



**Intellego**  
Healthcare



# Shining a light on progress

Ensuring Validation and  
Regulation in UV Technology

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Intellego  
Technologies

[www.intellego-technologies.com](http://www.intellego-technologies.com)



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# Executive Summary

**The adoption of Ultraviolet (UV) technology in healthcare settings offers a promising solution to combat infectious pathogens. UV technology is effective, environmentally friendly, and can significantly reduce healthcare-associated infections (HAIs). However, a critical challenge in this landscape is the lack of standardized validation procedures for UV technology applications. This gap leads to inconsistencies and uncertainties about the technology's effectiveness, putting healthcare facilities at risk. To bridge this validation gap and ensure reliable disinfection practices, a comprehensive validation process is essential.**

Intellego dosimeters play a vital role in UV technology validation. They provide real-time data on UV intensity and exposure, enabling precise UV disinfection. By leveraging dosimeter data, healthcare facilities can optimize their UV technology protocols, ensuring maximum efficiency and patient safety. Dosimeters have key features, including real-time monitoring, personalized data, accuracy, ease of use, data management and analysis, compliance, and training, making them invaluable tools in radiation safety and disinfection.

Recommendations include using Intellego dosimeters in every high-touch area, and every disinfection cycle, avoiding dosimeter card reuse, not tampering with dosimeter cards or dots, and validating new UV equipment for optimal disinfection cycles. It's crucial to take dosimeter readings promptly, within ten minutes of the disinfection cycle concluding. Integrating dosimeter data into UV technology protocols enhances disinfection practices and ensures regulatory compliance.

By addressing the validation gap and implementing Intellego dosimeters, healthcare facilities can consistently deliver effective UV disinfection, reduce HAIs, maintain patient safety, and enhance their reputation. These practices also contribute to worker well-being and financial sustainability. In an era where the reliability of disinfection measures is paramount, Intellego dosimeters serve as a critical component in safeguarding safety and hygiene.



# Introduction

In the realm of healthcare, the adoption of Ultraviolet (UV) technology has risen as a promising safeguard against infectious pathogens. It is undeniable that UV technology is an effective and environmentally friendly method for neutralizing bacteria, viruses, and spores in the workplace. Amid the global push for enhanced hygiene standards and the mitigation of healthcare-associated infections, UV technology has garnered significant attention. However, a critical challenge overlooks this landscape - the absence of standardized validation procedures for UV technology applications across healthcare settings.

Despite the transformative potential of UV technology, there exists a glaring gap in the validation process. This validation gap stems from the lack of standardized protocols, metrics, and tools to effectively measure the performance and efficacy of UV technology devices. In essence, the UV technology landscape operates without universally accepted validation procedures, leaving healthcare facilities vulnerable to inconsistent disinfection practices and uncertain outcomes.

## The Consequences

**The implications of this validation gap are far-reaching. Healthcare facilities invest a significant amount in UV technology solutions to bolster their infection control measures. Yet, without a rigorous means of measuring the effectiveness of these UV devices, they operate in a perpetual state of uncertainty. There is no assurance that these technologies are delivering the intended outcomes of pathogen eradication, thereby potentially compromising patient safety, public health, and high-profit turnover.**



## Quotes

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Like any other industrial process, UV technologies and their applications cannot escape validation. Validation is essential for quality assurance, compliance, risk reduction, traceability, and cost savings. Quality standards need to be maintained and risks must be averted. It is in this context that accurate measurement of UV radiation is a necessity if crucial parts of a process are related to it. Be it disinfection in a healthcare-related setting or curing in industry, we have two scenarios that should be avoided outside the proper functioning of a process. One is overexposure, the other one is underexposure. Overexposure means too much radiation is applied to achieve the stated goal. This is quite a waste of energy, which nobody would approve of, but generally speaking pretty harmless, as most materials cannot be "over cured", and when it comes to disinfection the required pathogen elimination will have been reached even at a lower dose.

However, far more detrimental is the case of underexposure, where the radiation that is needed for the process to be completed is not achieved. For disinfection, this means that pathogens will not be eliminated to a designated safe level, risking illness by multiplication of viruses and bacteria, especially in the assumption that they are gone. Hospital-acquired infections (HAIs) can be reduced by properly managing the disinfection performance of UVC lamps in the relevant settings. In the context of polymerization of coatings, adhesives, or paints, underexposure could lead to product failure further down the line: detaching components, fading inks, breaking or tearing coatings. The consequences are clear: warranty issues, massive product recalls, expensive repairs, and damaged consumer trust. Once the implications are clear, the need for accurate and reliable measurement of UV radiation is a no-brainer.

