



Inivos®



ULTRA-V®

Powerful, independently validated,
UV-C surface decontamination

Log-5 Kill.
Every Visible Surface.
Every Time.



EFFICACY with validated technology to achieve log-5 reduction every time



SAFETY with auto-deactivation sensors and reporting following every process



EFFICIENCY with user-friendly interface and fast process times at the touch of a button

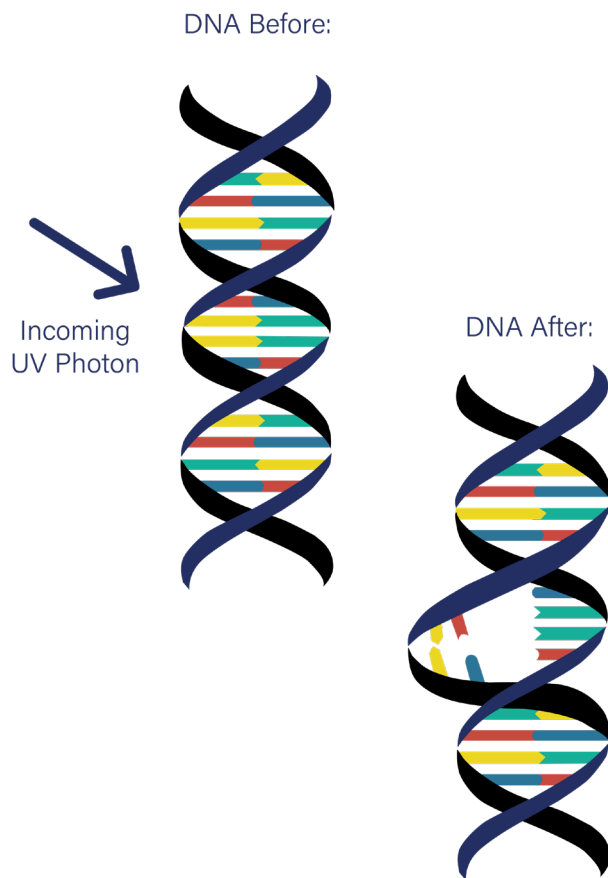
Challenges of Infection Prevention and Control

Infection Prevention and Control (IPC) is a critical concern in healthcare environments, where the risk of Healthcare-Associated Infections (HAIs) is ever-present. These infections can lead to significant challenges, including prolonged patient stays, increased medical costs and, most importantly, severe impacts on patient health.

The financial burden of HAIs on the NHS is immense, running into billions of pounds annually. These costs stem from extended hospital stays, additional treatments, and the resources needed to manage and contain outbreaks.

UV-C light has been used as a form of decontamination for over 100 years due to its effectiveness against a wide range of microorganisms, including:

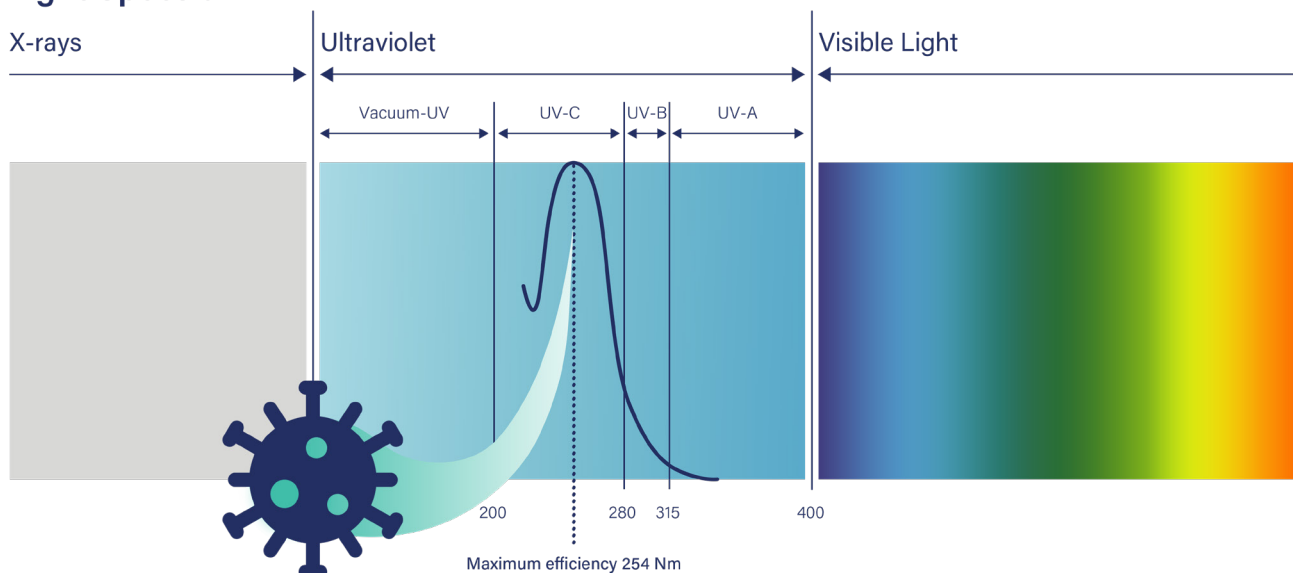
- Viruses such as *SARS-CoV-2*, *Influenza*, and *Norovirus*
- Bacteria including *MRSA*, *C. difficile*, and *E. coli*
- Fungi such as *Aspergillus* and *Candida*



