



## **Application Note: #35**

### **Ultraviolet Light Disinfection at Hospitals**

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Germ and disease can be spread anywhere. Public places have a higher potential to become a transmission point for germs and disease due to their large transient population. One of the riskiest public places in terms of the spread of germs are Hospitals due to the high volume of sick and contagious patients with varying degrees of immune levels. In order to provide the best quality of care for patients, and reduce the risk of spreading germs, a clean and healthy patient environment is essential.

#### **Risk of Contamination**

Patients come in contact with many items and surfaces within a hospital. Guidelines for Disease Control and Prevention in the Physician's Office reveal that tools such as stethoscopes have been shown to be frequently contaminated with antibiotic resistant organisms such as MRSA and VRE<sup>1</sup>. Stethoscopes are used on most if not all patients, meaning that if not properly disinfected, disease can potentially spread rapidly. This is especially true since some patient's immune systems are already compromised when visiting the office. Additional studies have determined ballpoint pens, patient charts, tablet computers, computer keyboards and computer mice can also be contaminated with infectious agents. These items are rarely cleaned and can easily transfer infectious agents to patients and staff due to their frequent use and tendency to be shared within the office environment. In pediatric offices, there is also a concern regarding the toys kept in the waiting area, as contamination of toys by fecal coliforms, rotavirus and other pathogens has been well documented in hospitals, physician's offices, and day care centers<sup>2</sup>. Without proper and regular disinfection, there are plenty of opportunities for spread of illness within a doctor's office.

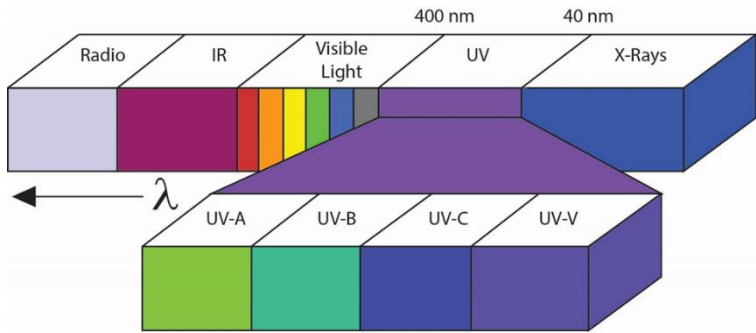
Studies determined that the most common Hospital Acquired Infections (HAI's) may survive and persist on surfaces for months and can become a continuous source of transmission if not properly treated. The best way to reduce nosocomial pathogens is through regular disinfection of surfaces and common items in the patient environment<sup>4</sup>.

With sick patients prone to coughing, sneezing, and vomiting, the aerosolization of germs and disease are another area of concern for transmission between patients and to staff. Not only

can infections be spread through the air, but airborne transmission can cause infections to land on surfaces besides the common touchpoints and travel greater distances.

### How does UV solve these problems?

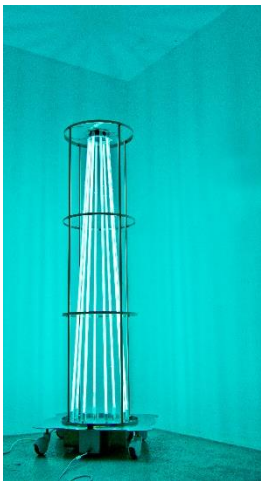
UV light has been proven effective at killing viruses, bacteria, molds, and spores. UV light can be effective on surfaces that are harder to wipe down, such as remotes, knobs, keyboards, etc. UV light provides chemical-free, liquid-free disinfection that does not require any mixing or storage of hazardous chemicals.



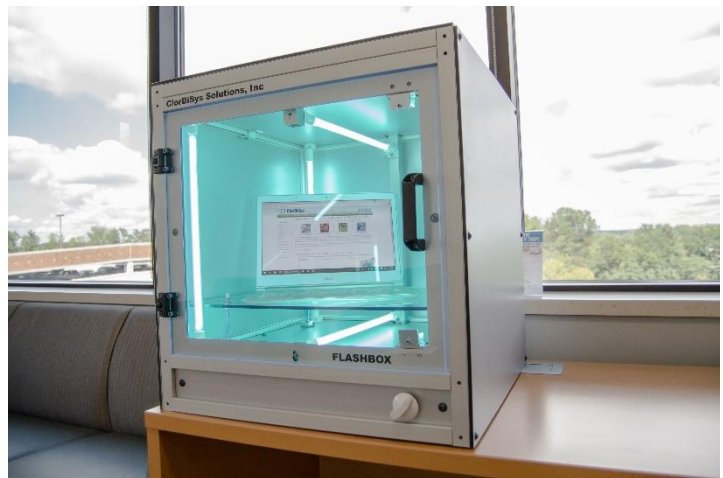
When UV light is used, the exposure can be observed through a window to safely and easily determine if critical surfaces are being adequately exposed to light. This is contrary to spray and wipe methods which are extremely difficult to determine if an area has been missed. Dummy bulbs (non UV-C

bulbs) may also be used to set up a cycle/exposure initially, with a person inside the room to determine the optimal placement for the UV light to reach the critical surfaces.

### Applications within a Healthcare Facility



A healthcare office has the responsibility to maintain and improve the health of its patients. Therefore, it is important to reduce the risk of exposure to additional illness. In the waiting and exam rooms, the Torch Aire allows for continuous disinfection of the room's air. The device is quiet, effective, and safe to operate continuously throughout the day, even with patients and staff in the room. The Torch-Aire simply pulls the room air through a UV treatment tunnel which disinfects it



and returns it back into the room. Room surfaces can be disinfected by a variety of UV disinfection systems, including the Torch and Torch+. These UV systems are able to provide a 99% reduction of many harmful organisms within 5 minutes. For areas needing special attention, the Torch-Flex and Torch Double-Flex are capable of applying UV disinfection within tight spaces and focused areas. If a permanent UV system is desired, the Flashbar can be installed in the room to provide an even simpler UV system for routine disinfection. Components, equipment, office accessories, and even toys, can be placed in a Flashbox, or for smaller items, a Flashbox-mini. These devices

allow items to be placed inside them and quickly be exposed to UV-C light for disinfection in as little as 1 minute.

Relying on cleaners coming in nightly is not enough to provide your patients the best protection from germs that they deserve. Ultraviolet light disinfection methods provide a low cost, simple approach to address areas often unable to be properly cleaned otherwise. Your patients and staff will all benefit from knowing that they are being protected while in your office.

1. Canada, Provincial Health Services Authority, BC Centre for Disease Control. (2004). Guidelines for Infection Prevention and Control in the Physician's Office.
2. Paediatr Child Health. 2008 May; 13(5): 408–419.
3. Shek, K. et al. Rate of contamination of hospital privacy curtains on a burns and plastic surgery ward: a cross-sectional study. Journal of Hospital Infection , Volume 96 , Issue 1 , 54 – 58.
4. Kramer et al. How Long Do Nosocomial Pathogens Persist on Inanimate Surfaces? A Systematic Review. BMC Infectious Diseases. 2006.