dose needed during a single cycle from a single, central location in the room.

Other UVC device offerings require moving the device to multiple placements in order to try to achieve complete room disinfection. Tru-D’s technology is unique in that with one cycle of UVC light, it has the ability to adapt to room variables to consistently provide thorough disinfection in each, unique space.

**How is UVC disinfection technology used?**

UVC disinfection is typically deployed in patients rooms and operating rooms after Environmental Services has cleaned the area with traditional cleaning protocols. Tru-D is activated by a remote control outside the room and administers one cycle of UVC light to disinfect the space. While Tru-D disinfects the space, operators are free to complete other tasks, reducing idle time and maximizing workflow.

**Improving Disinfection in Sterile Processing**

Melissa G. Morgan, MSN, RN, CIC, CSPDT, FAPIC, Senior System-wide Director for Infection Prevention & Sterile Processing for Cone Health, was aware of gaps in terminal cleaning for the Sterile Processing Department. She presented a business case to executive leadership who approved the funds following a successful pilot.

Moses H. Cone purchased Tru-D following the trial and currently uses the device in Sterile Processing, ensuring one of the most contaminated areas of the hospital is as clean and germ-free as possible.
Moses H. Cone’s Tru-D Program

Moses H. Cone Memorial Hospital began its Tru-D program in May 2018. The device is used daily in the decontamination area of Sterile Processing and weekly in Assembly on the spore cycle.

“Our team at Tru-D worked hand-in-hand with Moses Cone to ensure a successful trial,” Bob Taylor, Senior Regional Sales Manager for Tru-D, said. “We look forward to a long-lasting partnership.”

Cynthia Lee, Assistant Director for Moses Cone’s Sterile Processing Department, was instrumental in implementing Tru-D’s technology. Moses Cone recognizes her for her dedication and leadership throughout the process.

In a study conducted by Virginia Commonwealth University, Barriers and perceptions of environmental cleaning: An environmental services perspective, survey participants indicated that environmental services staff believe themselves to be valuable members of the team. This may be due to the culture of appreciating and empowering environmental services employees that is instilled by its leadership, thereby fostering job satisfaction within the department.

By allowing environmental services staff to take ownership of the UVC disinfection program, not only will the program have a higher likelihood of success, but employees will also have better job satisfaction.

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“We want to ensure that one of the most contaminated spaces in the hospital is as clean as possible,” Morgan said.

The staff has embraced the Tru-D program, taking ownership of running the device and believing in the technology.

“The staff loves having ownership of the Tru-D program, and they feel the organization values them for investing in this tool,” Morgan said.

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About Moses H. Cone Memorial Hospital

Cone Health is an integrated not-for-profit network of health care providers serving people in Guilford, Forsyth, Rockingham, Alamance, Randolph, Caswell and surrounding counties in North Carolina. Our tagline – “The Network for Exceptional Care” – highlights commitment to excellence, which is shared by more than 12,000 employees, 1,300 physicians and 1,200 volunteers.

As Cone Health’s flagship, The Moses H. Cone Memorial Hospital is the largest and most comprehensive medical center within our five-county region. A leader in compassionate, quality care, its easily accessible 63-acre campus includes a 517-bed teaching hospital and referral center.

Moses Cone Hospital has a long and illustrious history dating back to 1911. That year, Bertha Cone established a trust to build a hospital as a memorial to her husband Moses. Construction began on the hospital in 1949, and the first patient was admitted in 1953.

Since its inception, it has continued to stay true to its promise to serve the community by delivering exceptional, compassionate healthcare – a mission the hospital continues to honor today.

Featured Services

- Emergency Department
- Internal Medicine Center
- Heart and Vascular Center
- Inpatient Rehabilitation Center
- Neurosciences
- Orthopedics
- Pediatrics (Inpatient and ICU)
- Stroke Center
- Trauma Center (Level II)
- Urgent Care Center
About Tru-D

Tru-D is an automated, remotely-operated UVC disinfection system that self-adjusts to the size and content dynamics of a room to deliver the proper dose of UVC light energy. Tru-D’s leading-edge Sensor360® technology uses instrument-grade sensors to measure the UVC light that is deflected into shadowed and indirect areas for terminal disinfection. As energy is deflected around the room, shadowed areas are reached, and pathogens are eradicated ensuring a thorough disinfection outcome, every time.

The Research Behind Tru-D

There are more than 20 independent, third-party studies on Tru-D and its technology. The first and only randomized clinical trial on UVC disinfection—the Benefits of Enhanced Terminal Room-Disinfection (BETR-D) study, showed that Tru-D’s patented Sensor360® technology, which measures the reflected UVC dose, has been shown to reduce the relative risk of colonization and infection caused by epidemiologically-important pathogens among patients admitted to the same room by a cumulative 30% in hospital settings with 93% compliance of standard disinfection protocols. Individual hospital results may vary.²

Implementation

When implementing Tru-D, there are four key steps to ensuring a successful UVC disinfection program.

STEP 1: Prior to implementing a Tru-D UVC disinfection program, Tru-D’s team will schedule pre-implementation calls to help guide teams and stakeholders at facilities to focus on a specific pathogen and/or a specific area of the hospital to launch their program.

Setting goals, assigning a champion and putting UVC disinfection as a top priority will assist in hardwiring a successful program.

STEP 2: Once pre-planning has occurred, it is important to get buy-in from leadership and staff in order for a UVC disinfection program to be successful. Infection Prevention and Environmental Services should work closely together to identify problem areas of the hospital as well as pathogens they would like to focus on and eradicate.

STEP 3: Education and training are the number one priority during installation. This is not only for Tru-D operators, but unit staff as well including RNs, Nurse Managers, HUCs, Physicians, administrators and Environmental Services staff.

STEP 4: Tracking usage of the Tru-D device against actual discharges is key to ensure all targeted rooms are being cycled. Tru-D provides weekly/monthly/quarterly reports upon request to monitor the usage of the device. Joint Review calls following installation are also important to keep the Tru-D program as a high priority and hold key people accountable.
The Future

As more evidence-based research is becoming available on UVC disinfection, including the first and only randomized clinical trial, the “BETR-Disinfection study,” which was published in 2017 in hospitals are realizing the importance of and need for enhanced disinfection.

Notable researchers in infection control and hospital epidemiology have begun to stress the need for no-touch disinfection technology, which has driven acceptance of UVC robots in prestigious health care systems and hospitals throughout the U.S. Further, hospital reimbursements for infections also play a role in the decision to implement UVC disinfection technology.

Renowned experts provide guidance, stating, “Enhanced disinfection technology should be used. If you don’t already have it, you need it in your budgets. Minimally, you must add No Touch Technology to your manual cleaning practices upon discharge of a patient on contact or enteric contact isolation.”

“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.”

As more evidence of UVC disinfection’s efficacy becomes available, enhanced terminal room disinfection strategies will likely become a standard of care for all hospitals.

References