How does UV-C light work?

UV-C is a short wavelength light, measured in nanometres (nm), that disrupts the DNA of microorganisms, rendering them inactive and incapable of multiplying, causing disease. This mechanism is effective against a broad spectrum of pathogens, making it a versatile tool in IPC.

Light Spectrum



Ultra-V[®]

Log-5 Kill

What is 'log-kill' and why is it important?

- Decontamination processes are usually measured in Log Reduction of Colony Forming Units (CFUs).
- Log Reduction (or Log Kill) is important because microorganisms can increase rapidly to millions or more in a short time, resulting in a high risk for infections.

Log Reduction	No. Of CFUs Remaining	Percentage Reduction
log-0	1,000,000	0%
log-1	100,000	90%
log-2	10,000	99%
log-3	1,000	99.9%
log-4	100	99.99%
log-5	10	99.999%
log-6	1	99.9999%



Efficacy Data

Ultra-V has consistently demonstrated real world efficacy through numerous trials and studies. Recently, Ultra-V has also been validated to the new BS:8628:2022 standard for testing the efficacy of UV-C devices. These independent evaluations confirm Ultra-V's ability to consistently achieve a log-5 reduction* against fungi, bacteria and viruses, providing reliable, repeatable decontamination.

We hold efficacy data for multiple organisms, including the following:

- *C. difficile*
- *S. aureus*
- *E. hirae*
- *Klebsiella pneumoniae*
- *E. coli*
- *C. albicans*
- *MRSA*
- *A. baumannii*

*Higher log reductions can be achieved for specific organisms where required.

Every Visible Surface

UV light is an effective decontamination method and has proven broad spectrum efficacy. However, there are two factors which affect practical efficacy in real world environments. Firstly, shadowed areas are not treated, and secondly, the dose decreases as distance increases.

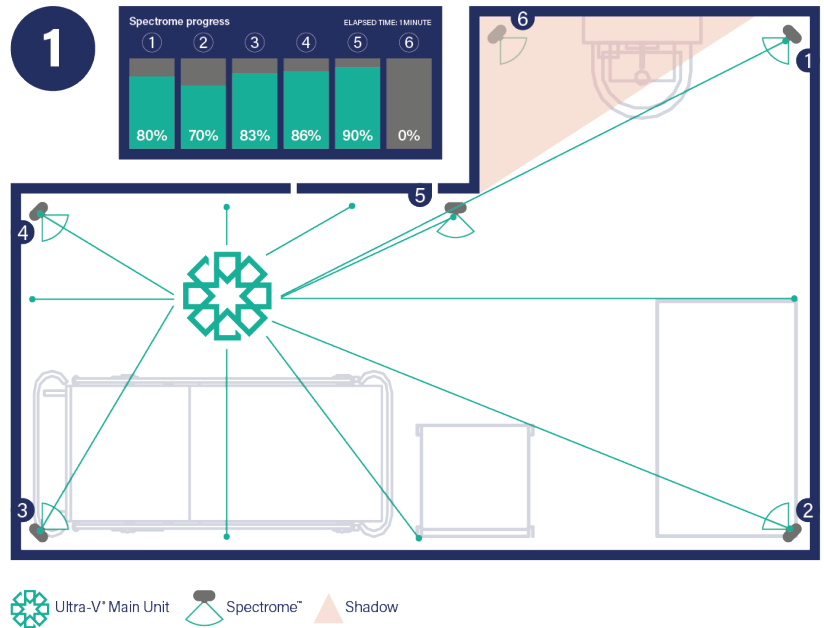
To address these problems, Spectromes™ are used to measure the actual dose of UV light received across the entire area. This innovative technology ensures that the correct germicidal dose of UV-C light is delivered to visible areas of the treatment space.