”



**Laila Moreno Ostertag**  
R&D Manager

## Quotes

“

"Validating UV technology is not just a part of our business; it's our crusade.

At Intellego Technologies, we're dedicated to ensuring that the power of UV is harnessed effectively, safely, and consistently across the globe.

We're not just creating solutions; we're setting the standard for UV verification. By championing education, innovation, and stringent validation, we're on a mission to certify that every UV application delivers on its promise.

Our commitment is to turn the promise of UV technology into proven performance, making it a trusted ally in every industry it touches.

”



**Elle Lacey**

Chief Operating Officer  
Chief Marketing Officer



## The Need for Comprehensive Validation

To bridge this validation gap and ensure the consistent, reliable, and effective application of UV technology in healthcare settings, a comprehensive validation process is imperative. This process must encompass standardized methodologies and reliable metrics. It is in this context that the Intellego dosimeter emerges as a vital component in the validation toolkit.

In this whitepaper, we emphasize the critical role of Intellego dosimeters in UV technology validation. We explore the dosimeter's features, benefits, and guidelines for integration within existing UV technology protocols. Through actionable recommendations, we shed light on how Intellego dosimeters can help healthcare facilities enhance their infection control measures and ensure the optimal performance of UV technology.

The journey towards standardized UV technology validation protocols begins here, with a recognition of the existing validation gap and a commitment to implementing solutions that guarantee the highest levels of disinfection and patient safety.

## Problem Statement

**The utilization of Ultraviolet technology has emerged as a potent tool in infection control, promising to bolster hygiene standards and reduce healthcare-associated infections. However, a pressing concern highlights the absence of a standardized validation process for UV technology applications across healthcare settings. Without a rigorous means of measuring UV effectiveness, healthcare facilities are left vulnerable to sub-par disinfection practices and uncertain outcomes. To address this critical gap and elevate all UV technology's reliability, we need to explore the requirements for comprehensive validation, highlighting the crucial role of Intellego dosimeters and providing actionable recommendations for their integration into UV technology protocols.**

# Where Does **UV Technology** Slot Into The Healthcare Sector Now?

UV technology has gained significant attention in the healthcare sector due to its ability to enhance infection control and patient safety. UV technology utilizes ultraviolet light, particularly UVC, to target and eliminate a broad range of harmful microorganisms, including antibiotic-resistant bacteria, viruses, and spores. The effectiveness of UVC light lies in its ability to disrupt the DNA structure of pathogens, rendering them incapable of reproducing and causing harm [1].

The applications of UV technology in healthcare settings are diverse and extensive. Hospitals, clinics, long-term care facilities, laboratories, and research centres are increasingly adopting UV technology for infection control purposes. It proves to be a versatile tool for disinfecting various surfaces, indoor air, and equipment [1].

Studies have shown that UV disinfection systems can significantly reduce bacterial contamination, making this technology an invaluable asset in maintaining hygiene and safety standards in healthcare settings [2]. Additionally, UV light is effective in cutting the transmission of superbugs like MRSA and Clostridium Difficile (C-Diff) which can linger in patient rooms and cause new infections [3].

While the use of UV technology in healthcare has shown promising results, more research is needed to establish standardized guidelines for evaluating UVGI technologies and to determine the magnitude of its effects. Future trends in UV technology include increased automation and the development of safer UVGI technologies [1]. As the healthcare industry continues to prioritize infection control, UV technology is expected to play a crucial role in reducing the spread of infectious diseases and ensuring patient safety.





## Recent Studies:

In a study conducted to investigate the effectiveness of ultraviolet C (UVC) decontamination in a burn ICU wardroom, a commercial radiometer was used to measure the UVC dose received in different areas [7]. Disposable indicators and an electronic radiometer were positioned in ten different positions, and the room was decontaminated using the Tru-D™-UVC device. The findings revealed that the UVC radiation received in different areas varied significantly, with surfaces in the direct line of sight of the UVC device receiving higher UVC doses than those in the shadow of equipment. The study also validated the effectiveness of a disposable UVC-dose indicator, as its colour changes corresponded with the commercially measured radiometer readings.