How do Spectromes™ work?

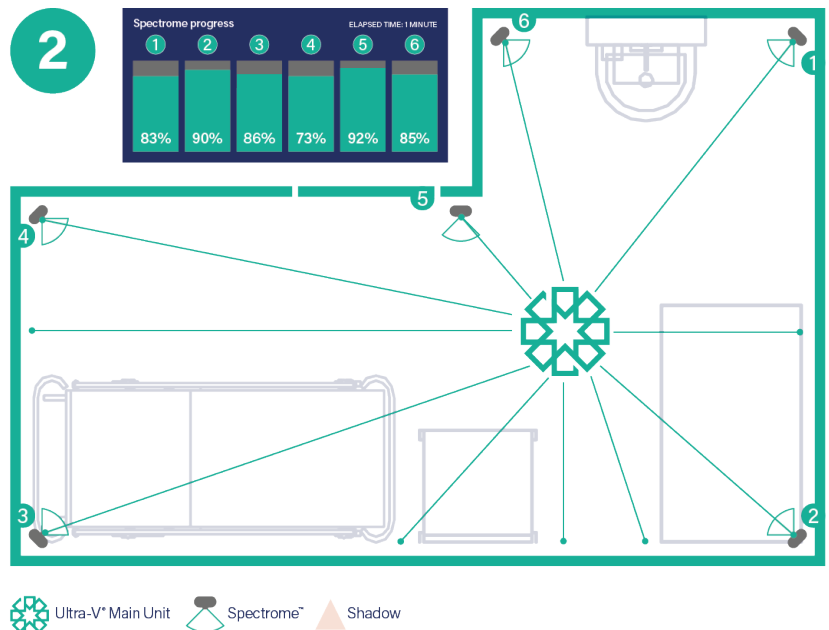
During the decontamination process, Spectromes™ monitor the amount of UV-C light received to each area of the room and report this data in real-time to the process monitor outside the treatment space.

If any Spectromes™ indicate insufficient UV-C exposure, the operator can pause the process, enter the space, and reposition the Ultra-V® to ensure complete coverage. This also avoids overdosing, ensuring the lifespan of materials in the room.

This real-time validation is unique to Ultra-V® and confirms that a log-5 kill is achieved.



Position 1: Spectrome™ 6 is not receiving UV-C light. Pause the process and when prompted, reposition the system.



Position 2: All 6 Spectromes™ are reporting they are receiving UV-C light, this will ensure that all surfaces receive the correct dosage.

Every Time

Ultra-V[®]'s technology ensures that a decontamination process is only complete when the entire treatment space has received the required UV-C dosage. Designed with the end user in mind, Ultra-V[®] features a user-friendly interface and four rotating castors for easy manoeuvrability. Operated at the touch of a button, there is **no need for complex room mapping**, reducing the potential for human error.

After each decontamination cycle, Ultra-V[®] generates a detailed process report which is automatically emailed to nominated personnel, **providing validation** and a full **audit trail**, giving you assurance the treatment space has been fully decontaminated. With an average process time of just 30 minutes, **spaces can be reopened faster**, improving patient flow, while ensuring a safe environment.

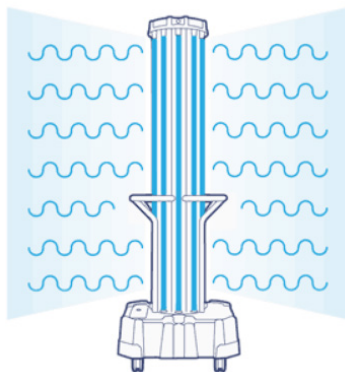
Ultra-V[®] guarantees reliable, repeatable and validated decontamination every time.

1



Use your Operator card to begin the process - using one-touch technology.

2



Ultra-V[®] emits UV-C light and Spectromes™ monitor the dose received.

3

Process Complete






Once all areas have received an efficacious dose, a validation report is generated signifying the process has successfully completed.

Ultra-V[®] and Other UV-C Decontamination Products

Choosing the right UV-C decontamination system is crucial for ensuring effective infection control while improving patient flow. Ultra-V delivers **efficacy, safety and efficiency** by achieving **log-5 kill on every visible surface, every time.**

Feature	Ultra-V	Other UV-C products
Log-5 Kill validation	✓ Spectromes ensure log-5 kill is achieved on every visible surface.	✗ Limited validation provided.
Monitors exposure level in real-time	✓ 10 UV-C lamps ensures efficacious kill without overdosing.	✗ No way of knowing if the correct dosage has been generated, potentially under or overdosing the room.
Combats shadowing	✓ Spectromes placed around the room monitor UV-C light received, ensuring visibility of any areas in shadow.	✓ Some systems have methods of overcoming shadowing, but the results are ambiguous as there is no validation.
Automated process report emailed	✓ Providing detailed information and a full audit trail.	✗ Lack of information and traceability.
Room parameters required (duration, room size)	✗ Ultra-V uses live monitoring technology to accurately determine the amount of UV-C required for an effective treatment.	✓ Room parameters are not an effective way of ensuring all surfaces receive adequate treatment.
Advanced Safety Features	✓ Including auto-deactivation sensors located at the top of Ultra-V to detect movement.	✗ Sensor location can mean that sensors are blocked by objects in the room.
Process monitored and controlled from outside the room	✓ Provides full control and visibility of process.	✗ No visibility on process status.
Superior Service Level Agreements	✓ Fast, responsive support and pro-active servicing.	✗ Reduced response times, lack of customer support.

Benefits To You

-  **EFFICACY** with validated technology to achieve log-5 reduction every time.
-  **SAFETY** with auto-deactivation sensors and reporting following every process.
-  **EFFICIENCY** with user-friendly interface and fast process times at the touch of a button.

Case Study: Microbiological evaluation of UV disinfection effectiveness in a specialist cystic fibrosis clinic

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INTRODUCTION

Cystic Fibrosis (CF) is an autosomal recessive disorder that mostly affects lungs. Patients with CF are more prone to infections, and over 50% of CF patients that attend Royal Papworth Hospital are infected with multi-drug resistant bacteria leading to longer hospital stays and complications.

Therefore, appropriate cleaning and disinfection methods need to be implemented within the hospital to prevent cross infection of these bacteria.

The aim of the study was to compare the effectiveness of Ultra-V® UV-C versus current disinfection method chlorine – containing solution in CF clinic at Royal Papworth Hospital.

METHODS

- The study was carried out in 11 rooms in the Adult Cystic Fibrosis Centre at Royal Papworth Hospital after patients known to be infected with P. aeruginosa , MRSA , E. coli ESBL and M.abscessus had left their clinic rooms following an appointment
- UV-C Ultra-V® Inivos’s system was used for disinfection process
- Surfaces including the desk, patient chair, sink upper surface, door handle and the spirometer were sampled with Tryptone Soya agar Thermo Scientific contact plates by touching surfaces within the template of 0.25m²
- Patient rooms were tested with contact agar plates 3 times: immediately after the patient left the room, 2 minutes after standard disinfection by a chlorine solution and immediately after UV disinfection carried out after a chlorine solution disinfection

Figure 1: TVC on the sink in room 6



RESULTS

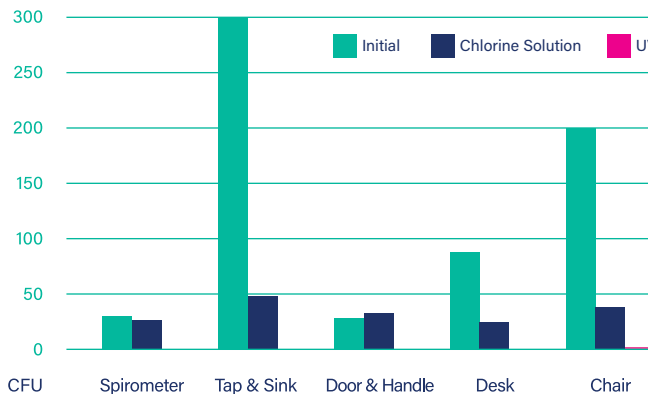
- Surface disinfection with a chlorine solution showed some reduction in total viable count (TVC)

- On some surfaces, disinfection with a chlorine solution had no effect or even led to increased numbers of TVC
- Usage of Ultra-V® UV-C biodecontamination system had significantly stronger effect on microorganisms in comparison to manual cleaning disinfection
- In majority cases, usage of Ultra-V® UV-C resulted in complete elimination of microorganisms

Table 1: TVC trend after patients 1 and 2 clinics following a chlorine solution and subsequent UV disinfection

Surfaces	Patient 1			Patient 2		
	Initial	Chlorine Solution	UV	Initial	Chlorine Solution	UV
Spirometer	22	27	3	102	+++	0
Tap & Sink	+++	132	3	+++	++	0
Door & Handle	+++	37	0	19	41	1
Desk	102	8	4	+++	11	0

Figure 2: The median of TVC in samples.