The study concluded that the amount of UVC radiation received by surfaces is influenced by their locations in the room, particularly the distance from the UVC emitter, and the presence of objects that may shadow the light. It was suggested that quality controls should be implemented to ensure that sufficient UVC radiation reaches all surfaces, emphasizing the importance of addressing these factors to optimize the efficacy of UVC decontamination in healthcare settings.

The study highlights the variability in UVC radiation received by different surfaces in a hospital room and underscores the need for thorough quality controls to ensure comprehensive UVC decontamination. These findings provide valuable insights for healthcare facilities seeking to implement effective UVC decontamination protocols to mitigate the risk of infections and enhance patient safety.



# The Current Validation Gap

There is a lack of standardization among UV equipment within hospital facilities, which presents challenges when evaluating and comparing different UVC wavelengths, as well as determining the accuracy of the disinfection cycle. Factors such as shadowing, surface topography, lack of training, and the absence of guidelines can all influence the performance and effectiveness of UV disinfection. Additionally, the duration required for a complete disinfection cycle varies. The exposure time needed to achieve effective disinfection may depend on factors such as room size, distance from the UV device, and the specific UV equipment used [4]. Inadequate implementation or improper use of UV technology can lead to ineffective disinfection, putting patients at risk of healthcare-associated infections (HAIs). HAIs result in significant healthcare costs and mortality rates, making it essential to hold healthcare facilities accountable for maintaining proper disinfection practices. The average cost of an HAI in the USA is \$32,000. An average of 71,000 patients die every in the USA from HAIs [6].

To address these challenges, we recommend standardized guidelines and regulatory measures for validating UV technology in healthcare settings. This will ensure the consistent and effective use of UV disinfection, improve patient safety, and reduce the incidence of HAIs. Healthcare organizations should also be highly encouraged to invest in UV technology, considering its long-term benefits and cost-effectiveness in preventing HAIs.

The lack of a standardized and comprehensive validation process for UV technology applications poses a significant challenge. This gap leads to inconsistencies and uncertainties regarding the effectiveness of UV technology, putting healthcare providers and institutions at risk [5]. To address this issue, there is a pressing need for a universally accepted validation framework that instills confidence in healthcare professionals. The absence of standardized protocols and guidelines for UV technology validation is a major contributing factor to the validation gap. The inconsistency in practices across healthcare facilities makes it difficult to compare and evaluate the effectiveness of different UV disinfection systems, hindering interoperability and widespread adoption. Standardized protocols are crucial to assess the efficacy of UV disinfection and ensure it aligns with industry-wide standards.



# Risks & Challenges of the Validation Gap in UV Technology

**While Ultraviolet (UV) technology is undoubtedly a proven technology in infection control, the pervasive validation gap presents a series of risks and challenges. Addressing these challenges is critical to fully harnessing the potential of UV technology within healthcare settings.**

1

**Ineffectiveness due to Variability:** The inconsistent validation of UV technology systems can lead to substantial variability in their effectiveness. Without standardized validation, healthcare facilities might inadvertently employ UV systems that fall short of achieving the desired level of disinfection. This variability jeopardizes patient safety and infection control measures.

2

**Healthcare-Associated Infections (HAIs):** The lack of standardized validation also directly impacts the incidence of Healthcare-Associated Infections (HAIs). HAIs pose a significant risk in healthcare facilities, leading to increased patient morbidity, mortality, and healthcare costs [6]. Without consistent validation practices, HAIs may persist, undermining the very goals that UV technology aims to achieve.

3

**Healthcare Facility Reputation:** Patients and their families hold healthcare facilities to high standards when it comes to safety and hygiene. Inconsistent UV technology validation can affect a facility's reputation. Publicly reported HAIs can lead to a loss of trust, thereby impacting a facility's financial health and its ability to attract patients and retain staff.

4

**Financial Implications:** Inconsistencies in validation can lead to financial implications. Healthcare facilities investing in UV technology may find it challenging to determine the return on investment due to uncertainties surrounding the effectiveness of their chosen UV systems. The financial burden of acquiring, maintaining, and operating UV technology without the assurance of validation further complicates matters.