CONCLUSIONS

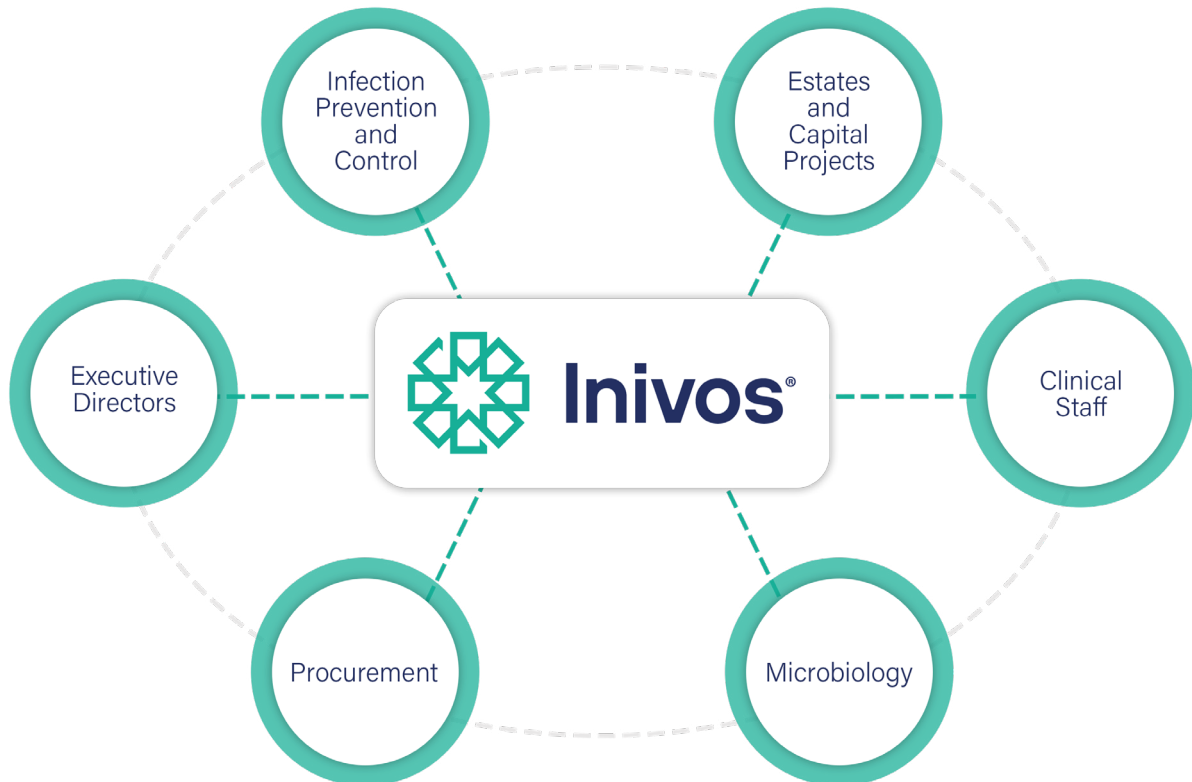
- The study demonstrated that Ultra-V® UV-C disinfection is highly effective in eliminating bacteria from surfaces in the healthcare environment that is likely to be contaminated with multi-resistant organisms and especially in CF clinics
- Usage of a chlorine solution can in some cases lead to increased pathogen contamination
- Inivos Ultra-V® UV-C system monitors cumulative exposure to UV-C in real-time via Spectrome™ monitoring technology and, therefore, gives assurance of an effective decontamination process every time.

Your Partner in Infection Control

Trusted partners with over 50% of NHS Organisations across the UK

Inivos are proud to offer you a comprehensive service from fully understanding your clinical challenges to providing tailored decontamination solutions that work within your budget and resources.

Our dedicated teams have the knowledge and experience to help you find the right decontamination solution and can connect you with other NHS Organisations to share best practice and experience with particular infection challenges.



"The overall experience is one of professionalism and dedication. I would fully recommend Inivos as a partner for both their superior products and outstanding service."

*The Royal Wolverhampton Hospitals
NHS Trust*



Inivos Rapid Response Decontamination Service has been developed alongside hospitals to make sure patient turnover is maintained and beds are unblocked as quickly as possible. When you call us, we guarantee we will be with you within

8 hours, 24 hours a day, 7 days a week.

For more information on how Ultra-V® can help reduce healthcare acquired infections and improve workflows, contact our **Customer Service Team** on:

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