5

**Front-Line Worker Well-Being and Environmental Confidence:** In addition to the challenges posed by the validation gap in UV technology, it is essential to emphasize the importance of creating a cleaner and safer work environment for front-line healthcare workers. Ensuring the retention, wellness, and confidence of these workers is paramount for promoting staff morale and maintaining a high level of patient care. Addressing this aspect of UV technology implementation can significantly contribute to the overall success of infection control measures within healthcare settings.

**To address these challenges and mitigate the risks posed by the validation gap in UV technology, the healthcare industry must prioritize the establishment of comprehensive validation standards and procedures. These standards should encompass all aspects of UV technology, including system efficacy, safety, and compliance with regulatory requirements. Ultimately, a standardized validation framework will enhance patient safety, reduce HAIs, and ensure consistent and effective disinfection practices across healthcare facilities.**



## The Intellego Dosimeter Solution

Intellego's dosimeters are built with a strong emphasis on data-driven UV solutions. These dosimeters play a crucial role in maintaining desired UV exposure levels, and effective and efficient disinfection in various settings. Dosimeters are particularly valuable in healthcare facilities, where the fight against healthcare-associated infections is ongoing, and in the healthcare industry, where patient welfare and safety are top priorities. By providing real-time data on UV intensity and exposure duration, Intellego's dosimeters enable businesses to optimize their UV disinfection protocols. This not only enhances the effectiveness of disinfection practices but also ensures a consistently safe environment for patrons and employees.

In an era where the reliability of disinfection measures is a major concern, Intellego dosimeters serve as reliable guardians of safety and hygiene. They offer unmatched insights into the effectiveness of UV technology in diverse industries. By adopting a data-driven approach and utilizing our dosimeters, businesses can fine-tune their UV disinfection strategies, consistently meeting and surpassing industry standards. This demonstrates their unwavering dedication to the health and well-being of their stakeholders, whether it is the patients in healthcare facilities or guests in hospitality establishments.

## Further Studies:

In a study conducted by RISE Research Institutes of Sweden evaluated the color shift for UV-sensitive material using two different irradiance levels at 254 nm. Yellow samples of UV-sensitive material (Intellego's patented dosimeter ink) were exposed to UV radiation at 90 and 760  $\mu\text{W}/\text{cm}^2$  respectively using a UVP Transilluminator equipped with fluorescent UVC-tubes. The results showed that the change in color after a certain UV exposure (dose) was very similar for both irradiance levels, indicating consistency in the color shift. The study's findings have implications for virus inactivation and environmental disinfection, suggesting that UVC exposure at different irradiance levels produces similar color changes in UV-sensitive material, cementing the accuracy of an Intellego dosimeter.

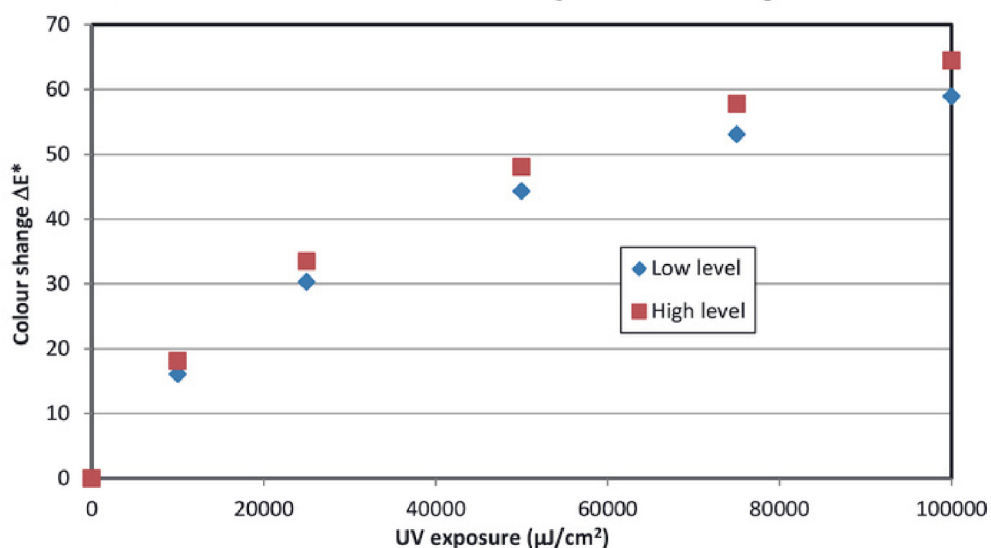
**Table 1.** Exposure with low irradiance (90  $\mu\text{W}/\text{cm}^2$ ).

Exposure $\mu\text{J}/\text{cm}^2$	CIE 1976 L*a*b* colour coordinates			Colour difference $\Delta E^*$
	L*	a*	b*	
0	82,2	-4,0	52,4	0,0
10000	77,8	6,3	40,9	16,0
25000	73,2	14,2	30,0	30,2
50000	69,4	21,3	18,4	44,3
75000	67,8	25,4	10,7	53,0
100000	66,4	27,8	5,4	58,9

**Table 2.** Exposure with high irradiance (760  $\mu\text{W}/\text{cm}^2$ ).

Exposure $\mu\text{J}/\text{cm}^2$	CIE 1976 L*a*b* colour coordinates			Colour difference $\Delta E^*$
	L*	a*	b*	
0	83,0	-4,8	52,5	0,0
10000	77,9	7,1	39,8	18,1
25000	73,5	16,0	28,0	33,5
50000	69,6	23,5	16,0	48,1
75000	66,3	28,0	8,0	57,7
100000	65,1	31,0	2,0	64,4

The results for  $\Delta E^*$  for the two irradiation levels are presented in the diagram below.



Comment: No absolute uncertainty is given for L\*, a\* and b\* as the measurement geometry is not well defined (detection about 15° normal to the sample surface, illumination close to diffuse).

# Key Features & Benefits

1

**Measurement and monitoring:** UVC dosimeters accurately measure and monitor UVC irradiation levels. They provide data on the intensity and duration of UVC exposure, allowing healthcare workers to ensure that surfaces, equipment, and rooms receive adequate UV disinfection.

2

**Safety and compliance:** UVC dosimeters help ensure the safety of both patients and healthcare workers by validating that UVC equipment is operating within safe and effective parameters. They allow for compliance with regulatory guidelines and protocols for UVC disinfection.

3

**Validation of disinfection efficacy:** UVC dosimeters can be used to validate the effectiveness of UVC disinfection processes. By measuring the UVC dose received by surfaces or equipment, healthcare professionals can ensure that proper disinfection levels have been achieved.

4

**Real-time feedback:** Some UVC dosimeters provide real-time feedback, allowing users to monitor UVC disinfection levels as they perform disinfection procedures. This feature enables adjustments to be made on the spot to ensure adequate coverage and dosing.

5

**Data collection and analysis:** UVC dosimeters come with record-keeping options that allow for data collection and analysis. This data can be used to track disinfection trends, identify areas for improvement, and provide documentation for regulatory purposes.

6

**Hands-on practice:** UVC dosimeters can be used in training sessions to provide hands-on practice for healthcare professionals. By incorporating dosimeters into disinfection cycles, trainees can learn how to properly position UVC devices, measure exposure levels, and adjust disinfection techniques to achieve effective outcomes. This practical experience enhances their understanding and proficiency. While creating a sense of pride in the results that can be seen.

7

**Quality assurance and validation:** UVC dosimeters enable healthcare professionals to validate the effectiveness of UVC disinfection processes. By placing dosimeters in different areas during a disinfection cycle, trainees can observe and measure the UVC dose received. This validation process reinforces the importance of thorough disinfection and helps identify potential areas for improvement in cleaning practices.

8

**Compliance and adherence to protocols:** Training with UVC dosimeters can educate healthcare professionals about compliance with disinfection protocols. By understanding the dosimeter results and comparing them to set guidelines, trainees can recognize the importance of achieving specific UVC dose levels for proper disinfection, enhancing adherence to protocols.

# Key Features & Benefits

9

**Continuing education:** UVC dosimeters can be used for ongoing education and competency assessments. Regular training sessions using dosimeters can remind healthcare professionals of best practices and reinforce the importance of infection control. Assessments based on dosimeter results can evaluate knowledge and proficiency, identifying areas that require further education or improvement.

10

**Portable and compact:** Dosimeters are designed to be portable and compact, allowing users to carry them easily. This mobility enables users to place the dosimeter in various locations within the disinfection area to collect accurate measurements.

11

**Accurate measurement:** Dosimeters are calibrated to provide accurate measurements of UVC exposure. Intellego's photochromic ink captures the intensity and duration of UVC irradiation, ensuring reliable data for validation.

12

**Data management:** Many UV devices come with software or connectivity options that allow for easy data management. Users can upload the dosimeter dosage data to a computer or mobile device to transfer measurement data, generate reports, or analyze trends over time. This data can be essential in validating UVC disinfection practices.

**Overall, Intellego dosimeters offer benefits such as real-time monitoring, personalized data, accuracy, ease of use, data management and analysis, compliance, and training. These features contribute to improved radiation safety practices, reduced risks of overexposure, and better worker protection.**

# Recommendations and Best Practices



Task



Recommendation



Outcome

**Use Intellego dosimeters in every single disinfection cycle within the hospital or clinic.**

In each disinfection cycle, it is essential to utilize Intellego dosimeters to monitor and verify the effectiveness of the process. Place dosimeters in high-touch areas within the room, such as door handles, grab bars, IV poles, bedside tables, and food trays. This strategic placement ensures that the most critical surfaces are thoroughly evaluated for disinfection.

By employing dosimeters in this manner, environmental services can precisely calibrate the needed run time of the UV equipment and validate that the area has been disinfected to the highest standard. The dosimeters offer accurate readings, gauging the UV exposure received by each surface. If the dosimeters register an inadequate level of UV exposure, it serves as a signal to environmental services that a particular area may need further attention to achieve the desired disinfection efficacy. By employing dosimeters in this manner, environmental services can precisely calibrate the needed run time of the UV equipment, resulting in shorter disinfection times, while simultaneously validating that the area has been disinfected to the highest standard. The dosimeters offer accurate readings, gauging the UV exposure received by each surface, allowing for efficient calculations of exposure requirements. If the dosimeters register an inadequate level of UV exposure, it serves as a signal to environmental services that a particular area may need further attention to achieve the desired disinfection efficacy, ultimately optimizing both time and effectiveness in the disinfection process.

**Don't reuse dosimeter cards; they are single-use items.**

Dosimeter cards are designed for single use only. After a disinfection cycle has been completed, retrieve the dosimeters from designated high-touch surfaces and visually validate the dosimeter's UV exposure, record results and dispose of them. Attempting to reuse dosimeter cards is not advisable because the reaction that occurs when exposed to UV light cannot be replicated.

Adhering to this guideline eliminates the possibility of false readings being recorded and records of the exposure levels being recorded. Dosimeter cards are specifically engineered to react to UV exposure accurately just once. Reusing them could lead to inaccurate data, undermining the integrity of the disinfection monitoring process. By recycling dosimeter cards after each use, healthcare facilities can maintain the highest standard of data accuracy.





## Task



## Recommendation



## Outcome

**Dosimeter cards should not be tampered with or defaced.**

It is essential to emphasize that dosimeter cards should never be tampered with in any way. Cutting, peeling, or otherwise altering dosimeter cards can result in false readings and inaccurate disinfection data.

Ensuring that dosimeter cards remain untouched guarantees the accuracy of the readings. Any tampering with the dosimeter card, even if unintentional, may compromise the integrity of the reactive ink. Consistently handling dosimeter cards with care and refraining from any form of alteration ensures the reliability of the data collected during the disinfection process.

**Validate new UV equipment for optimal disinfection cycles and run times.**

To ensure the effectiveness of new UV equipment, we recommend utilizing Intellego dosimeters to validate UV exposure accuracy and determine the appropriate run times and exposure durations required to achieve the desired level of disinfection. By monitoring real-time UV intensity and exposure data, you can fine-tune the equipment settings for maximum efficiency and efficacy.

Implementing Intellego dosimeters for UV equipment validation results in precise and data-driven disinfection processes. This approach guarantees that the new UV equipment consistently delivers the required UV dose, reducing the risk of infections, and enhancing patient safety or maintaining a safe environment in other settings. Moreover, it optimizes resource utilization, ensuring cost-effective disinfection while adhering to regulatory standards.

**Take dosimeter readings promptly, within ten minutes of the disinfection cycle concluding.**

Retrieving dosimeter data within 10 minutes after the cycle ends. This timeframe is chosen deliberately to eliminate the possibility of light contamination, which can potentially skew the results. By retrieving data within this timeframe, healthcare facilities can rely on the precision of the information captured.

By following this practice, the data collected accurately reflects the effectiveness of the disinfection cycle. This prompt data retrieval ensures that environmental services have access to precise, consistent uniform data that they can use for further analysis and decision-making. It safeguards against potential inaccuracies that may arise if data retrieval were delayed, providing healthcare facilities with the confidence that their disinfection processes are meticulously recorded and validated.



# Integration with UV Technology Protocols

**Integrating Intellego dosimeters into the policy and procedures of UV disinfection devices involves incorporating the dosimeter data and insights into the existing guidelines, protocols, and practices for UV disinfection. Here are some steps to achieve this integration:**

1

Review existing policies and procedures: Evaluate the current policies and procedures related to UV disinfection device usage and UV exposure management. Identify areas where dosimeter data can enhance or supplement the existing guidelines.

2

Determine dosimeter data requirements: Determine the specific dosimeter data elements that are relevant to UV disinfection practices. This may include cumulative UV dose, intensity of UV radiation, and any threshold limits for effective disinfection.

3

Update policies and procedures: Revise policies and procedures to include the integration of Intellego dosimeter data. Clearly state how dosimeter data will be utilized, who will have access to it, and how it will impact decision-making related to UV disinfection.

4

Establish data analysis and reporting protocols: Define the processes and methodologies for analyzing dosimeter data and generating reports. Determine the frequency and format of reporting UV dose data from the dosimeter.

5

Determine corrective actions and notification process: Incorporate dosimeter data into the protocols for identifying and addressing potential issues with UV dose delivery. Specify the actions to be taken by operators or supervisors when certain thresholds or limits are not achieved for effective disinfection.

6

Training and awareness: Provide comprehensive training to relevant personnel on the integration of dosimeter data. Educate employees on the usage and interpretation of dosimeter data and how it informs decision-making for UV disinfection processes.

7

Maintain compliance and auditing: Regularly assess and audit the implementation of dosimeter integration within UV disinfection device policies and procedures to ensure compliance with regulations and standards

**Integrating Intellego dosimeters into the policy and procedures of UV disinfection devices helps organizations ensure that the appropriate UV dose is delivered for effective disinfection, enhancing the safety and effectiveness of their disinfection practices.**

# Conclusion

In the realm of healthcare, Ultraviolet (UV) technology represents a beacon of hope, promising enhanced infection control and patient safety. It has the potential to redefine hygiene standards by effectively neutralizing harmful pathogens in healthcare settings. However, our journey through this whitepaper has exposed a critical challenge that overshadows the bright promises of UV technology: the absence of a standardized validation procedure.

The consequences of this validation gap are far-reaching. Healthcare facilities invest significantly in UV technology solutions, aiming to bolster infection control measures. But without rigorous validation processes, they operate in uncertainty, leaving patients, healthcare workers, and visitors at risk. We explored how a lack of standardized validation protocols can lead to variable and potentially ineffective disinfection, increased healthcare-associated infections (HAIs), reputational damage, financial strain, and concerns for the well-being of front-line workers.

The need for comprehensive validation is undeniable. A universally accepted validation framework is imperative to instill confidence in healthcare professionals and to guarantee consistent, reliable, and effective UV disinfection practices. It is within this context that the role of Intellego dosimeters becomes pivotal.

Intellego dosimeters are the guardians of data-driven UV solutions, allowing for the precise calibration of UV exposure levels, critical for efficient and effective disinfection in diverse settings. By offering real-time insights into UV intensity and exposure, these dosimeters provide the means for healthcare facilities to optimize UV disinfection protocols continually. These actions not only enhance the effectiveness of disinfection processes but also assure a consistent and safe environment for patrons and employees alike.

In a world where the reliability of disinfection measures is paramount, the importance of validating UV technology cannot be overstated. It directly influences patient safety, public health, financial sustainability, and the overall well-being of healthcare workers. By addressing the validation gap and integrating Intellego dosimeters, healthcare facilities can consistently deliver effective UV disinfection, reduce HAIs, and safeguard their reputation.

This breakdown underscores the urgency of embracing standardized UV technology validation as a fundamental aspect of maintaining hygiene standards, upholding patient safety, and ensuring the health and well-being of all those who depend on healthcare facilities for their well-being. The path toward standardization begins here, with a recognition of the validation gap and a commitment to implementing solutions that guarantee the highest levels of disinfection and patient safety. In doing so, we move toward a future where UV technology serves as an unwavering guardian of health and hygiene in healthcare settings.



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